Volume 23 Issue 30
Originally issued as E3

Global Journal of Management and Business Research: E Marketing
Volume 23 Issue 3 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

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GJMBR-E Classification: *FOR Code: 1503*



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Digital Supply Chain Management: A Study on Bangladeshi Fashion and Accessories Industry's E-retailers

Redwan Ahmed [α], Najmus Sakib [σ] & Nabila Jesmine [ρ]

Abstract- This study aims to examine the challenges faced by e-retailers in the Bangladeshi fashion and accessories industry's supply chain and explore the potential benefits of integrating digital supply chain management systems. The study addresses the gap in understanding the obstacles hindering the growth of e-commerce within the fashion and accessories sector in Bangladesh and the potential solutions to improve supply chain efficiency. Qualitative research methods were employed, involving interviews with 55 e-retailers and thematic analysis to assess the data. The research reveals sourcing challenges and lengthy lead times as significant barriers in the industry. It also highlights the positive impact of digital supply chain systems on delivery efficiency, with a low adoption rate among e-retailers. The findings suggest that by implementing integrated information-sharing systems within the supply chain could revolutionize the e-commerce fashion and accessories industry in Bangladesh, improving responsiveness and reducing lead times. However, overcoming e-retailers' reluctance to adopt these systems remains a challenge. The study acknowledges that developing and implementing such systems may require a longer timeframe and educational efforts are needed to bridge the knowledge gap hindering adoption.

Keywords: digital supply chain management, bangladesh e-commerce growth, supply chain efficiency, information sharing system, fashion and accessories sourcing.

I. Introduction

The business environment is changing due to the fourth industrial revolution. Business industries are acclimating the digital technologies to design their supply chain. A digital supply chain (DSC) electronically delivers products from origin to destination (Islam, 2015). The system increases responsiveness and agility. DSC facilitates cost-effective services and value added operations. In this digital era of business activities, it's an emergency need to have a flexible supply chain management system. DSC provides a robust and potential operating process, reduction of cost and time, transparency, flexibility, and visibility (Tavana & Shaabani, 2022).

Among the emerging industries of Bangladesh, the fashion and accessories industry is very dynamic by its nature. While this sector in Bangladesh holds immense potential, it is uniquely challenging (Tavana & Shaabani, 2022). The industry's inherent dynamism, driven by swiftly changing consumer preferences, poses an ongoing challenge for retailers and manufacturers. In this context, the growth of e-commerce is of particular significance. Customer preferences and tastes are changed immediately. Online customers are the most compulsive buyers in this industry (Islam, 2015). Traditional order processing of the system and delivery process is not enough to maintain the pace of the agile industry. In this sector, the main challenge is to accelerate the sourcing and availability of products on time (Mahadi Hasan Miraz, 2016). Online consumers, often characterized as compulsive buyers, demand quick and convenient access to a wide range of fashion products (Jones, 2018). Accordingly, the purpose of this research is to investigate the challenges faced by e-retailers in the supply chain management in the fashion industry. The research questions are:

1. What kinds of difficulties are faced by e-retailers in the sourcing issues in the fashion industry?
2. How the implementation of digital supply chain management can be beneficial to them?

To clarify these issues, it's important to have an understanding of the Bangladeshi fashion industry's supply chain management and the significant issues faced by e-retailers in this sector. The motivation for undertaking this study is that very little research has been undertaken on digital supply chain management by e-retailers in the fashion industry. In the 21st century, every problem is solved by using technology. So, the difficulties faced by e-retailers can be addressed by digital solutions.

However, traditional supply chain processes and delivery methods have struggled to keep pace with the industry's rapid digitalization (Sameh, 2021). This problem is exacerbated by the absence of real-time information sharing between wholesalers and e-retailers. As a result, e commerce businesses face significant hurdles in obtaining real-time updates on product availability, order status, and delivery timelines, which hinder their ability to meet the evolving demands of the digital era (Kumar et al., 2017).

