

The Effects of Supply Chain Management Drivers on the Successful Nurture of Bangladesh's E-Commerce Ventures: A Quantitative Analysis

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Abstract: *E-commerce is thriving with the evolution of the modern business model and will be continually uplifted in several decades. With a massive number of start-up ventures carrying out E-commerce, Supply chain management drivers have been largely influenced, and this trend also has a great impact on emerging ventures. Here, the study tends to highlight the impact of e-commerce on SCM drivers mainly processes related to raw material management, location strategies, distribution, data and use of information systems. This study uses a quantitative approach, a closed survey-based design, to investigate the impact of e-commerce on SCM drivers. The basic tools for analyzing causal variables are biserial and Pearson correlations, as well as linear regression, which is used to measure the degree of influence of the independent variables on the dependent variables. To interpret the results, ANOVA and descriptive statistics are used. In addition, the T-test and Kurtosis are used to test hypotheses. As the primary drivers of SCM, expected results are highlighted, including examples: material management, location, transportation, and data are correlated and positive. This survey is based on direct data collection using five Likert scale questionnaires, providing an expert perspective on the subject, demonstrating originality and providing valuable information to entrepreneurs of Bangladesh.*

Keywords: Supply chain management, SCM drivers, Material management, E-commerce, Data, Enterpriser

• Introduction

The demand for and supply of manufactured goods has resulted in fierce global competition (Francoise, 2008). Worldwide markets have compelled many manufacturing agencies to be extra aware of clients' changing wishes and requirements for cost-added services and products. Supply chain control is a technique of assembly demand and competing within the provision of fee-brought products to consumers. Supply chain control

involves integrating vision, culture, method, and method to arrange a gold standard glide of product, fee-for-money uncooked materials or components from reliable and revolutionary providers, and ultimately presenting customers with good-quality products they designed and synthetic at aggressive costs, in particular in growing international locations including Bangladesh. Procurement, product control, safe area, transportation, and facts are the five essential drivers used to decide the function and system (Anan, 2017). The five key factors above can be a boon to e-commerce ventures in Bangladesh if managed efficiently and effectively. Online shopping, price comparisons, product selection, etc., are all ways consumers use the Internet in e-commerce. E-commerce between enterprises and consumers is much lower in Bangladesh than anticipated due to a lack of Internet accessibility among many consumers. This negatively impacts the country's economy in general. The impact of low-cost business policies on SCM is evident more so when considering low-cost business policies. Besides managing the supply chain, SCM also involves ensuring the right product is delivered to the right consumer at the right time. One can use the B2B or B2C model to improve the promotion of new emerging businesses. In order to minimize waste and defects and improve business performance, the adoption of SCM is a lifesaving policy. SCM is becoming more important because it is a powerful driving force and is seen as an important strategic tool for companies looking for competitive success. Increasing the number of entrepreneurs in the market may help strengthen Bangladesh's competitive market. Entrepreneurship in Bangladesh is advocated with the aid of using the authorities and has a tendency to open lately many institutes triumphing at the concern to beautify the know-how of present-day age technology in teenagers and in start-up businesses. An e-commerce alternative platform for buying enriched business strategies is one of the bureaucracies for such activities. Rich in RMG and different production works, Bangladesh stands nonetheless on the low aspect of the utilization of e-commerce and intervention of e-commerce on enterprise businesses. By using an e-commerce platform as a mode of alternative, the current study offers support for enterpriser's businesses in Bangladesh. In this proposal, the investigation is conducted by using questionnaires to understand the desires and wants of enterprise holders so as to formulate a policy based mostly on the results and consequences the drivers have on a business model (Bukharbayeva et al., 2021).

• Literature Review

It is very clear that as digitalization disrupts and continues to change the status quo of the manufacturing industry, supply chain management becomes more complex, and

related relationships become tenuous. From an optimistic point of view, these challenges also offer manufacturers the greatest opportunity for improvement. In addition to cost savings and simplification of fulfillment logistics, proper supply chain management offers significant

opportunities, especially for expanding online sales channels and improving customer relationships. This is in line with the manufacturing trends we see based on the latest data collected by Sapio Research. According to the data, about 50% of manufacturers' total sales are generated by online sales, and 42% of manufacturers see improved customer relationships through investment in digital strategies. To meet B2B buyers' B2C shopping preferences, it is more important than ever for manufacturers to invest in digital solutions to optimize their supply chains (Bean, 2013).

