



Efficiency Analysis of E-Commerce Application on Industrial Supply Chain Management

Dr Santhi Chebiyyam, *HOD & Assistant Professor, Loyola Academy, Alwal,*
Dr R. Lavanya Kumari, *Head, department of management, Loyola Academy, Alwal,*

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Abstract: Collaborative e-commerce systems allow players in the industrial supply chain to share information, coordinate actions, and react quickly to market developments. This adaptability is especially important in today's changing corporate environment. E-commerce encompasses more than simply online selling and buying. It refers to company efficiency across all operational levels. Supply Chain Management includes managing, scheduling, and regulating the purchase, manufacturing, inventory, and delivery of goods and services to clients. The supply chain management (SCM) is the backbone and most important component of electronic commerce. Supply Chain Efficiency refers to having the correct goods in the right location at the right time, which may save money/cut expenses and improve cash utilization. This research examines the effectiveness of E-Commerce in the supply chain management of Indian industries.

Keywords: e-commerce, Supply Chain Management, Efficiency.

I. INTRODUCTION

Supply Chain Management (SCM) in today's global economy, particularly in E-Business, is critical for creating considerable competitiveness and benefits for enterprises and business partners globally. The objectives and goals are critical components in the study of supply chain management in e-business. To address the issues of implicit business settings, organisations must foster an accessible and pliable attitude to market anxiety and value creation. For many, creativity and modernity are critical strategies for promoting progress in increasingly turbulent and unpredictable situations.

To recognize the importance of modernization, firms must transition from a product-centric to a comprehensive vision of progress. When discussing modernism and innovation management, it is critical to understand

how the Internet is turning into an ideal buyer-supplier communication medium. Market space refers to practical feasible settings that operate in cyberspace, where information is the lifeblood of commercial activities and practical value chains arise. Many people see the Internet as a formless and chaotic means of communication. However, it reveals a milieu with a defined strategic architecture based on norms that define the edges of modernity. The Internet will provide new modalities of moneymaking, trade, and interaction, and it is a strong supporter of non-linear modernism.

RATIONALE OF THE STUDY

The premise for undertaking a study on "E-commerce Applications in Industrial Supply Chain Management: A Study with Reference to India" stems from the dynamic junction of e-commerce technology with the changing industrial landscape in an urban setting. India, famed for its technology achievements and industrial expansion, makes an ideal location to explore how e-commerce apps are altering traditional supply chain procedures. The study's goal is to thoroughly investigate the extent to which e-commerce applications have penetrated industrial supply chains in India.

This examination will focus on a variety of industries, including manufacturing, warehousing, distribution, and retail. The research aims to uncover the tactics used by local businesses to optimize their supply chain operations, boost resource utilization, and improve consumer experiences by analyzing e-commerce platform integrations.

OBJECTIVES OF THE STUDY

Following objectives are formulated for the proposed study:

1. To examine the effect of E-Commerce application on industrial supplychain management.
2. To analyze the efficiency of E-



Commerce application on industrial supply chain management.

II. RESEARCH METHODOLOGY

A research technique is a methodical strategy to examining a specific research issue. It offers several processes for conducting research in an orderly and rational manner. It is vital to accurately identify the problem, objectives, and hypothesis.

The demographics investigated are from the manufacturing industry, which operates on a business-to-business basis. However, due to the population's limitless size, the population would be confined to electronic goods (Sindhu Electronics and Communication Pvt. Ltd.), auto components (Vidarbha Auto Components Private confined), and textile machinery (GIMATex Industries Pvt. Ltd.) manufacturers in India.

