



SUSTAINABLE E-COMMERCE: A DESCRIPTIVE STUDY

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Abstract

The Internet revolution has led to the advancement of online business all over the world. Sustainable E-commerce is founded on the belief that no matter your industry or product, there are ways to make your E-commerce business more sustainable. The environmental, social, and economic aspects are significant to the e-commerce sector. It cannot be over-emphasized how important the sustainability of e-commerce in all three dimensions is. E-commerce will allow consumers to shop online easily, at any hour of the day, using secure payment systems. E-commerce and Sustainability Considering the rapid and continuous growth of the e-commerce, and the visibility it offers to the consumers and society as a whole, companies work and progress within the sustainable development, and the follow up of sustainable regulations are becoming increasingly important as it is getting more attention. The information and communication technologies (ICTs) of today has enabled better communication and knowledge transfer for companies on a global level, enabling expanded market scopes on the e-commerce markets as it gives a wider access to scattered consumers around the globe. Through this, e-commerce has helped to improve something called social innovation. It also created a link and integration between the developed and the developing countries around the world and thus making important improvements within the social dimension of sustainability

Keywords: *Commerce, Green E-Commerce, Sustainable E-commerce. B2B, B2C, C2C.*

Introduction

More than thirty years ago, the environmental problems seemed to concern all active citizens, enterprises and institutions throughout the world. International researches show that the consumers worry more about the environment and accordingly change their behavior. In today's era e-commerce has its strong place with lots of users and which ultimately increases its economic value. With its flourishing demand sustainability of e-commerce is higher among the different sectors such as organizations, institutions, government, non-government etc. In short it is to be said that e-commerce is all pervasive that is having its applicability all over the world. It is very influential to have an eye on the growth and sustainability of e-commerce. The-commerce industry is growing with technicality and connectivity of computers and various networks. It shall be useful for each organization to keep an eye at the upshot of e-commerce on organization's sustainability factors (financial, environmental and social) and see results out of this.

Since companies all over the world are involved in e-commerce, there is a need to ensure that their activities do not put the world into damage of sustainability. They need to preserve the environment, avoid environmental destruction, and ensure the continuation of humankind. The e-commerce sector must put emphasis on sustaining the environment by pressuring logistic service providers (LSP's) to lower their cost-driven prices and provide other transportation alternatives where possible to support their businesses. The primary objective of retailers is to focus on economic gains, and to generate profits and revenue economically. This can be done by taking possible trade-offs in the economy, environment, and society that result in greater benefits.

Research Objectives

- To analyze the Models of E-commerce for achieving the goals of sustainable development.
- To evaluate the environmental impacts of e-commerce

Research Methodology

The study is descriptive in nature based on secondary data and pertinent literature. The main sources of secondary data and pertinent literature are published and documented sources. Secondary data and pertinent literature has been compiled, analyzed and reviewed accordingly and the data has been presented in tabular form.



Literature Review

Magretta (1998) studied the impact of e-commerce on green-house gas emission due to transportation of inventories. Companies can use information technology for rapid and efficient sharing of information for inventory management and to speed up processes so that smaller buffer inventories are needed. The companies offering their products in global market does not necessarily need production facilities at every market, rather they should have the production facilities near the suppliers and the customers or outsourcing the production whenever needed. **Dobrota, & et al, (2012)** Over the last few decades, internet connectedness has been introduced as an indicator of socio-economic development and several papers have emphasized its importance. **Alka. &Panga, Murlidhar , (2013)** E-commerce as anything that involves an online transaction. E-commerce provides multiple benefits to the consumers in form of availability of goods at lower cost, wider choice and saves time. **Rina, (2016)**,The increasing fulfillment costs (includes every cost incurred from the point an order is placed till the time its delivered to the customer.), lack of last mile connectivity in many sub-urban and rural areas and the rising reverse logistics also hinder the growth of e-commerce firms by resulting in huge loss. **K.S. Kim,(2017)**‘Interactive media’ have been pushed to the breaking point in terms of what will become technologically possible, in terms of services that will be offered, in terms of economic gain, etc

Sustainable Development

Has been defined in many ways, but the most frequently quoted **definition** is from Our Common Future, also known as the Brundtland Report: "**Sustainable development is development** that meets the needs of the present without compromising the ability of future generations to meet their own needs."