- **Supply Chain Management**

In this proposal, the investigation is conducted by using questionnaires to understand the desires and wants of enterprise holders so as to formulate a policy based mostly on the results and consequences the drivers have on a business model. This also relates the drivers as a critical characteristic of providers' commercial enterprise and complements the significance of Supply Chain Management (SCM) with e-trade in Bangladesh. The driving forces of SCM in Bangladesh may have an impact on portfolios, like the enterprise and market-driven enterprise models that are superbly boosted via e-commerce. SCM creates fee brought merchandise at low value wherein marketplace is nearly soaked and does not offer new entrants a hazard to do commercial enterprise. This indicates it is critical for entrepreneurship and e-trade to have green utilization (Baker, 2007).

- **Material Management**

There is a combination of showing related products together, creating easy and spotless displays, providing sufficient walkway space, providing well-stocked shelves and supplying promotional objects to help promote the group's products (Agus, 2017). This way that products are controlled because of the procedure by which every store makes a decision on what objects to carry and how a good deal to have reachable to satisfy the desires of customers, that's crucial in marketplace regions like Bangladesh wherein now no longer a good deal needs are met. In the retail business, the products displayed in the shop and the prices charged to maximize income play a very important role (Jagadish, 2015).

- **Location**

This is necessary for the business to place sensible locations at the highest of their business ways (Davenport, 2014). If one is getting ready to open a retail business with a front, golf stroke business within the correct location may be thought of as the foremost necessary issue throughout start-up. Bangladeshi market is with less affording target customers and additional low-cost and fewer expensive merchandise square measure

demand. If one is on the point of opening a retail organization with a front, golfing stroke industrial organization inside the best area could be the concept of the most essential hassle throughout start-up. As for SCM drivers, this problem impacts the enterprise commercial enterprise in terms of fee power and fee-saving for ventures and growing new appearances in a commercial enterprise (Hinchey, 2012). This actually refers to extra South Asian markets as the project area is a sort of time-saving and less pricey method of supplying products at the bottom rates.

- **Transportation**

Transportation could be very vital for SCM drivers (Sunil & Meindi, 2007). The slicing rate on delivery is quite less expensive than the slicing price via best policies. E-trade can give marketers less affordable transportation structures; it turns smoothly for markets like Bangladesh to keep away from transportation cost and convert operations to B2B or B2C models. Joint direction-making plans can be achieved by two approaches that are outsourcing transportation characteristics or horizontal cooperation with different transportation service companies. Those principles cause the attainment of economies of scale by lowering the distribution value (Cruisin, 2013).

- **Data**

Statistical and factual data represent the obvious statistics and facts amassed during the operation of a commercial enterprise. These tools can be used to measure/document a variety of enterprise-wide activities, as well as those outside the enterprise. In spite of the fact that records aren't often very informative, they are the basis for all reporting in business, so they are critical. The records that pertain to client interaction are customer records. There might be the number of jobs, the number of enquiries, the amount earned, or the fees incurred. This will enable us to calculate roughly what we have done for the client. This weblog examines in greater intensity why data is vital to your commercial enterprise. The significance of records cannot be understated because it gives the premise for reporting the records required in commercial enterprise operations. Data promotes supplier responsiveness and efficiency because it gives the supplier-customer preferences, predicts customer demand, and supplies only the products they need (Sunil & Meindi, 2007). All sorts of data are important. For entrepreneurial businesses based on an internet model, particularly high-quality products are essential for consumers if the knowledge of them is genuine. Discussing the reliability of portrait information (Lundkvis, 2012), cost efficiency is between

companies and market customers due to the remaining problem of scarce information available in the Bangladeshi manufacturing industry. This can only be achieved by direct exchange of information. This SCM feature allows sellers to meet the needs of consumers' products.