III. REVIEW OF LITERATURE

Following are some reviews of literature for the proposed study:

- **John. F., (2012)** in his dissertation on “**The Impact of Supply Chain Management Business Processes on Competitive Advantage and Organizational Performance**”, which deals about the Organizational performance has routinely been viewed through a limited scope primarily focused on functions, practices, and resources directly controlled by the focal organization, but supply chain management (SCM) has broadened this scope to incorporate all organizations along the supply chain.
- **Nastassia and Natalija (2012)** in their dissertation on “**Flexibility in Supply Chain, A case study of ICA AB (Non-Food/Clothing) and sub-case of ZARA**”, where they concentrate on providing suggestions on improvement of supply chain flexibility for ICA AB (Clothing) based on comparative analysis on sub-case study of ZARA.
- **Sonderegger and Petra (2008)** in their study on “**The Role of Place in Global Innovation: The Case of Information Technology R&D Centers in Bangalore, India**”, as globalization and the impact of worldwide communications technologies increase, scholars are increasingly debating the role of physical place in the world.
- **Naidu and Sirisha C., (2007)** in their study on “**Heterogeneity on the Commons: An Analysis of Use and Management of Common Forests in Himachal Pradesh, India**”, Community based natural resource management

has become immensely popular among some policy makers on the assumption that involvement of local communities can achieve conservation goals with greater efficiency and equity.

- **Sinha and Swapna Sandesh (2007)** in their study on “**Comparative Analysis of FDI in China and India: Can Laggards Learn from Leaders?**”, some emerging markets have been leaders in the world and have grown at a higher rate benefiting from higher Foreign Direct Investments (FDI) by Trans National Corporations (TNCs) and some have been laggards and have not able to attract as much FDI and grow that efficiently.
- **Shivarajan and Sridevi (2007)** in their study on “**From Stakeholder Concern To Social Issue: A Social Network Analysis of Coca Cola in Kerala, India**”, using a longitudinal single case design, this study traces the events leading to the premature shutdown of a Coca Cola plant in Kerala, India, in 2004, following charges of over exploitation and pollution of ground water resources by the Advises.
- **Rajkumar and Paulrajan (2012)** in their study on “**Spice Route: Logistic Journey of Spices in Retail Supply Chain Perspective**”, this research study is primarily exploratory in nature, and the research instruments include interviews and survey through questionnaires with players in the spice supply chain.
- **Haralambides Hercules and Gujar Girish (2012)** in their study on “**On Balancing Supply Chain Efficiency and Environmental Impacts: An Eco Dea Model Applied to the Dry Port Sector of India**”, in this process, dry ports contribute considerably to the vexing problem of atmospheric pollution because of the ensuing road and rail transportation.
- **Kang Taeuk (2012)** in his study on “**Cash Flow and Supply Chain Relationship in New Product Quality in Auto Industry**”, the purpose of this study is to know how both the relationship quality between buyer and suppliers and financial flow of each firm affect the product quality, and to know whether the relationship between relationship quality and financial focus of buyer on either customer or supplier exists.
- **Acharyulu and Shekbar B. Raja (2012)** in their study on “**Role of Value Chain Strategy in Healthcare Supply Chain Management: An Empirical Study in India**”, India spends 5.2% of GDP on healthcare.



Healthcare industry is growing at 15% annually.
➤ **Kannabiran Ganesan and Bhaumik Saumen (2005)** in their study on “**Corporate Turnaround through Effective Supply Chain Management: The Case of a Leading Jewellery Manufacturer in India**”, this paper aims to examine how creative industries can adopt Supply Chain Management (SCM) approaches to achieve business excellence.

IV. E-COMMERCE ESTIMATION

International Data Corp (IDC) estimates that global E-Commerce was worth US\$350.38 billion in 2000. This is expected to reach \$3.14 trillion by 2004.

Three major procedures are improved in E-Business:

- i. **Production procedures** include stock acquisition, ordering and replenishment, payment processing, electronic supplier linkages, and production control, among others.
- ii. **Customer-focused processes**, such as marketing, online sales, payment processing, and customer support;
- iii. **Internal management processes**, such as employee services, training, information sharing, video-conferencing, and recruiting.

Electronic applications promote information flow between production and sales forces, increasing sales force productivity. Workgroup communication and electronic publication of internal corporate information are also made more efficient.