History of Sustainable Development

The concept of sustainable development formed the basis of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. The summit marked the first international attempt to draw up action plans and strategies for moving towards a more sustainable pattern of development. It was attended by over 100 Heads of State and representatives from 178 national governments. The Summit was also attended by representatives from a range of other organizations representing civil society. Sustainable development was the solution to the problems of environmental degradation discussed by the Brundtland Commission in the 1987 report Our Common Future.

More recently, the World Summit on Sustainable Development was held in Johannesburg in 2002, attended by 191 national governments, UN agencies, multilateral financial institutions and other major groups to assess progress since Rio. The Johannesburg Summit delivered three key outcomes: a political declaration, the Johannesburg Plan of Implementation, and a range of partnership initiatives. Key commitments included those on sustainable consumption and production, water and sanitation, and energy.

The 17 sustainable development goals (SDGs) to transform our world





1: No Poverty, 2: Zero Hunger, 3: Good Health and Well-being, 4: Quality Education, 5: Gender Equality, 6: Clean Water and Sanitation, 7: Affordable and Clean Energy, 8: Decent Work and Economic Growth, 9: Industry, Innovation and Infrastructure, 10: Reduced Inequality, 11: Sustainable Cities and Communities, 12: Responsible Consumption and Production, 13: Climate Action, 14: Life Below Water, 15: Life on Land, 16: Peace and Justice Strong Institutions, 17: Partnerships to achieve the Goal.

Meaning of E-Commerce

In general run of the things, E-commerce can be elucidate as the sale or purchase of goods or services, whether it is in between business sectors, household sectors, private sectors or individuals, through connectivity with computers conducted via the internet or various other online communication networks. In the context of Community survey on ICT usage and e-commerce in different sectors, e-commerce refers to the placement of orders via computer networks. E-commerce can be effectively done via software like CRS in which through global distribution system helps for doing the reservations online or an exchange of electronic messages. EDI-type (Electronic Data Interchange) E-commerce refers to structured transmission of data or documents between enterprises by electronic means allowing automatic processing using for example EDI format or XML format.

Meaning of Green E-Commerce

A business runs in a capacity where no negative externality is there on the local as well as global environment, the community, or the economy. Green e-commerce will also engage in forward-thinking activities for environmental factors and activities affecting human rights.

Greene-Commerce Policy

The main aim of GREEN COMMERCE policy was to provide the retail sector with access to knowledge, research and technology on new environmental management systems. The ultimate goal was for the 3.5 million firms in this sector to have their own methodology to enable them to voluntarily start green policies. The strategic objectives is promoting environmental responsibility in the retail sector; demonstrating reductions in energy use and waste products by simple measures; stimulating innovation on environmental issues.

Environmental Impacts of E-Commerce

Some scholars have discussed three layer effects of E-commerce in their researches. These layers are as follows

1.Primary Effects: E-commerce is a very useful tool in reducing the building energy intensity because it encourages sharing of infrastructure like equipments, networks etc. in all functions of sourcing and distribution of material flows. Companies providing online services such as movie centers, online advisory agencies and online billing systems do not need physical locations. Thus E-commerce can prevent the release of large amount greenhouse gases in the world.

2.Secondary Effects: Indirect environmental effects of E-commerce is due to its power to change processes such as production or transport processes, resulting in a modification (decrease or increase) of their environmental impacts. When traditional companies apply advanced information technologies then it becomes highly efficient with tight collaboration, well communication and fast response. Companies grow faster by moving many of its operations to the internet.

3. Tertiary Effects: EC supports to less paper resource use or paper less society when often using digital communication for placing orders, sending bills, paying bills and so on. It leads to a “paperless office” or “paper less society” story. People used to visit, search, read, write and access the material online which change in the habit of the individuals and they avoids the use of papers and thus result in large sum of saved paper consumption.



