E-Commerce in Business to Consumer

Submitted By:

Sakib Rahman

2010-1-68-019

Supervised By:

Dr. Md. Nawab Yousuf Ali

Associate Professor

Department of Computer Science & Engineering

East West University

At the

East West University
Dhaka, Bangladesh

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A project submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science & Engineering to the Department of Computer Science & Engineering

At the

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Dhaka, Bangladesh

September, 2015

<u>Declaration</u>

This is certified that this project is an original work and is done by me. Neither it nor part of it has been submitted elsewhere for the requirement of any degree or diploma or for any other purposes.

Signature of the Candidate

(Sakib Rahman)

Letter of Acceptance

The Project entitled "**E-Commerce in Business to Consumer"**, submitted by Sakib Rahman (ID: 2010-1-68-019) to the Department of Computer Science and Engineering, East West University, Dhaka, Bangladesh is accepted by the Department in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering on September, 2015.

Board of Examiners:

Project Supervisor

Dr. Md. Nawab Yousuf Ali
Associate Professor
Department of Computer Science & Engineering
East West University, Dhaka, Bangladesh

Chairperson

Dr. Shamim H. Ripon
Associate Professor and Chairperson
Department of Computer Science & Engineering
East West University, Dhaka, Bangladesh

Abstract

The E-Commerce or Electronic Commerce is a term for any type of business or commercial transaction that involves the transfer of information across the Internet. It is currently one of the most important aspects of the Internet to emerge. E-commerce has grown tremendously worldwide. The aim of my study is to develop an e-commerce web service. In my project, I develop a Business to Consumer (B2C) e-commerce web service that customers can buy products via Internet. From my web service users can easily access it, can select the categories, select the products and take which quantity they want and paying by bank account, cheque or on delivery. I also study the technical perspective of e-commerce how it is build and what software and hardware are needed to run it. I use several methods to reach our goals to develop an e-commerce, design and developed front-end for normal users and back-end for admin. Architecture and code review of e-commerce site and introducing intentional change to understand e-commerce engine. E-commerce has significant impact on societies and business. In the future e-commerce may become totally mobile based.

<u>Acknowledgement</u>

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Chapter 1: Introduction

Introduction:

The E-Commerce means 'Electronic Commerce'. It is the buying and selling of products or services over electronic systems. E-commerce draws on such technologies as electronic funds transfer, supply chain management, internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems and automated data collection systems. Modern electronic commerce uses the at least at one point in the transaction`s life-cycle, although it may encompass a wider range of the technologies like- e-mail, mobile devices and telephones as well. E-commerce is generally considered to be the ales aspect of e-business. It also consists of the exchange of data to facilitate the financing and payment aspects of business transactions.

The main area of e-commerce is:

1. Business to Business (B2B)
2. Business to Consumer (B2C)
3. Business to Government/Government to Business (B2G/G2B)
4. Consumer to Consumer (C2C)

Beginning in the 1990s, electronic commerce would include enterprise resource planning systems (ERP), data mining and data warehousing in 1990, Tim Bemers-Lee invented the World Wide Web, web browser and transformed an academic telecommunication network into a worldwide everyman everyday communication system called internet/www. Commercial enterprise on the Internet was strictly prohibited by NSF until 1995.Although the Internet became popular worldwide around 1994 with the adoption of web browser. By the end of 2000, many European and American business companies offered their services through the World Wide Web. Since then people began to associate a word "e-commerce" with the ability of purchasing various goods through the Internet using secure protocols and electronic payment services.

1.1 Background:

This is the era of information and communication technology. The leading concern of electronic revolution in this 21st century is to establish and ensure a better, easy and

comfortable way of management, communication and development with the use of information technology. E-commerce has become a buzzword of present information technology. It is the process of conducting all forms of business through computer network and digital communication. Increasing domestic and global competition, economic downturn, rapidly changing market trends, and volatile financial markets have all added to the pressure on organizations to come up with effective responses to survive and succeed. Furthermore, easing of international trade barriers, economic liberalization, globalization, and deregulation have led to several challenges for organizations in developing and newly industrializing economies like Bangladesh. E-commerce is widely used in performing B2B operations in different part of the world. Copping up the ongoing threats and opportunities Bangladesh's business organizations should comply with the advancement. E-commerce consists of all internet users of the world. The members of the community can interact with each other at any time without considering the distance gap. Time, place and national boundary do not make any obstacle to build and maintain the relationship. The internet has opened up a new horizon for commerce, namely electronic commerce (e-commerce). It entails the use of the internet in the marketing, identification, payment and delivery of goods and services. At present internet facilities are available in Bangladesh. Slowly, but steadily these facilities are holding a strong position in every aspects of our life. E-commerce is one of those sectors which need more attention if we want to be a part of global business. Bangladesh is far-far away to adapt the main stream of e-commerce application. Though government is shouting to take the challenges of e-commerce, but they do not take the right step, that is why e-commerce does not make any real contribution in our socio-economic life. A question frequently strikes our mind: "Is the realities in the developing countries like Bangladesh, where access to modern technologies is very limited, meet the philosophy of e-commerce?" This paper aims at examining whether there is any gap between the philosophy of the e-commerce and the reality in the developing countries like Bangladesh and identifies the factors lies behind this gap. Then this paper suggests some measures to be taken to minimize the gap.

1.2 <u>Objectives:</u>

1. Define e-commerce and describe how it differs from e-business.
2. Identify and describe the unique features of e-commerce technology and discuss their business significance.

3. Describe the major types of e-commerce.

4. Discuss the origins and growth of e-commerce.

5. Explain the evolution of e-commerce from its early years to today.

6. Identify the factors that will define the future of e-commerce.

7. Describe the major themes underlying the study of e-commerce.

8. Identify the major academic disciplines contributing to e-commerce and understand design of an e-commerce engine.

9. Analysis of e-commerce system procedure.

10. Developed e-commerce for business to consumer.

11. Identify the opportunity and problem of e-commerce implementation in Bangladesh.

12. Identify the future of e-commerce.

1.3 Motivation:

Having been exposed and have had a good and long experienced hand it IT expertise in my professional and career line up, I have been motivated towards the automation of e-commerce in business to consumer site eliminate the drawback and effectiveness in the traditional system adopted by Bangladesh in this regard.

Existing e-commerce site in business to consumer is not having refine search and not any option of little slope.

The purpose of this project is to develop an application that is totally feasible, secured and obtainable. This project is needed not only convenience; cost saving and improved efficiency in the related process, but most especially it will completely replace the manual system.

The scopes of the developed system are very dynamic. Dynamic in the scene of the user of this system can use it dynamically, with this system, admin can manage the entire process about of information of product and user.