DIFFERENT TYPES OF E-COMMERCE

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Business-to-Government (B2G)
- Consumer-to-Consumer (C2C)
- Mobile commerce (M-commerce)

B2B E-Commerce

B2B E-Commerce is simply defined as e-commerce between businesses. This sort of E-Commerce deals with business connections. This kind accounts for approximately 80% of E-Commerce, and most experts believe that B2B E-Commerce will continue to develop faster than the B2C segment.

The B2B market is made up of two main components: e-infrastructure and e-marketing. E-markets are basically websites where buyers and sellers engage and transact.

IBM, Hewlett Packard (HP), Cisco, and Dell are some of the most common B2B examples and best practices. Cisco, for example, receives more than 90% of its product orders via the Internet. The majority of B2B apps focus on supplier management (particularly purchase order processing), inventory management, distribution management (particularly the transmission of shipping documents), channel management, and payment management.

E-Marketer predicts that B2B E-Commerce will raise its share of total global E-Commerce from 79.2% in 2000 to 87% in 2004, while B2C E-Commerce will fall from 20.8% in 2000 to only 13% in 2004.

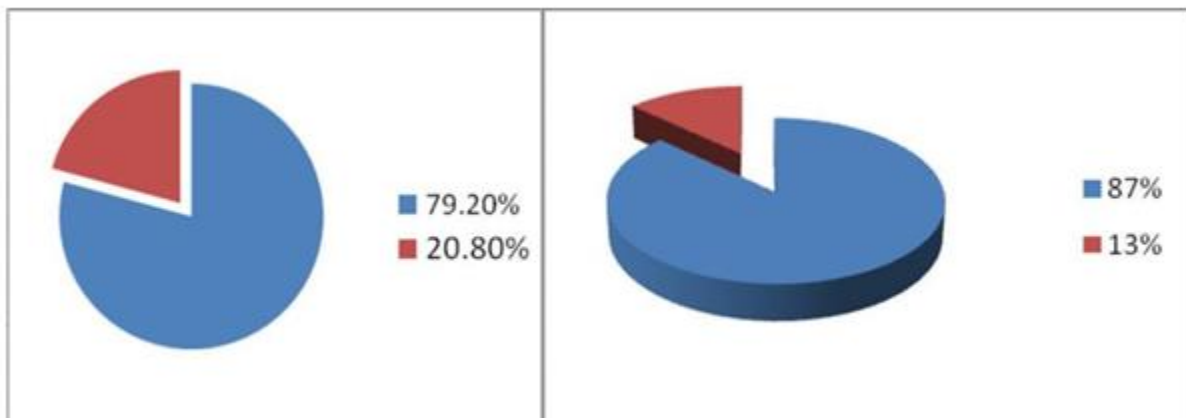


Figure 1: Share of B2B and B2C E-Commerce in Total Global E-Commerce (2021 and 2022)



B2C E-Commerce

Business-to-Consumer E-Commerce, also known as B2C or business-to-consumer commerce, entails customers gathering information, purchasing physical goods or information goods (or goods made of electronic material or digitized content, such as software or e-books), and receiving products via an electronic network. It is the second largest and oldest form of e-commerce.

B2G E-Commerce

Business-to-Government E-commerce, often known as B2G, refers to transactions between businesses and the public sector. It refers to the use of the Internet for public procurement, licensing, and other government-related activities. This type of E-Commerce has two characteristics: first, the public sector takes on a pilot/leading role in establishing E-Commerce; second, it is thought that the public sector has the greatest need to improve its procurement system's effectiveness. A web-based purchasing policy improves transparency in the procurement process and decreases the chance of errors. However, the size of the B2G E-Commerce sector as a percentage of total E-Commerce is currently negligible, as government e-procurement systems remain underdeveloped.

