E - Commerce: A Primer

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ABSTRACT

Electronic commerce (ecommerce) is the process of conducting business over computer networks such as the Internet. It has revolutionized business transactions by enabling the consumers to purchase, invest, bank, and communicate from virtually anytime, anywhere. This paper provides a brief introduction to ecommerce, its opportunities and challenges.

Key Words: Electronic commerce, e-commerce, Digital commerce, Mobile commerce, e-business.

1. INTRODUCTION

Traditional commerce has been in existence for thousands of years. With time, the traditional commerce cannot respond to modern expectations. To stay competitive, more and more companies are using the Internet to provide services online and increase market share. They conduct business transactions with their customers and vendors over the Internet.

The term electronic commerce (or e-commerce) refers to the process of conducting business transactions over the Internet. Ecommerce is rapidly developing as a green business and economic opportunity. Ecommerce as a green business refers to the application of electronic means to conduct

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commerce [1]. It has drastically changed people's lifestyle in the developed nations. For example, money can be transferred between banks electronically.

2. RETAIL SERVICES

Ecommerce is a lucrative means for retailers to market their products to a growing numbers of consumers with Internet access. Online retailers use ecommerce model to generate revenues, create profits, and continue to compete as a business entity. Ecommerce has some advantages over traditional commerce: lower cost of running a store, no rent to pay, no barriers to time or distance, it is easier and more convenient to run a business, and increase of profits. Other benefits include around-the-clock availability, easy and convenient accessibility, speed of access, wider selection of products and services, and international reach [2].

Common applications related to ecommerce include online shopping, online banking, payment systems, electronic air tickets, hotel reservation, tourism, and teleconferencing.

Amazon and eBay are typical examples of ecommerce companies that rely on Internet-based technology to sell their products around the globe.

To start an online business, one must find a niche product that consumers cannot easily find in traditional stores. Basic elements required to run a business online are [3]: ecommerce software, a payment processing service, and a merchant account. The ecommerce software enables one to build and maintain websites and associated databases that contain products and prices. Most online purchases are paid by credit cards, smart cards, electronic cash, or through a third-party such as Paypal. The merchant account refers to the business account into which the money from credit card purchases is deposited. In the US, delivery companies such as UPS and Fedex provide door-to-door services to consumers.

To survive, a company must be able to attract and retain customers. Since consumers shop online comparing prices, companies who sell online should differentiate their products and services to avoid direct price competition. It is hard to keep up with the constantly changing inventory and product availability. Because of these changes, the business catalogs need constant updates.

2.1 REGULATION

Some ecommerce activities are regulated in the US by the Federal Trade commission (FTC). FTC regulates all forms of advertising, the use of commercial emails, and the security of consumers' personal information. It requires that advertising should be truthful and not deceptive. Other nations, such as the United Kingdom, Canada, China, India, and Australia, regulate ecommerce, data message, and electronic signature authentication [4].

2.3 SECURITY

The security risks involved in ecommerce has been a major concern. Internet security has been a growing problem as companies provide media-based products and services. Security is particularly important when online shoppers have to make payment. We must protect customers' privacy and enhance the security of ecommerce. There are security vulnerabilities attributed to flaws in Internet-based software. The insecurity make many consumers uncomfortable about providing the personal and other sensitive information online. Businesses must provide security risk management. Ecommerce provides security defenses such as firewalls, authentication scheme, and encryption [5]. Some systems used for ecommerce operate from a platform with built-in security layers.

2.4 BARRIERS

Besides security, there are other barriers against the full adoption of ecommerce. These problems must be addressed in order for ecommerce to fully exploit its capabilities.

First, there is the problem of Internet tax or tax-free ecommerce. Federal, state, and local governments lose revenues as a result of people purchasing their goods online. Allowing ecommerce to escape sales tax would make traditional companies to be at a competitive advantage. Internet sales tax is difficult if not impossible to collect in a global market [6].

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Second, as the number of mobile phone users exceeds the number of PC users, how to adopt mobile technology with ecommerce becomes an issue. Although millions of companies are involved in ecommerce, relatively few are compatible with smartphones. Mobile devices are helping to boost the success of ecommerce. This is known as mobile commerce or mcommerce. Mobile screens are usually too small for the content of the regulate PC screen for which the content was originally designed [7].

Third, in order for ecommerce to penetrate into the global market and aid development, it needs to be adopted in developing countries. Ecommerce adoption in developing nations has been restricted by the cost and availability of technological and financial infrastructure. Unavailability of credit cards for online shopping has hindered ecommerce [8]. Other problems include digital literacy, cultural constraints, lack of infrastructure, lack of government policies and strategies, concern for cybercrime, and data security and privacy [9].

Fourth, although the Internet promised to be the equalizer, the digital divide is still as wide as ever, leaving several billions unconnected and information starved. The ecommerce can be international in scope. It uses international networks and online databases accessible to everyone around the world. These international websites must have multiple languages.

3. CONCLUSION

Ecommerce refers to the use of the Internet to conduct marketing, payment, and delivery of products and services. The ecommerce has become an indispensable tool for businesses worldwide because it allows people to conduct business transactions anytime and anywhere. It has created opportunities for businesses to reach consumers directly. It facilitates cross-border transactions and brings about economic and social development.

REFERENCES

- [1] M. R. N. Gorgani, "Electronic commerce as a sustainable business," *European Journal of Sustainable Development*, vol. 3, no. 3, 2014, pp. 141-148.
- [2] K. Cao and Z. Yang, "A study of e-commerce adoption by tourism websites in China," *Journal of Destination Marketing & Management*, vol. 5, 2016, pp. 283-289.
- [3] G. B. Shelly, H. A. Napier, and O. Rivers, *Discovering the Internet: Complete Concepts and Techniques*. Boston, MA: Course Technology, 3rd ed., 2010, pp. 359-400.
- 7. [4] "E-commerce," Wikipedia, https://en.wikipedia.org/wiki/E-commerce
- [5] B. Gehling and D. Stankard, "eCommerce security," *Proceedings of the 2nd Annual Conference on Information Security Curriculum Development*, Sept. 2005, pp. 32-37.
- 9. [6] S. Pressman, "E-commerce, the sales tax, and equity," *Dissent*, vol. 47, no. 3, Summer 2000, pp. 49-52.
- [7] M. Troutman and S. Timpson, "Effective optimization of web sites for mobile access: the transition from ecommerce to mcommerce," *Journal of Interactive Advertising*, vol. 9, no. 1, Fall 2008, pp. 65-70.
- [8] N. Kshetri, "Barriers to e-commerce and competitive business models in developing countries: a case study," *Electronic Commerce Research and Applications*, vol. 6, 2007, pp. 443-452.
- [9] C. Adalikwu, "Challenges and opportunities in the implementation of electronic commerce: the case of Nigeria," *African Journal of Business Management*, vol. 6, Nov. 2012, pp. 11495-11503.

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