1.4 Contributions:

1. A salable user friendly e-commerce website

2. Targeted to solve specific problems

3. Has been designed and developed for large-scale multidimensional integration management system.

4. Developed a cost efficient System

5. Tacking user post and feedback

Chapter 2: Overview of E-Commerce

In the overview of e-commerce defines e-commerce, e-commerce history, advantages and disadvantages of e-commerce, risk and barriers of e-commerce, impact of e-commerce on society and impact of e-commerce on business.

2.1 E-Commerce:

E-commerce (electronic commerce or EC) is the buying and selling of goods and services on the Internet. In practice, this term and a newer term, e-business, are often used interchangeably. For online retail selling, the term e-tailing is sometimes used. E-commerce can be divided into:

1. E-tailing or virtual storefronts on web sites with online catalogs, sometimes gathered into a virtual mall
2. The gathering and use of demographic data through web contacts
3. Electronic Data Interchange (EDI), the business-to-business exchange of data
4. E-mail and fax and men- use as media for reaching prospects and established customers (for example, with newsletters)
5. Business-to-business buying and selling
6. The security of business transactions. [1]

- ### E-tailing or The Virtual Storefront and the Virtual Mall:

As a place for direct retail shopping, with its 24-hour availability, a global reach, the ability to interact and provide custom information and ordering and multimedia prospects, the web is rapidly becoming a multibillion dollar source of revenue for the world's businesses. A number of businesses already report considerable success. As early as the middle of 1997, Dell Computers reported orders of a million dollars a day. By early 1999, projected e-commerce revenues for business were in the billions of dollars and the stocks of companies deemed most adept at e-commerce were skyrocketing. Although many so-called dotcom retailers disappeared in the economic shakeout of 2000, Web retailing at sites such as Amazon.com, CDNow.com, and CompudataOnline.com continues to grow.

- **Market Research:**

In 1999, it was widely recognized that because of the interactive nature of the Internet, companies could gather data about prospects and customers in unprecedented amounts through site registration, questionnaires and as part of taking orders. The issue of whether data was being collected with the knowledge and permission of market subjects had been raised.

- **Electronic Data Interchange (EDI):**

EDI is the exchange of business data using an understood data format. It predates today's Internet. EDI involves data exchange among parties that know each other well and make arrangements for one-to-one or point-to-point connection, usually dial-up. EDI is expected to be replaced by one or more standard XML formats.

- **E-Mail, Fax, and Internet Telephony:**

E-commerce is also conducted through the more limited electronic forms of communication called e-mail, facsimile or fax, and the emerging use of telephone calls over the Internet. Most of this is business-to-business, with some companies attempting to use e-mail and fax for unsolicited ads (usually viewed as online junk mail or spam) to consumers and other business prospects. An increasing number of business Web sites offer e-mail newsletters for subscribers. A new trend is opt-in e-mail in which Web users voluntarily sign up to receive e-mail, usually sponsored or containing ads, about product categories or other subjects they are interested in.

- **Business-to-Business Buying and Selling:**

Thousands of companies that sell products to other companies have discovered that the Web provides not only a 24-hour-a-day showcase for their products but a quick way to reach the right people in a company for more information.

- **The Security of Business Transactions:**

Security includes authenticating business transactions, controlling access to resources such as web pages for registered or selected users, encrypting communications and in general, ensuring the privacy and effectiveness of transactions. Among the most widely-used security

technologies is the Secure Sockets Layer (SSL), which is built into both of the leading web browsers.

2.2 **E-commerce History:**

The history of e-commerce dates back to the invention of the very old notion of "buy and sell", electricity, cables, computers, modems, and the Internet. E-commerce became possible in 1991 when the Internet was opened to commercial use. Since that date thousands of businesses have taken up residence at web sites.

At first, the term e-commerce meant the process of execution of commercial transactions electronically with the help of the leading technologies such as Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT) which gave an opportunity for users to exchange business information and do electronic transactions. The ability to use these technologies appeared in the late 1970s and allowed business companies and organizations to send commercial documentation electronically. [2]

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• **Early Development:**

The meaning of electronic commerce has changed over the last 30 years. Originally, electronic commerce meant the facilitation of commercial transactions electronically, using technology such as Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT). These were both introduced in the late 1970s, allowing businesses to send commercial documents like purchase orders or invoices electronically. The growth and acceptance of credit cards, automated teller machines (ATM) and telephone banking in the 1980s were also forms of electronic commerce. From the 1990s onwards, electronic commerce would additionally include enterprise resource planning systems (ERP), data mining and data warehousing.

Perhaps it is introduced from the Telephone Exchange Office. The earliest example of many-to-many electronic commerce in physical goods was the Boston Computer Exchange, a marketplace for used computers launched in 1982. The first online information marketplace, including online consulting, was likely the American Information Exchange, another pre-Internet online system introduced in 1991.

- ## **Web Development:**

When the web first became well-known among the general public in 1994, many journalists and pundits forecast that e-commerce would soon become a major economic sector. However, it took about four years for security protocols (like HTTPS) to become sufficiently developed and widely deployed. Subsequently, between 1998 and 2000, a substantial number of businesses in the United States and Western Europe developed rudimentary web sites.

In the dot com era, electronic commerce came to include activities more precisely termed "Web commerce" - the purchase of goods and services over the World Wide Web, usually with secure connections with e-shopping carts and with electronic payment services such as credit card payment authorizations.

Although a large number of "pure" electronic commerce companies disappeared during the dot-corn collapse in 2000 and 2001, many "brick-and-mortar" retailers recognized that such companies had identified valuable niche markets and began to add e-commerce capabilities to their Web sites. For example, after the collapse of online grocer web van, two traditional supermarket chains, Albertsons and Safeway, both started e-commerce subsidiaries through which consumers could order groceries online.

The emergence of electronic commerce also significantly lowered barriers to entry in the selling of many types of goods; many small home-based proprietors are able to use the internet to sell goods. Often, small sellers use online auction sites such as eBay, or sell via large corporate websites like Amazon.com, in order to take advantage of the exposure and setup convenience of such sites.

$259 billion of online sales including travel are expected in 2007 in USA, an 18% increase from the previous year, as forecasted by the State of Retailing Online 2007 report from the National Retail Federation (NRF) and Shop.org.

Currently there are 67 Fortune 1000 companies that have e-commerce revenues greater than $10 million. The 5 largest Internet retailers are Amazon, Staples, Office Depot, Dell, and Hewlett Packard. This indicates that the top categories of products sold on the Internet are

books, music, office supplies, computers, and other consumer electronics. A list of Fortune 1000 companies ranked by e-commerce revenues can be found on AListNet.