Table 1: Types of Environmental Impacts of E-commerce

Effects	Caused by	Examples	Aspects
Primary effects	Infrastructure	Terminal Equipments such as PC, Mobile phones, Network Infrastructure, Servers, etc.	Energy Consumption, Material Consumption, Toxicity of end of life equipment.
Secondary Effects	Application	B2B, Change in Warehousing, Change in transportation and Packaging	Energy Consumption, Material Consumption, Traffic, Land Use
Tertiary Effects	Changes in consumption pattern, new habits, rebound effects	Increase in consumption, Substitution Effects, Side Effects	Energy Consumption, Material Consumption, Traffic, Land Use

Source: Abukhader and Jonson (2003) and Tuerk. V. (2001)

Discerning the impacts, it is helpful to use the following e-commerce models

1. Business-to-Business (B2B)
2. Business-to-Consumer (B2C)
3. Consumer-to-Consumer (2C)

1. Business-to-Business (B2B)

B2B is a transaction that occurs between two companies. the term may also describe a company that provides goods and services for another company.

Business-to-Business transactions by internet are estimated to account for 80% of the business transactions, such as

- Ordering parts and supplies
- Confirming receipts of deliveries
- Taking orders and confirming their shipment
- Communications with remote offices and contractors (ex. Advertising firm)
- Tracking inventories
- Monitoring of remote activities (building sensors, fuel consumption)
- Stock sales

A report from **Forrester Research** in 2017 estimated business-to-business (B2B) ecommerce transactions would reach \$1.2 trillion by 2021. This accounts for more than 13% of all B2B sales within the United States (up from the \$889 billion in sales by the end of last year)

B2B Ecommerce Payments Trends

With easy ways to fax orders online and with Gmail, a little over 23% of B2B retailers with an ecommerce channel still accept fax orders. That number is much lower in comparison to the 3 most popular payment arenas:

- Website: 80%.
- Email: 77%.
- Phone: 72%.

The Net Effect

- B2B to replace human travel and paper documents by electronic information exchange dematerialization, as direct effect.
- Orders in precise amount, orders just in time, finer control of inventories leads to reduction in warehousing and reduction in energy use and land use.



- Better logistics: its leads to less transportation

2. Business-to-Consumer (B2C)

B2B Activity	Environmental Impacts
B2B to replace human travel and paper documents by electronic information exchange	Dematerialization, as direct effect
Orders in precise amount ,orders just in time, finer control of inventories	Reduction in warehousing and reduction in energy use and land use.
Better logistics	Its leads to less transportation
Internet transactions also increase the speed of the activity	Less spoilage of perishables less waste

The term business-to-consumer (**B2C**) refers to the process of selling products and services directly between a business and consumers who are the end-users of its products or services

Some of The Most Powerful Strategies Includes By Business-To-Consumer (B2c)

- Social media marketing and advertising
- Paid search advertising
- B2C content marketing
- Email marketing
- Creative contests
- Loyalty and reward programs
- Affiliate marketing:

Manufacturing companies can address environmental impacts by committing their companies to

1. Encourage electronic payments.
2. Advertise online.
3. Place instruction manuals online.
4. Encourage shippers to use alternative fuels.
5. Use the most efficient product delivery system.
6. Move toward more environmentally sound packaging.
7. Do comparative life-cycle analysis before deciding to open a new store or warehouse.
8. Work with delivery companies to institute packaging and product take-back.
9. Design products that are efficient to ship (ex. concentrates).
10. Develop a consistent set of criteria and measures to define the environmental characteristic of their product.
11. Develop an international code of practices to prevent trade in hazardous substances and banned products.
12. Track and report environmental impacts of e-commerce at their end.

Environmental Benefits from B2C

B2C Activity	Environmental Impacts
1. Exchange of digitized information	Less paper work
2. Technology enabled transitions no physical visit to seller shop	Reduction in usage of transportation and save the energy
3. Direct marketing – Eliminates the channel of distribution	Reduction warehousing
4. Online banking and billing	Less paper work and reduce the CO2



5. Demand side commerce	Reduction in wastage of resource
6. Low rate of package recycling	Eco friendly packing

Consumer-2-Consumer (C2C)

C2C is a business model that facilitates the transaction of products and services between the customers. It is a special models few customers offers product and services and other customer will accept that.