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Due to a lack of real-time information sharing between wholesalers and e-retailers, sourcing and spontaneous availability of products are not coordinated (Sameh, 2021). Addressing and mitigating the potential problem will bring about an extraordinary service in the fashion industry. The research paper depicts the potential challenge of sourcing difficult for e-retailers and wholesalers. The findings suggested that by building an integrated information-sharing system in the supply chain management between e-retailers and wholesalers, the sourcing and availability of products on time can be mitigated. It might take a longer time frame to develop this type of system. The distribution efficiency and shorter lead time will be achieved in the supply chain process by implementing the integrated system.

II. Research Objectives

The objective of the research is to address the sourcing difficulties in the e-commerce business platform in the case of fashion and accessories products. More specifically the objectives of this research are as follows:

- To identify the main challenge faced by e-retailers in the fashion industry in Bangladesh
- To evaluate the current scenario of digital supply chain management.
- To analyze the implication integrated system in the supply chain management process.

III. Theoretical Frameworks

a) The Fashion and Accessories Industry Scenario

The fashion and accessories industry is emerging day by day. The industry is highly competitive and dynamic due to changing customer trends and demands (Abdulla, 2022). Customers' lifestyles and demand is substantially changing due to digitalization and urbanization. Customers, especially millennials and Generation Z, are increasingly open to premium fashionable clothing and are willing to experiment with various branded premium fashion accessories owing to evolving fashion perceptions accompanied by high disposable income and rising exposure to global fashion trends (Arif-Uz-Zaman, 2023). According to "the United Kingdom Economic Accounts Time Series Datasheet," the household final consumtion expenditure on clothing and footwear in the United Kingdom witnessed a growth of 16.2% during the current year (Exchange, 2023). Additionally, the growing penetration of the internet, social media, and e-commerce are now providing consumers in tier 2 and below cities access to top brands' products.

b) TAM (Technology Acceptance Model)

The technology Acceptance Model was proposed in the 1980s based on social psychology theory by studying the relationship between cognitive, and emotional factors and technology application (Yawen Su, 2021). The model is widely used in the fields of information technology and the willingness to use technology. The model is used to measure the willingness to adopt the technology (Y, 2020). TAM is composed of four basic elements: 1) user behavior which is the actual operation behavior of the users to the new technology 2) behavior intention refers to the willingness of users to try new technologies. 3) perceived usefulness is the subjective understanding of users for the utility of the newly adopted technology 4) Perceived ease of use is the degree of effort that the technology users make use of new technologies (Y, 2020). TAM points out that perceived usefulness is directly affected by perceived ease of use, that is, if the technology is easier to use, users can feel its usefulness (Yawen Su, 2021). By using this model, we want the know the characteristics of the digital integrated system and its willingness to use the system.

c) Challenges in the E-business Supply Chain Process of the Fashion Industry

The fashion and accessories supply chain in Bangladesh is encountering challenges exacerbated by the impact of digitalization. The advent of digital technologies has brought about transformative changes in the way business is conducted, yet it has also exposed certain limitations within the industry, particularly in the context of e-commerce (Ahad, 2027).

One significant challenge lies in the responsiveness of wholesalers and manufacturers in Bangladesh. The fashion and accessories industry is inherently dynamic, with trends evolving rapidly (Martinex S, 2014). Digitalization has accelerated this pace, as consumers can instantly access global fashion trends online. However, some wholesalers and manufacturers in Bangladesh have struggled to keep up (Martinex S, 2014). They may be slow to adapt to digital platforms and processes, which can result in delays and inefficiencies in their supply chain operations. Additionally, the lack of information and coordination in the supply chain is hindering the growth of e-commerce. Traditional methods of order collection, which are reminiscent of an older, more analog era, persist among wholesalers and manufacturers (Sabrina Backs, 2019). This reluctance to embrace digital tools and communication channels means that e-commerce businesses may face challenges in obtaining real-time updates on product availability, order status, and delivery timelines (Sabrina Backs, 2019). As a consequence, the limitations imposed by these factors can impede the growth and efficiency of e-commerce in Bangladesh's fashion and accessories sector (Shaikat, 2018). To address these challenges and thrive in the digital age, it is crucial

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for wholesalers and manufacturers to embrace digitalization, streamline their supply chain operations, and adopt modern methods of order management and communication (Avizit Basak, 2014). This adaptation will enable them to better align with the ever-changing trends in the industry and meet the demands of the evolving e-commerce landscape.