2.3 <u>Main Area of E-Commerce:</u>

There are four main area of e-commerce

1. Business to Business (B2B)
2. Business to Consumer (B2C)
3. Business to Government / Government to Business (B2G/G2B) [3]
4. Consumer to Consumer (C2C)

E-commerce can be broadly classified into four categories: Business to Business (B2B), Business to Consumer (B2C), Business to Government / Government to Business (B2G/G2B) and Consumer to Consumer (C2C). The Internet also encompasses a wider spectrum of potential commercial activities and information exchanges. For instance, it offers firms, individuals and governments an electronic infrastructure, which enables the creation of virtual auction markets for goods and services as shown in Table 2.1

Table 2.1: E-commerce and border internet application

	Government	Business	Consumer
Government	G2G e.g. coordination	G2B e.g. information	G2C e.g. information
Business	B2G e.g. procurement	B2B e.g. e-commerce	B2C e.g. e-commerce
Consumer	C2G e.g. tax compliance	C2B e.g. price comparison	C2C e.g. auction markets

Governments in some developed and developing countries are beginning to reorganize the management of public procurement systems - equivalent to some 10 per cent of GDP - over the Internet, opening the prospect of sizeable business to- government (B2G) transactions. The technology is also being used by governments for the transmission or receipt of information (G2B, G2C) to improve the convenience and lower the cost of payment systems and tax compliance (C2G), and by businesses to manage after sales service and to develop direct consumer marketing.

Network infrastructures such as telecom, wireless, cable TV, Internet and Intranet are used to implement e-commerce transactions. The focus is currently on Internet-based e-commerce. An e-commerce activity, which typically involves the following steps, invokes a wide variety of services:

1. The customer sits down at a computer terminal or other access device (computer service);
2. Goes to a website with promotional information (advertising service);
3. Logs onto the Internet (communication service);
4. Orders a product (distribution service) and pays for it (financial service); and
5. Downloads the product, if digitized, or has it mailed to an address (delivery service).

- ## **Business-to-Business Electronic Commerce: New Efficiencies and Relationships:**

Many people believes that the most promising area of electronic commerce is not retailing to individuals but the automation of purchase and sale transactions from business to business. For a number of years, companies have used proprietary electronic data interchange (EDI) systems for this purpose; now they are turning to the web and extranets Cisco system, a leading manufacturing of networking equipment, conducts 40 percent of its sales electronically, with more than $1 billion in sales per year through its web site. Order taking, credit checking, production scheduling, technical support, and routine customer-support activities are handled on-line.

- ## **Electronic Commerce Support Systems:**

A business interested in setting up a system to support electronic commerce has three options:

1. Using a web server with a toolkit to build its own system.
2. Purchasing a packaged commerce web server system.
3. Outsourcing the system to an e-commerce service provider.

A number of commerce or merchant web server systems are available. They typically provide a web storefront, usually with some type of on-line catalogue support and a means for taking orders. Some of these systems link to financial networks to complete payment processing.

For companies that are not ready to operate their own electronic commerce sites, companies such AT&T, MCI, Best Internet Communication, and BBN Planet offer Web hosting services that process electronic commerce transactions for other organizations. A web hosting service

maintains a large web server or series of servers and provides fee-paying subscribers with space to maintain their web sites. The subscribing companies may create their own web pages or have the hosting service or a web design firm creates them. Web hosting services offer solutions to small companies that do not have the resources to operate their own commerce servers or companies that still are experimenting with electronic commerce.

Integrating all of the processes associated with electronic commerce requires additional software and tools, such as software providing interfaces between web servers and the company's core-transaction databases and electronic payment systems. Electronic payment systems use technologies such electronic funds transfer, credit cards, smart cards and credit cards, and new Internet-based payment systems to pay for products and services electronically. E-commerce web based e-marketplace system as shown in Figure 2.1 software to track and monitor Web site usage for marketing analysis also is desirable.
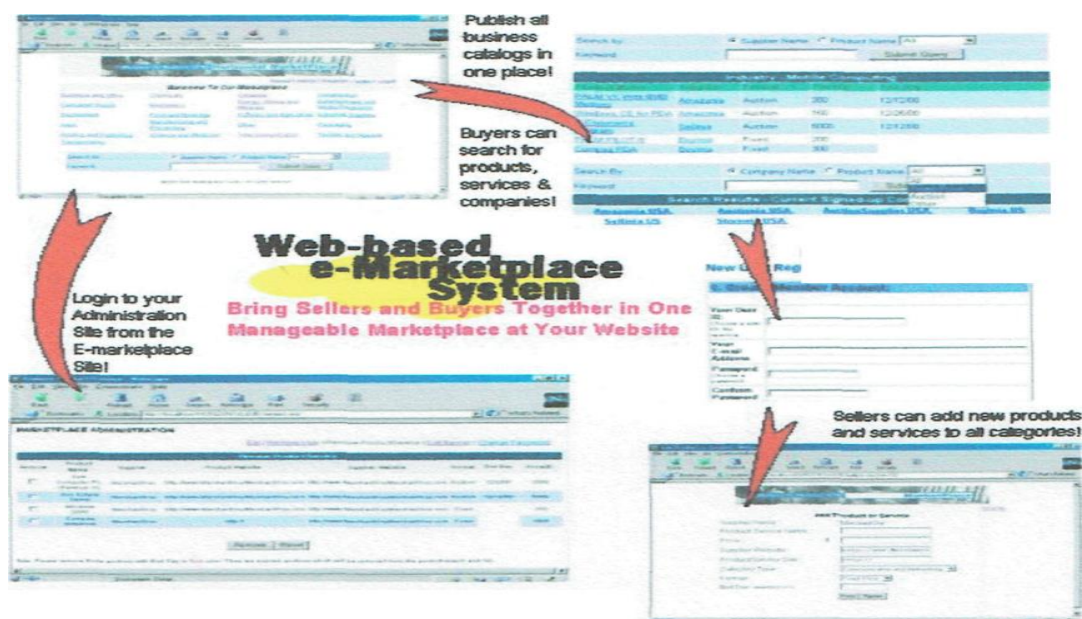
Figure 2.1: E-commerce web based e-marketplace system

• Products and Structure of Electronic Commerce:

Products and structures of E-commerce cover its three categories: Consumer-oriented commerce, business-to-business commerce and intra-organizational business. All three are experiencing vigorous developments, albeit with differing economic outcomes at this time.

The most highly touted applications of E-commerce are consumer-oriented. They include remote (or home) shopping, banking, and stock brokerage, accompanied by (and in some

cases, so far paid by) on-line advertising. The intended audience for this market has not reached a critical mass, although the immense potential of this segment is driving much of the interest in E-commerce, as expressed, for example, by the stock-market capitalization of a number of companies that address it. The fact that the relatively successful vendors include Amazon.com, a bookseller with huge, since virtual, inventory of 2.5 million titles, an impressive market capitalization, and a large following that has grown just in the third quarter of 1997 by 54 percent. CD now and N2K are reportedly profitable sellers of recorded music and already public companies with very high valuations relative of their sales. Virtual vineyards, a virtual storefront selling wine and gourmet foods, and Sportsite.net that sells sports equipment and apparel, are other well-known (yet limited-size) examples. A large number of traditional vendors derive incremental revues from E-commerce. In many cases, purchase over the Internet is substitute for a purchase in a physical outlet.