Environmental Benefits from B2C

C2C Activity	Environmental Impacts
1. Seller directly contact the buyer,	Reduction in CO2
2. Anyone can advertise their products in the website	Less usage of paper and chemicals
3. Transaction will takes place very fast– Eliminates the channel of distribution	Reduction warehousing
4. No packing and Packaging	Eco friendly
5. Development of local markets for trading	No store & no warehouse

Summary to Choosing Sustainable E-Commerce

1. The Cost of Pro-Environmental Behavior

One of the most significant barriers to more environmentally sustainable consumption is cost. Diekmann and Preisendorfer (1998) hypothesized a relationship between the cost –the time, money, and effort –of making more environmentally conscious choices and the strength of impact an environmental intent had on behavior While making choices like using reusable shopping bags and recycling cans are relatively low cost and thus easily adopted by those with more environmental attitudes, the same consumers would find it much more difficult to rely solely on public transportation or reduce their energy use significantly (Diekmann & Preisendorfer, 1998).

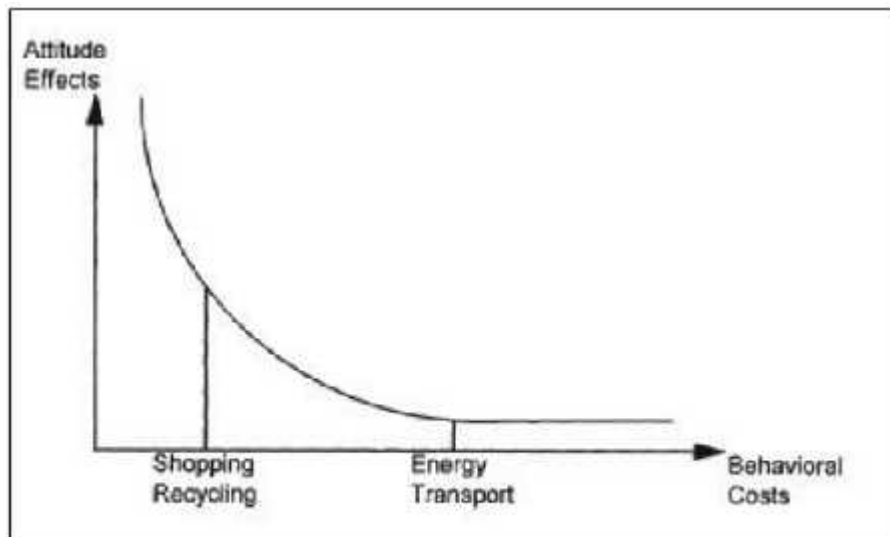


Figure 7. Low cost hypothesis (Diekmann & Preisendorfer, 1998)

2. Encouraging Sustainable Retail Practices



In the decision making process behind a purchase, green values, those which are concerned with environmental impact, are in competition with many other factors, such as brand strength, culture, finance, habit, lack of information, and tradeoffs between different ethical factors. The consumers purchased a higher proportion of green products, in this case those with recognizable eco-labels, consumers were influenced in the same way. This reinforces the notion that an individual's behavior can influence a collective shift.

3. Sustainable Shopping Practices Online

Few recent academic studies have looked at online shopping through the lens of sustainability on the part of the consumer. In considering the gap between intent and behavior, new systems are necessary in order to inform consumers of the impacts their shopping choices can have. One such system, which puts the individual at the forefront of sustainability, is called the Individual Sustainability System (ISS). This attempts a comprehensive approach to "facilitate information, collaboration and entertainment features to support a holistic sustainable transformation".

4. The Sharing Economy

The most relevant aspect of the sharing economy to online shopping are websites allowing for the exchange and purchase of used or new goods among consumers, or peers, which leads to the term peer to peer (P2P) electronic commerce.

- Waste diverted from landfill that would otherwise be discarded.
- Increased local transactions reducing transport-related emissions over long distances.
- In counties where Craigslist launched an area list for residents to buy and sell secondhand goods, a correlated reduction in waste generation occurred.

Conclusion

E-commerce has the potential to improve the efficiency of commerce that could reduce automobile use, reduce traffic, and enable businesses and consumers to be savvy green shoppers. By reducing the amount of energy and materials consumed by business, the e-commerce stands to revolutionize the relation between economic growth and the environment. It also helps decrease resource waste and associated pollution by improving the efficiency of economic activity.

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