IV. Research Methodology

a) Research Design

The study is descriptive in nature and qualitative approaches are used to conduct the research. The research work is based on primary data. A self-administered questionnaire is designed to obtain data. All indicators were culled from previously published research papers. We have used the qualitative research approach for some genuine reasons. Firstly, the study on Bangladeshi Fashion and Accessories e-retailer's problems and challenges requires an in-depth qualitative understanding of the scenario and conditions (Ahmed Ishtiaque, 2016). Secondly, there are many e-retailers in the fashion and accessories segment, and multifaceted issues and challenges are faced by each e-retailer, to capture and investigate the major issues of e-retailers, the qualitative approach will provide essential insights. Finally, the interviews will disclose the spontaneous experiences and responses about the complexities of e-retailing supply chain management in the fashion and accessories industry. By acclimating the qualitative approach, we will get essential insights about the topic. We designed an open-ended interview questionnaire to collect data from e-retailers. Some items are modified to fit the study's context. Online questionnaires and personal interviews took the form of data collection.

b) Data Collection and Sample

The research paper demonstrates the emergence and introduction of digital supply chain management systems in the e-business fashion industry. We designed a questionnaire with pen-ended questions on the relevant context. The questionnaire is attached in the appendix section of the research paper. The main respondents are e-retailers. We took interviews of e retailers who are conducting their business on different digital platforms. We selected the sample based on some criteria. The criteria are willingness to give the interview, easy availability of participants, and have required knowledge about their business complexities. We took interviews from three types of e-retailers. The new retailers, the experienced ones, and the retailers who have conducted business for 2 to 3 years. We asked the structured questions and asked some additional questions based on their answers. Some desired retailers were not available for interviews, so we sent a set questionnaire to them via email. The data for this research were collected between September to October 2023.

c) Respondent's Profile

The data set included responses from 55 e-retailers. The majority of respondents had conducted business in digital platforms for a minimum of two years. Digitalization most affected the young generations. Most of the e-business fashion and accessories sector is dominated by young entrepreneurs. 70% of respondents are young entrepreneurs (age between 25 to 40).

d) Data Coding and Analysis

Thematic Analysis is used to analyze the collected data from e-retailers. To examine the whole situation, we tried to accumulate data from e-retailers. To exert the meaning of the given answers, we jotted down all the interviews and managed the data in a well-structured form for further activities. To get reliable data, we analyzed the interviewed data individually. Afterward, we discussed our individual understanding of the interviewed data and made an in depth analysis of the whole data. Through the given answers of the respondents, analyzed their answers. We developed a thorough understanding of the hurdles faced by e-retailers in responding to customers' orders and the availability of products. We observed that they could have been more efficient while sourcing and transporting the product. It took them a long lead time as well as a bullwhip effect in their small e-business. One of the e-retailers responded that, due to the lack of adaptation of his wholesaler he lost lots of emergency orders from online. As there is high competition in the e-businesses of Bangladesh, a missing span of customers due to this reluctant anti-tech savvy approach by his wholesaler made him demotivated further he stopped doing business on that line where he was getting good profits.

By analyzing the answers of the respondents, we got some important insights. The finding sections will disclose the analyzed insights.

V. Discussion

The traditional supply chain management process has proven to be less effective in the ever evolving digital business world, especially within the e-commerce-based fashion and accessories industry. Our research, as discussed in the literature review, highlights a set of common challenges faced by e-retailers in Bangladesh, where the demands of the digital era have triggered the need for a different supply chain management approach.

a) Sourcing Challenges and Lengthy Lead Times

One of the most significant challenges revealed by our data pertains to sourcing within this dynamic fashion industry. Customer preferences shift rapidly, and

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the rise of digital platforms has heightened these expectations. However, our findings indicate that customers experience long lead times, often ranging from 3 to 5 days when they place orders on these digital platforms. This extended lead time results in customer hesitancy to complete their purchases, ultimately leading to a loss in sales.