This cannibalization belies its name by its desirability. Thus, Dell computers, for example, realize very significant savings by selling to consumers over the Web $3 million worth a day of personal computing hardware and software. A number of firms provide remote financial services. Security first National Bank has successfully introduced branch-less banking over the Internet had has been acquired by the Royal Bank of Canada at a valuation significantly exceeding that suggested by $54.7 million in deposits accumulated by Security First. Lombard Brokerage was the most notable pioneer of offering securities on the Web, along with a variety of free information services. For a chance of success in the consumer marketplace, the firm must identify an actual customer need and me firm's relationship with the customer must build on the key feature of the medium, namely interactivity.

The other principal consumer-oriented segment is infotainment-on-demand. The segment builds on the Web as a new communication medium, whose nature is as yet being explored.

Some of the educational programs and courses may be expected to bear appropriate accreditation and degrees; virtual universities are being formed and some see the traditional university model threatened. The segment also includes such content sites webzines as well as electronic newspapers and books, access to analytical reports, expert opinions, and to the experts themselves. Legitimating of expertise, packaging of knowledge and information from several sources, preservation of intellectual property, and use-based payments are issues to be resolved through further research, development, and experimentation in the marketplace. The

entertainment side, overlapping with the informational one, includes several categories of webzines and electronic to multiple players. The sector known as adult entertainment is reputed to be the most profitable aspect of infotainment.

The customer-oriented category is expected to expand in many ways, only some of which can be foreseen. For example, electronic benefit systems can be used to distribute government transfers over the Internet, which can then be employed for direct payments; the multimedia capability can redefine the notion of a magazine by including, for example, film clips; a variety of electronic interaction with "live" creators of infotainment may be expected to complement their creations.

The business-to-business supplier-customer linkages maintained with EDI are the best-established category of E-commerce application. This category will be vastly inter-organizational supply-chain management, which we shall discuss below. The business-to-business commerce is facilitated by consortia such as Commerce Net and by Firms that organize industrial marketplaces on the Web, such as Industry.Net. Total business-to-business purchases made on the Web in the United States in 1997 are estimated at $10 billion by International Data Corporation.

The fastest growing area on this level of E-commerce is the intranet and extranet-based information sharing and collaboration. Intranets support the opening of the organizational databases and data warehouses within the firm, dissemination of information on Web pages, as well as geography-independent team-oriented collaboration within the corporate firewalls. A typical intranet employed by Morgan Stanley, displays on the globally accessible Web site automatically generated up-to-the-minute data summarizing the company's investment positions. More active uses of intranets are being developed on-line electronic prototypes of automobiles and their components. The intranet-based use of the Internet facilities may lead to spectacular returns on investment. An extranet accessible to Harley-Davidson's dealers enables them to file warranty claims, check recall status, and submit financial statements to the motorcycle manufacturer, with the capability to order parts and accessories being implemented. It has become an inexpensive means of converting paperwork to electronic communications.

At the apex of the E-commerce framework are the electronic marketplaces and electronic hierarchies that facilitate business relationships and transactions over telecommunications

networks between firms. Electronic marketplaces are created to facilitate transactions over telecommunications networks between multiple buyers and multiple suppliers. Electronic hierarchies are long-lasting supplier-customer relationships between firms, maintained with telecommunications networks and coordinated largely by management, rather than by the market forces. Market-based coordination can be classified into four categories direct-search markets, bordered markets, dealer markets, and auction markets. Industry.Net is an example of an established direct-search market for industrial products; On Sale provides an electronic auction market.

The fashioning of integrated supply chains, promoting just-in-time manufacturing pulled by the actual customer orders, is supporting the information of inter-organizational electronic hierarchies. The partner's value chains are integrated to a significant extent with the use of information systems and telecommunications networks. The visibility of stocking levels throughout the supply chain helps to minimize inventories and to reduce working capital. This mode of operation imposes tight constraints on intra-and inter-organizational coordination, in which intranets, extranets, and the Internet in general may expect to play a significant role. Indeed, the reliance by all three on the same fundamental technology package is vital for the integration. By securely linking its sub networks with those of business partner in an extranet that relies on the Internet product development, production, and delivery. Heineken U.S.A., for example, use its HOPS extranet to collaborate with the distributors and suppliers on scheduling, forecasting, and just-in-time replenishment of supplies, consistently moving towards an electronically integrated supply chain. New intra- and inter-organizational structures are necessary to take advantage of the Internet technologies in supply-chain management.

The hierarchies of individual firms and the open marketplaces may by considered the two ends of the continuum of business governance, with electronic hierarchies situated in the middle. As the next section elaborates, the spreading of new E-commerce will alter the comparative advantage between the hierarchy-based and market-based coordination, and among the various ways of structuring the market. Many and serious questions about the effects of E-commerce on business governance remain open.

- **Integrating Electronic Payment into the Buying Process:**

Consumer-oriented e-commerce is significantly lagging behind its business-to-business segment and current estimates place it at less than 10 percent of the total volume. The settlement phase of transacting on the web is often pointed to as one of the limiting factors. The consumer should be able to pay for a purchase on the Web easily and with a perception of potential customers and require attention of marketers and researchers; the problem of settlement is the one capable of systemic solution. As stated earlier, electronic equivalents of all the payment instruments in use today are appearing on the web.

The most excitement is occasioned by the development of electronic cash, the informational equivalent of physical banknotes and coins. Electronic cash can offer such benefits as the anonymity of the buyer, global acceptance, and divisibility that can cost effectively goes beyond that of real cash in the case of so-called micro-payments. Widespread use of electronic cash would have serious implications for the national banking systems and for the banks of issue, which would partly lose their signora profits and control of the quantity of money in circulation.

At this time, an electronic cash system called E-cash has been implemented by Digit Cash together with the Mark Twain Bank of Missouri and is now offered by such major banks as Deutsche Bank and Bank Austria. The major U.S. banks have adopted a posture of watchful waiting, accompanied by internal research the potential impacts of electronic cash. A cash-like system relying on a smart card, Mondex has been tested locally in several countries with very limited acceptance results. Mondex International Limited, a joint venture of number of banking institutions, licenses the rights to the Mondex technology. The Net Cheque system developed at the University of Southern California allows its registered users to "write" electronic checks. On the other side of the payment issue are the financial intermediaries, such as First Virtual Holdings, which facilitate settlements for E-commerce transactions by external means, without the financial tokens ever appearing on the Internet. The proponents of this mode of operation consider the Internet to be fundamentally insecure for financial transactions. At this time, the apparently prevalent informed opinion is that the financial transactions on the Internet are no less secure from the consumer's point of view than today's "physical-world" transactions, with the admixture of a fear that "a big hit from cyberspace" is possible because of the complexity and the globally distributed nature of the system.