C2C E-Commerce

Consumer-to-Consumer, or C2C, refers to trade between private individuals or consumers. This sort of E-Commerce is distinguished by the

proliferation of electronic marketplaces and online auctions, particularly in vertical industries where firms/businesses can bid on what they desire from a variety of vendors. It may have the most potential for establishing new markets.

M-Commerce

M-commerce (Mobile commerce) is the purchase and sale of goods and services via wireless technology, which includes handheld devices such as cellular phones and Personal Digital Assistants (PDAs). Japan is regarded as a global leader in mobile commerce. As wireless content distribution grows faster, more secure, and scalable, some anticipate M-commerce may supplant wire line E-Commerce as the preferred way for digital commerce transactions. This may be true in Asia Pacific, where mobile phone users outnumber Internet users.

Electronic technology should now be viewed as a continuous operational cost rather than a capital expenditure. Thus, the key to getting the most out of computer systems is to select the proper technology and execute it to maximize the various benefits of E-Business. The benefits listed above are tied to corporate infrastructure, relationships, and market performance. If these systems are part of a well-defined and well-implemented business plan, they can result in benefits such as increased productivity, efficiency, and cost savings, which contribute to an increase in profitability.

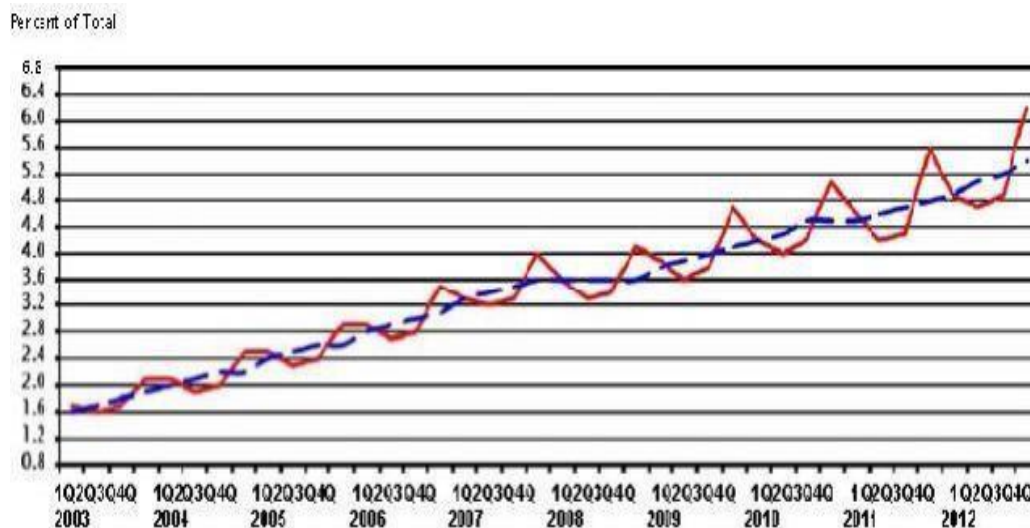


Figure 2: Estimated E-Commerce Sales: 1st Quarter 2003 - 4th Quarter 2012

Source: For information, including estimates from 4th quarter 1999 forward, visit the Census Bureau's Web site at <<http://www.census.gov/retail>>



V. CONCLUSIONS

With India's growth trends and the recent global recession, industrial production growth has a direct impact on GDP growth. There is an urgent need to sustain India's pre-recession growth momentum. There is pressure to achieve double-digit growth, which would only be attainable if the Indian manufacturing sector competes with multinational corporations (MNCs) and foreign enterprises.

An efficient supply chain strategy can help Indian enterprises overcome the majority of their issues. With information technology serving as a critical enabler of supply chain performance, addressing SCM adoption difficulties is an urgent need. This study examined the elements that influence SCM adoption. With India's expertise in software development, the inherent challenges of technology adoption must be addressed, such as organisational scale, product cost, implementation concerns, and so on. Recent technologies, such as cloud computing and SaaS, must be created specifically to meet the needs of Indian companies with their distinct traits and culture.

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