This gap between ordering and delivery can be attributed to several pivotal factors. Many e retailers choose not to maintain warehousing or inventory facilities, a strategic decision influenced by the nature of the fashion industry, where holding excessive inventory is discouraged. Consequently, when a customer places an order, the e-retailer must relay the order to a wholesaler. However, should the wholesaler not have the requested product in stock, the order is subsequently passed on to the manufacturer, resulting in a protracted and inefficient process. Regrettably, in the context of Bangladesh, these challenges have led to a considerable loss of sales for e-retailers.

b) Lack of Coordination and Integration

A fundamental issue exacerbating these challenges is the lack of coordination and integration between wholesalers and e-retailers. To address these hurdles, our proposed solution emphasizes the introduction of a digital information integrated system within the e-retailing segment of the fashion industry. Such a system has the potential to alleviate sourcing issues, reduce lead times, and bolster the overall performance and responsiveness of the supply chain.

c) Positive Findings and Low Adoption Rates

Empirical findings from our research showcase a positive correlation between the implementation of digital supply chain systems and the robust performance of the delivery process. However, the research also reveals a surprising statistic- only 8% of the e-retailers who participated in our study expressed willingness to adopt digital supply chain management practices. This statistic points to a crucial gap in knowledge regarding the potential benefits and implications of integrated digital systems. Overcoming this knowledge deficit represents a significant challenge.

d) The Promise of Digitalized Integration

To overcome the reluctance and improve the industry's supply chain efficiency, we propose the digitalized integration of information sharing among e-retailers and wholesalers. With this approach, wholesalers can receive immediate updates on new orders collected from various e retailers. Furthermore, social media platforms can serve as efficient channels for sharing photos of desired products and ensuring their swift delivery to the intended destination.

In contrast, under the traditional system, e-retailers often need to visit wholesalers' physical shops to purchase products in bulk. However, once the retailer dispatches from the wholesaler, they must wait until the next purchase cycle is initiated. This waiting period introduces substantial lead time and high responsiveness issues, resulting in missed customer opportunities for both e-retailers and wholesalers.

VI. Conclusion

In conclusion, the implementation of a digital supply chain system offers the potential to revolutionize the e-commerce fashion and accessories industry in Bangladesh. It can mitigate sourcing challenges, reduce lead times, and improve overall responsiveness, thereby ensuring a competitive edge in the rapidly evolving fashion industry. Nevertheless, addressing the reluctance of e-retailers to embrace these digital systems necessitates concerted efforts in education, simplification, and industry collaboration.

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Questionnaire

1. How would you describe the main challenges you face as an e-retailer in the fashion and accessories industry in Bangladesh?
2. What are the typical lead times for product delivery from the time a customer places an order to its delivery, and do you consider them satisfactory?
3. Do you maintain warehousing or inventory facilities for the products you sell, or do you rely on wholesalers for sourcing products?
4. How frequently do you experience delays in product availability when dealing with wholesalers?
5. Are there any issues related to coordination and information sharing between your e retail business and the wholesalers you source products from?
6. Have you considered adopting digital supply chain management practices to improve your supply chain efficiency?
7. How familiar are you with the potential benefits of digitalized integration in information sharing between e-retailers and wholesalers within the supply chain?
8. What factors influence your willingness to adopt digital supply chain systems in your e-commerce operations?
9. Have you observed any positive effects on delivery efficiency when using digital supply chain systems, and if so, what were they?
10. What do you perceive as the main challenges in implementing digital supply chain systems in the fashion and accessories e-commerce sector in Bangladesh, and what strategies do you believe would be effective in overcoming these challenges?
11. How many times have you lost sales due to late delivery issues?
12. What are the key components of your supply chain, from sourcing raw materials to delivering products to customers?
13. In the context of Bangladeshi fashion and accessories e-commerce, how do you handle demand forecasting, and how has digital technology contributed to better forecasting accuracy?
14. How do you collaborate with suppliers, manufacturers, and logistics partners to ensure the smooth flow of products through your supply chain?
15. In the context of the Bangladeshi fashion and accessories e-commerce industry, how do you handle returns and reverse logistics? What solutions do you employ to manage these processes efficiently?

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