The multifaceted impacts of electronic banking call for much research on the acceptability of various solutions to consumers, the apportioning of the risk, the institutional framework, the effects of the electronic cash on the economy, and, certainly not least, making electronic settlement of transactions secure. E-commerce value chains as Figure 2.2 show B2B integration.
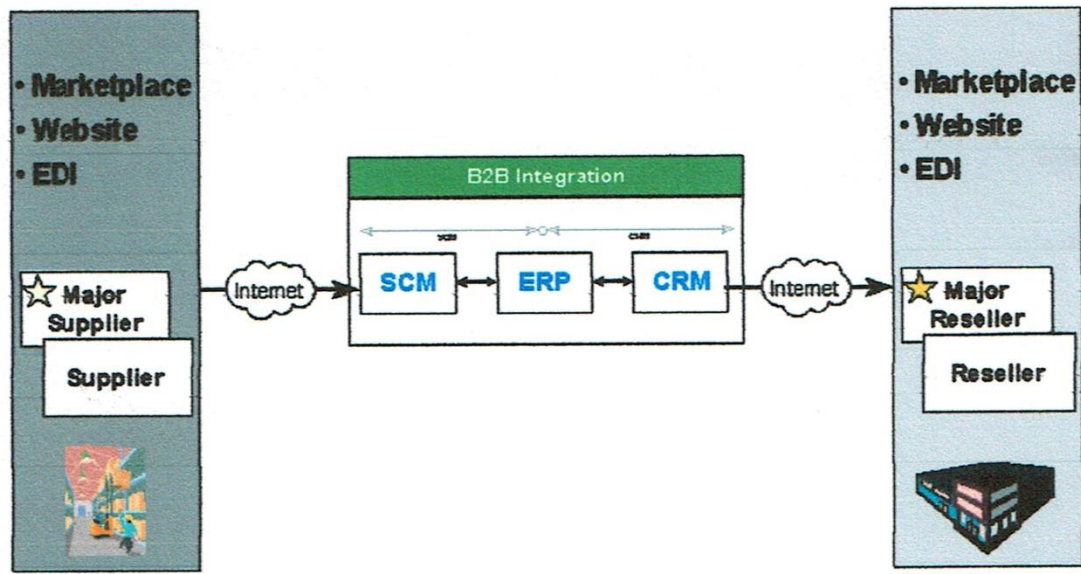
Figure 2.2: <u>E-commerce value chains</u>

- ### <u>Building the Electronic Consumer Marketplace:</u>

Some would argue that the main question of E-commerce today is how to convert web surfers from browsers to consumers by creating an encompassing market-space for information, services and goods. The statistics of the phenomenal growth of the Internet use, with 29.2 million Web users in the United States as of the end of 1997 and with 27.8 million unique visitors during January 1998 to the top-ranked site - Yahoo, all of this accomplished within some four years have to be counterbalanced by the modest statistics of the actual consumer buying. Yet, rapid growth is apparent in this sector as well. The approximate $132 million spent by the consumer in 1995 according to has reportedly grown into $1 billion spent during just the fourth quarter of 1997 according to Forrester Research, a figure that appear too high when placed in the context of other estimates. A large number of widely diverging, yet generally highly optimistic, forecasts of future growth exist. The statistics and, far more so, projections are debatable; yet the growth trend is not.

The consumer marketplace encompasses auction sites, reverse markets, and digital retail outlets. As we have said before, the auction approach is a successful means to capitalize on the ubiquitous accessibility of the Internet medium. Along with other roles, an auction intermediary facilitates price discovery. Such sites as On Sale, auctioning computer and electronic equipment, and eBay, an auctioneer of collectibles, are relatively limited-size U.S.-based virtual auction houses. The two sites are built on two different business models. On Sale, a public company by now is a dealership-type of marketplace, which takes an active role in the ownership and delivery of goods, and customer service. This is reflected in the much higher net revenue as the percentage of sales than that 01 eBay, which simply provides the sites as a form of a digital agora, accessible to sellers and buyers, and realizes a commission of 1.5 to 5 percent of an item's price. The success of both sites points up the variety of approaches that can be taken in the Web-based consumer market. Auction house have potential to coalesce into large and multifaceted marketplaces that take on additional intermediary responsibilities in lowering the risk of the transacting parties by certifying the quality of goods and facilitating logistics.

Reverse markets are also based on the inexpensive ubiquity of the Internet medium and place the consumer in the driver seat. By broadcasting the need over the Internet, the prospective buyer of a product, a service is able to increase the consumer's surplus by extracting more favorable offers than those available publicly. A number of facilitators of reverse markets provide wanted sites.

Several approaches have been identified within the general business model of web-based digital retailing at fixed prices. Hoffman, Novak & Chatterjee into, has classified these on-line retailing outlets:

1. On-line storefronts or catalogs actually selling products or just establishing awareness of them
2. Content sites providing information and support
3. Web traffic control sites, such as malls and selling products and search engines.

The bundling and virtual reality approaches may be considered of particular promise in experimenting with web retailing. Theoretical work indicates that the bundling of goods is attractive for the goods of low marginal cost, with uncorrelated demand, and of approximately equal consumer valuation, with information goods being a prime example.