- **E-Commerce and SCM**

The IoT serves the whole delivery chain via means of integrating data resources. Logistics informatization is likewise a crucial improvement course. The purpose of the IoT software is to create a brand-new scenario inside the logistics industry in order to facilitate the improvement of the supply chain industry (Bifet, 2012). The delivery chain commercial enterprise procedure reengineering layout combines the IoT era gadget with the brand new logistics commercial enterprise gadget to convert the operation of every commercial enterprise procedure. From the logistics shipment data and logistics useful resource data worried with inside the commercial enterprise procedure via perception, we can offer clients inner and outside offerings to attain the integration of commercial enterprise procedure. Information goes with the drift control, capital goes with the drift control, and logistics control represents the most important components of delivery chain control (Naguus & Mruma, 2020). With the large software of e-trade, data and finances will be transmitted transparently, quickly, and as it should be among the member nodes of the delivery chain via the internet, which significantly improves the control of data go with the drift and capital go with the drift in delivery chain control. It is inevitable that supply chain control within the e-commerce ecosystem will have to break through and transform the conventional scope of raw cloth procurement, production, sales, and shipping. Ventures with inside the delivery chain are not doing their personal commercial enterprise and numerous inner and node organizations with inside the delivery chain. Transaction commercial enterprise has appeared as a common purposeful procedure. Data flow, capital flow, and logistics have been integrated and controlled to form an incorporated delivery chain control under the control of data flow, capital flow, and logistics within the delivery chain (Chang, 2013). Bangladesh is a densely populated middle-income country. The risk associated with enterprise in Bangladesh is excessive because of the lack of highbrow impact of the studies primarily based totally on research and empirical method of enterprise relation with e-trade and delivery chain management. SCM is correlated with e-trade and entrepreneurship in this instance for purposes of presenting the correlation. In Bangladesh entrepreneurship is facilitated with the aid of using special bodies of governmental and non-governmental operating on course businesses. According to many authors, supply chain management is widespread and has a major impact on online commerce. But no research has been done on the effects of e-commerce on supply chain management to facilitate entrepreneurship in Bangladesh. Besides, there is still no research conducted in the context of Bangladesh. The primary aims of the study are to provide a clear picture on the impact effects of e-commerce on supply chain management to facilitate

entrepreneurship in Bangladesh (Chowdhury et al., 2021; Chowdhury et al., 2019; Iqbal et al., 2021; Iqbal et al., 2020; Kader et al., 2021; Mia et al., 2022; Mishu et al., 2019; Mamun et al., 2013; Rahman et al., 2021).

• **Conceptual Framework**

Material management, locations, transportation, and data, which are the drivers of supply chain management, are used as independent variables in this study to examine the impact of e-commerce on Bangladeshi entrepreneurs' supply chains. Studying the effects of supply chain management drivers on entrepreneurship is the main point of this study. The regression line defines an analysis of the effect of a variable on the dependent variable of the study (Rakhimova et al., 2021; Shil et al., 2020; Vladimirovna et al., 2021).

• **Hypotheses**

On the premise of conceptual framework and drivers of SCM, look at designed following null hypotheses:

H₁: E-commerce and drivers of Supply Chain Management (SCM) have no impact on facilitating entrepreneurship in Bangladesh.

H₂: Supply Chain Management (SCM) and Entrepreneurship of Bangladesh have no significant relationship between them.

• **Research Methodology**

This is a quantitative study. To investigate the effects of location, transport, and data drivers associated with Supply Chain Management (SCM) for Bangladesh entrepreneurship (dependent variable), this study used quantitative models such as Likert scale questionnaires. Online questionnaires were used for the purpose of the survey. Data has been collected from 150 respondents from five e-commerce companies in Bangladesh (Table 1).

Table 1: Composition of Sample

SL No.	Categories	Number	%
1	Mid-level managers	30	20%
2	First Line managers	120	80%
Total		150	100%

Source: Survey

- **Results & Discussion**

This section captures data collation, analysis, results and interpretation based on the questionnaires administered in relation to the research objectives, research questions and the hypotheses postulated. It comprises Reliability Analysis (Cronbach's Alpha), Hypotheses Testing (two-tailed independent sample test, Kurtosis test, Regression Model Summary), and Correlation Analysis (Pearson Correlation).

- **Reliability Analysis**

For the reliability test, "Cronbach's Alpha" is used. Cronbach Alpha values for Material Management, Location, Transportation and Data are shown in Table 2, which clearly illustrates that reliability test values exceeded the requirements. For the initial test, "Cronbach's Alpha", 25 recipients were selected from the sample and distributed the questionnaire value for the categories.