Bundling is seen also promising for such good as flower arrangements and gifts, where the consumer can conveniently limit the extent of necessary decision making and the vendor can substitute products at will. E-commerce B2B Horizontal Market Place as shown in Figure 2.3. In a kiosk-based experiment, Westland and virtual-reality storefront does not result in a greater consumer spending.
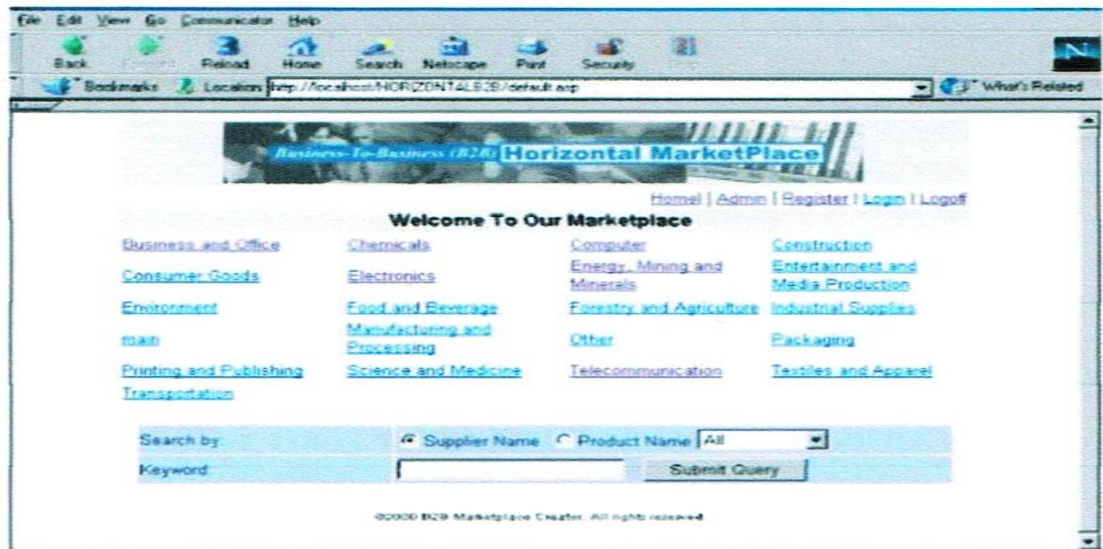
Figure 2.3: <u>E-commerce B2B Horizontal Market Place</u>

- ## **<u>Moving Supply Chains and Products into Market Space:</u>**

It is recognized that the networked infrastructure offers new opportunities for assign value by moving the stages of corporate value chains into the realm of information processing, saving money and time in the process. Witnessing the virtualization of value-chain segments, and, in the future, perhaps also has an increasing number of products. Business processes can be moved into the virtual, informational value chains, be they paperless transaction processing or electronic prototyping. The development of Boeing 777 based on virtual prototyping is probably the best-known example. Rapid prototyping and rapid manufacturing technologies move the electronic model of product directly from the computer-aid design file into the machine that builds up a final, physical, prototype - or the final product - layer by layer, or powdered particle. A virtual-reality based system for developing customized clothes, called Virtuosi, affords three-dimensional viewing and manipulation of fashion designs over the Web; voice-controlled mannequins demonstrate the clothes on the virtual runway in this

experimental system. Indeed, a computer hardware design can be sent over the Web, when field programmable gate arrays are used.

This virtualization of products and processes is only at its origins and we may expect very significant development and efficiencies to derive from it. As they move from the purely informational to the collaborative use, corporate intranets can serve as vehicles for these virtual elements of value chains. Corporate extranets open to business partners, suppliers, and customers can become secured extensions of the Internet in the inter-organizational market-space networks.

What goods and services can be converted to information that can be moved around and traded over the electronic marketplace? Rayport and Sviokla offer an example of the answering machine. Cash is another example of a good that can be virtualized, videocassettes are another such good, retail services are already delivered over the Web instead of in physical stores, and many personal computers may be converted to appropriate over-the-network services. After all, a network computer is just such an attempt. Many questions regarding the relative economic efficiency of physical-versus-virtual organization of work and product delivery need to be formulated and researched.

2.4 <u>Advantages and Disadvantages:</u>

There are many advantages and disadvantages of E-Commerce. They are:

2.4.1 <u>Advantages of E-Commerce:</u>

The processes involved with conducting business on the Internet and opening an e-commerce shop to sell from have several benefits to both merchants and the customers who buy from them. The biggest benefits of conducting business Online include a cheaper upfront cost to the merchant, it's easier to set up and open the store and it's faster to get an online business up, running and making sales.

- ## **Helps Create New Relationship Opportunities:**

Expanding or opening an e-business can create a world of opportunity and helps to establish new relationships with potential customers, potential business associates and new product manufacturers. Just by being in an easy to find location that is accessible to users all over the world, you will be available for others to find and approach you about new opportunities.

Customers who don't know you exist will know about you, product suppliers will request you add their items and other businesses will approach you about partnership opportunities. Many of these opportunities would not present themselves without an online presence or site for them to discover you on their own.

- **Open for Business 24X7:**

An e-commerce site basically gives you the ability to have unlimited store hours, giving your customers 24 hours a day, 7 days a week access to shop and buy items from you. Some merchants choose to limit their hours to 5 days a week, but orders can still be made over the weekend and customers can still make contact 24/7 via email, phone or fax. In addition, the costs associated with having your store open 24/7 are much less than maintaining a physical storefront or phone operator with 24/7 operation capability. You can literally take orders and let customers shop while you sleep, take vacations or from remote locations.

- **Increases Brand or Product Awareness:**

Having an Online business means that you can literally reach out to millions of consumers looking for what you sell anywhere in the world. By reaching out to new markets and displaying your site prominently in front of them, you will be able to help increase your company/domain brand name and also increase awareness about your product line. By giving users 24/7 access in an easy to find location, you will help to create more word of mouth buzz for your e-business, in turn helping to promote your brand name and products. Users who haven't heard of you will discover you exist and help spread the word about you.

- **Helps Establish Customer Loyalty:**

An e-commerce storefront will help create an easier means for your customers to purchase the items you sell and offer a unique way to display and describe your products in a informative, visual and interactive way. The customers you have will become more loyal shoppers each time they visit, making e-commerce great for improved customer satisfaction and visitor loyalty. Now that you offer your products for sale Online, consumers will be able to shop from your catalog more easily, get updates on new items or product discounts and can shop or buy anytime they wish.

- **Potential to Increase Overall Business Sales:**

An e-commerce store that is an extension of a physical storefront is a great way to boost overall business sales and potentially increase company profits across the board. Companies who already do business from a physical location are typically unaware of how much more they could be making if only they were to expand into their online marketplaces. Selling Online opens up many opportunities for businesses both new and old. It's a great way to increase sales, especially if you already have a physical store.

- **Potential to Increase Company Profits:**

As mentioned above, opening an online extension of your store or moving your business solely online are great ways to boost sales and potentially profits. Remember, just because SALES increase it does not necessarily mean that company PROFITS will increase also. Online businesses do have a greater chance of increasing sales and profits by opening up an e-commerce store to sell the items they offer. Sales and profits are the lifeblood of any company, so it makes sense to increase them where ever possible and whenever possible throughout the existence of your company. More sales, more profits, bigger budgets, etc.

- **Potential to Decrease Some Costs:**

In addition to potentially increasing sales and profits, e-business owners can also typically reduce the costs of running their business by moving it or expanding it into the online world. E-commerce stores can run with fewer employees including sales staff, customer service reps, order fulfillment staff and others. e-business also do not need a physical location in order to stay operational, which can reduce costs related to building leases, phone bills, utility costs and other costs associated with running a brick-and-mortar storefront.

- **Expands Geographical or Customer Reach:**

As mentioned, owning an e-commerce business typically means no limits as to who and where you can sell your products. Some countries outside the United States have additional regulations, licensing requirements or currency differences, but generally you will not be limited on the customers you can reach out to. Physical storefronts are limited to the city in which they are located, online businesses aren't limited unless you put geographical limits in place. At the very least, you should consider targeting U.S. buyers, but also consider, Canada, UK, Australia and others. Sell to anyone, anywhere, anytime!

- ## **Allows for Smaller Market or Niche Targeting:**

Although your customer reach may expand beyond your local area, you may only wish to target smaller consumer markets and buyer niches for your e-commerce products. Owning an Online store gives the merchant much control over who they target and reach out to notify about the items for sale in their store. Currently, you can target women, men, and a generation of users, a particular race and many smaller niche markets. This is typically done by placing keywords that those niche markets use on a regular basis when shopping for the items you offer.

- ## **Allows for Easier Delivery of Information:**

An Online store and Web brochure are great ways to deliver and display information about your company and the products you sell. With an Online presence your customers will have direct access to product information, company information, specials, promotions, real time data and much more information that they can easily find just by visiting your site day or night. Not only does it benefit your customers, but it's also generally easier for merchants to update their site rather than break down an in store display and put up another for the next event. It saves both your customers and you precious time and can help you to plan more updates or better sales as it will be much easier for you to update and take down.

- ## **Benefits of e-commerce marketing:**

The processes involved with marketing products on the Internet and increasing company or brand recognition among consumer markets have several benefits to both online shoppers and merchant store owners. The biggest benefits of e-commerce marketing include less cost than print advertising, helps build customer relationships, brand credibility and it costs less to get an e-commerce marketing campaign running and operational.

- ## **Tax Breaks for Conducting Business Online:**

It is common knowledge that conducting business Online has certain tax advantages compared to brick-and-mortar selling. Many e-commerce merchants who qualify for such tax deductions may find that they can save more in taxes than if they sold using traditional retail or a physical storefront. Home-based e-business can deduct many of the same things traditional businesses can. Traditional businesses can write-off utility, rent or mortgage bills as costs of doing business and online merchants can also write-off certain portions of utilities.

Vehicles are another common deduction along with office equipment and other time spent on setting up or running the business. Consider the tax benefits you could reap by conducting business through e-commerce.

- ## **Cheaper than Print Advertising:**

Many traditional businesses are used to more traditional marketing campaigns such as print and yellow page advertising. Many traditional business owners are not aware that a majority of e-commerce marketing strategies are far cheaper than any of the best Offline, print advertising methods that have been used for years. Traditional advertising is still a quality form of marketing; however it is not always cost effective, especially for small businesses. Print advertising can get expensive as there may be a need to update regularly, which requires new work be planned and generated. It is much quicker and more cost effective to update and maintain e-commerce marketing campaigns, especially as technology continues to improve. By conducting business Online and using the proven form of e-commerce marketing, merchants have the potential to generate far more in ROI with less spend than they could ever hope to expect from costly print advertising campaigns.

- ## **Interactive Ads or Marketing Campaigns:**

Using advertising that engages potential customers are keys today's fast paced little time consumer shopping space. One benefit to e-commerce marketing is the merchant's ability to develop and improve a number of interactive advertising or marketing campaigns designed to reach out and engage shoppers. They can all be used as interactive devices to help entice shoppers to drop in and shop around for the products or services offered. Interactive ads and applications on the web are predicted to reach new heights as technology improves.

- ## **Flexible Ad or Marketing Campaigns:**

Many traditional marketing strategies are limited in what they can offer and what kind of flexibility each initiative has. For instance, with print advertising there's only so much you can do, but with e-commerce marketing there's literally no cap and no end to the flexibility of nearly any campaign. Merchants can develop more creative marketing ideas and launch them using the power and assistance of the web. E-commerce marketing initiatives can be automated and are much more flexible than many of the traditional marketing or advertising methods.

- **Builds Lasting Customer Relationships:**

The relationships you form with shoppers and existing customers can very well determine the overall success of any business, Online or off, however e-businesses have a lot more tools, methods and means of building long standing customer relationships than traditional businesses do. Technology and the reach of the web have made it easier for e-commerce merchants to form long lasting relationships. That, combined with tools that make customer management and servicing more efficient, using up less time, has also sparked more creative ways to market to customers Online. E-commerce marketing and conducting business Online can have a direct influence on how customers view the overall brand or product. If done correctly, it will help build lasting customer relationships, which in itself has benefits.

- **Helps Build Brand Credibility:**

In many of the same ways e-commerce marketing helps to engage and get to know customers, it also has benefits which may increase brand awareness and credibility among shoppers looking for what you sell. With the ever expanding list of online marketing channels, it's getting easier for e-commerce merchants to spread the word and saturate certain areas of the Web with their products and brand. As shoppers scour the web for information about a product that interests them they notice the companies and brands that they see, many take note and store them away for next time. By utilizing the proper marketing channels in your niche, you may very well find yourself building long standing credibility and brand awareness among shoppers and existing customers. Better brand awareness and credibility also helps to increase word of mouth buzz.

- **Gather Feedback from Customers:**

Having a website that displays and offers products for sale is a great way to attract customers, make money and grow a business, however many e-commerce merchants fail to see all the additional benefits of running an e-commerce business like their ability to gather feedback about the site, brand or products directly from customers or shoppers. E-commerce marketing initiatives aren't always about a promotion or selling the product, some are meant to gather information or feedback from customers about how the business can improve. Conducting business Online and offering polls, questionnaires and feedback forms is a great way to get direct input from existing customers and even shoppers who haven't yet purchased.

- **Conduct Cheap Market Research:**

Many e-commerce merchants use their site, customers and competitors as a way to conduct market research surrounding a particular product or one in which they hope to introduce in the future. It's much easier to catch a glimpse into a particular selling market using the resources and data from online businesses, including your own. Trying to conduct market research for a brick and mortar store can be difficult and may take much time to plan and execute. With the availability of data on the Web and through the use of new technologies offered on the Web, e-commerce merchants are able to conduct market or product research quickly, efficiently and without hassle.

- **Lower Startup Costs Increase Efficiency:**

Many times it is much cheaper and takes less startup capital to open up an e-commerce business compared to a retail store location or chain. Online business does not require as many of the ingredients needed in business as a traditional business does. There's typically no permits, fewer licenses, no lease to pay on, smaller utility bill, less or no employees to hire and no inventory to stock or manage on shelves. By starting out the business with less investment capital or startup funds, it can help to increase efficiency and leaves more funds available for actually marketing the brand or products.