Table 2: Reliability Analysis Test

SL no.	Variables	No.	Cronbach's Alpha	%
1	Material Management	25	.913	91.3%
2	Location	25	.987	98.7%
3	Transportation	25	.989	98.9%
4	Data	25	.978	97.8%
5	Overall	25	.966	96.6%

Source: Estimated

- **Hypotheses Testing**

A two-tailed independent sample test was used to reject the null hypothesis presented in Table 3 and confirm the study hypotheses. Besides, a Kurtosis test was conducted to get further confirmation of the study hypotheses.

Table 3: Statistics of Impact

No.	Variables	T-statistics
1	T material management	3.56> table value
2	T location	2.99> table value
3	T Transportation	3.56> table value
4	T Data	3.48> table value

Source: Estimated

Table 4 shows a p-value less than .50, which indicates that the model is significantly different and the results are predictably different as well. According to Tables 3 and 4, all null hypotheses were rejected, and all study hypotheses were accepted.

Table 4: Hypothesis testing

SL	Factors	t-test	p-value
1	Material management	3.56	.019
2	Location	2.99	.003
3	Transportation	3.56	.126
4	Data	3.48	.005

Source: Estimated

The two-tailed independent sample test concludes that the model is fit, as well as eliminating the null hypothesis of the study. The qualitative interpretation of this analysis is that supply chain drivers used in e-commerce will surely have an impact on the efficiency of supplychains.

Table 5: Normality Test (Kurtosis)

SL no.	Factors	Z value	Error	Z value	Kurtosis
1	Material Management	13.24	.367	13.256	Greater than +1.96
2	Location	12.14	.344	13.245	Greater than +1.96
3	Transportation	9.00	.322	13.345	Greater than +1.96
4	Data	9.32	.319	12.345	Greater than +1.96

Source: Estimated

In linear regression, independent and dependent variables are evaluated for the influence of one or more independent variables. Material management, location, data and transportation drivers of SCM are studied for their effect on entrepreneurship. Here, Entrepreneurship in Bangladesh is studied as a function of e-commerce, which is an independent variable (Table 5).

Table 6: Regression Model Summary

Model	R	R-square	Adjusted R-square	Std. Error of estimate
1	.932	.922	.933	.1362

Source: Estimated

The change statistics for R-Change are the same in Table 6.

Table 7: Analysis of Variance (ANOVA)

Regression	Sum of squares	df	Mean square	f	Sig.
Residual	77.567	30	27.322	308.21	.143
Total	56.876	120	24.322		

Source: Estimated

• **Correlation Analysis**

SCM plays a significant role in the digital age, using information acquired by digital means and literature, and it relies heavily on SCM features and e-commerce integrated modules.

Table 8: Pearson Correlation

Items	Description	SCM, Drivers	E-commerce
Driver, SCM	Correlation, efficient	1	.876
	Sig 2		.128
	n	150	100

E-Commerce	Corelation, efficient	.924	1
	Sig 2	.148	
	N	150	100

Source: Estimated

Based on a correlation analysis of the Pearson correlation between Drivers of supply chain management and e-commerce sectors, a causal relationship will be established between SCM drivers via e-commerce. Additionally, both independent variables had positive correlations with 150 (Table 7 & 8). It can be watched from the tables that there's a noteworthy relationship between fabric administration, area, data and transportation as demonstrated in tables. In table 4, the invalid theory is rejected and the

ponderous speculation is acknowledged. Integration models and supply chain drivers have also been found to be causally related.

• Conclusion

Bangladesh is one of the leading economies of the world, rich in several significant minerals, including gases and coal, making it one of the most prosperous nations. The effectiveness of supply chain management can actually significantly change the destiny of the state and portfolio of business into unused measurements and the most effective way to achieve this is to deal with E-commerce appropriately in the supply chain to impact the business. In recent years, commercial competition has shifted from competition between companies to competition among supply chains. One of the determining factors of commercial success is the level and productivity of supply chain management (Min, 2021). It is also true that a failure to properly transmit data regarding data mutilation and data trade errors regarding supply management issues cost e-commerce hundreds of billions of dollars per year worldwide. It is fundamental for ventures to construct a clever and productive coordination organization to supply bolster for proficient and precise decision-making of ventures. It is high time for the entrepreneurs to focus on improving supply chain management drivers to achieve efficiency and sustainability in the present competitive environment.

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