- **Lower Startup Costs Increase Profitability:**

As mentioned, it cost far less to startup an e-commerce business than a traditional retail business. For many of the same reason that lower startup costs help to increase efficiency, they also help e-commerce merchants to potentially increase profitability. Obviously, if it takes less of the bottom line to get things up and running it will take less in return to generate a profit off of the e-commerce marketing tactics you choose to use. As mentioned, e-commerce marketing is cheaper than traditional advertising, so if it costs less to conduct business Online and costs less to market Online, than it will take less in return to actually turn a profit, helping any ones chances for increased profitability.

- **Increases Growth or Opportunity Potential:**

Marketing Online has the potential to increase store growth at a much quicker rate than traditional marketing or retail business. E-commerce marketing can also generate more opportunities for any business no mailer the products you sell and potentially al a much

quicker rate. Major media networks may pick up on you via online channels and report your business to consumers, while you may not have ended up on their radar had you only sold offline. That's just one example; there are many more opportunities and a much higher chance of early growth through conducting and marketing an e-commerce business. The Online market offers a much fairer playing field and opens up doors that otherwise might be closed off to a retailer. It allows nearly any business, no matter their size to grow and have the same potential opportunities as larger sellers do.

- **Global Market Reach:**

The World Wide Web spans across and reaches exactly that, the world. With the reach and technology offered through e-commerce, merchants have the ability to target consumers anywhere in the world, even smaller sections or local regions. E-commerce marketing initiatives can be deployed in a variety of ways, but the reach may span globally, rather than only within a certain city or region. Having this type of reach opens up the possibility that customers can find the business from anywhere they reside and buy from themwithout having to travel to another location.

- **Potential to Market Any Product:**

The internet constantly has millions of users searching for a vast number of different products or services. If it exists, chances are there are at least a few people searching for it online. E-commerce marketing and selling online allows merchants to target and reach these audiences, even on a limited budget. This creates the potential for anyone to sell anything online (assuming it's legal to sell). Merchants can now offer niche items and market those items to the right individuals using creative and innovative e-commerce marketing ideas.

- **Flexible Schedule or More Personal Time:**

Running an Online business can be as time demanding and require just as much attention as a traditional business, however it does give merchants the ability to maintain a flexible schedule and can possibly even allow them more time away from the business to spend doing other things they love. Having a schedule we control and personal time is something everyone desires. Conducting business Online and marketing through the different channels the Internet provides finally gives more of us the freedom we desire. As mentioned, it typically takes far less time to startup and launches an online business, however that doesn't

necessarily mean it will take less time to manage. The time you save can be used however you please.

- **Ability for Multiple Revenue Streams:**

Once you have successfully launched and marketed one online business you may wish to do it again with another e-commerce business, or maybe you already have a full-time job and you run a successful e-business on the side. May merchants have been able to successfully maintain their online stores while still working their 9 to 5 job? Others have opened a chain or multiple online stores in order to generate multiple streams of revenue. E-commerce marketing makes it easier to own and operate more than one business or entity Online.

- **Streamlines Sales Process and Ad Copy:**

E-commerce marketing and offering products for sale over the Internet can help businesses streamline sales processes and advertising copy used within marketing campaigns. With more customers and a greater reach it is easier for merchants to gain insights and feedback as to how marketing initiatives are performing and whether or not each one is generating the desired ROI. Testing, experimenting and rotating campaigns or ad copy can help businesses to improve and streamline many processes within the store, from processesrelated to customers, sales or marketing.

- **Helps Promote Brick-and-Mortar Businesses:**

So, what if you own a brick-and-mortar business already and you are thinking of expanding into e-commerce? Don't think long, it's a great idea and the timing couldn't be more perfect. Many traditional business owners are finding that by expanding their business model and marketing plans into the Online space that they in turn get more exposure to their physical stores. E-commerce marketing initiatives work great for promoting an offline business; however you still need an online location for customers to reference on the Web. In a perfect world all brick-and-mortars would also have a presence Online, but it's simply not the case as of yet. Jumping into e-commerce and using the power of online marketing is a great way to promote and help grow a retail brick-and-mortar location.

2.4.2 **Disadvantages of E-commerce:**

Some disadvantages and constraints of e-commerce include the following

- **Time for Delivery of Physical Products:**

It is possible to visit a local music store and walk out with a compact disc or a bookstore and leave with a book. E-commerce is often used to buy goods that are not available locally from businesses all over the world, meaning that physical goods need to be delivered, which takes time and costs money. In some cases there are ways around this, for example, with electronic files of the music or books being accessed across the Internet, but then these are not physical goods.

- **Physical Product, Supplier and Delivery Uncertainty:**

When you walk out of a shop with an item, it's yours. You have it; you know what it is, where it is and how it looks. In some respects e-commerce purchases are made on trust. This is because, firstly, not having had physical access to the product, a purchase is made on an expectation of what that product is and its condition. Secondly, because supplying businesses can be conducted across the world, it can be uncertain whether or not they are legitimate businesses and are not just going to take your money. It's pretty hard to knock on their door to complain or seek legal recourse! Thirdly, even if the item is sent, it is easy to start wondering whether or not it will ever arrive.

- **Perishable Goods:**

Forget about ordering a single gelato ice cream from a shop in Rome! Though specialized or refrigerated transport can be used, goods bought and sold via the Internet tend to be durable and non-perishable: they need to survive the trip from the supplier to the purchasing business or consumer. This shifts the bias for perishable and/or non-durable goods back towards traditional supply chain arrangements, or towards relatively more local e-commerce-based purchases, sales and distribution. In contrast, durable goods can be traded from almost anyone to almost anyone else, sparking competition for lower prices. In some cases this leads to disintermediation in which intermediary people and businesses are bypassed by consumers and by other businesses that are seeking to purchase more directly from manufacturers.

- ## **Limited and Selected Sensory Information:**

The Internet is an effective conduit for visual and auditory information: seeing pictures, hearing sounds and reading text. However it does not allow full scope for our senses: we can see pictures of the flowers, but not smell their fragrance; we can see pictures of a hammer, but not feel its weight or balance. Further, when we pick up and inspect something, we choose what we look at and how we look at it. This is not the case on the Internet. If we were looking at buying a car on the Internet, we would see the pictures the seller had chosen for us to see but not the things we might look for if we were able to see it in person. We can't test the car to hear the sound of the engine as it changes gears or sense the smell and feel of the leather seats. There are many ways in which the Internet does not convey the richness of experiences of the world. This lack of sensory information means that people are often much more comfortable buying via the Internet generic goods - things that they have seen or experienced before and about which there is little ambiguity, rather than unique or complex things.

- ## **Returning Goods:**

Returning goods online can be an area of difficulty. The uncertainties surrounding the initial payment and delivery of goods can be exacerbated in this process. Will the goods get back to their source? Who pays for the return postage? Will the refund be paid? Will I be left with nothing? How long will it take? Contrast this with the offline experience of returning goods to a shop.

- ## **Privacy, Security, Payment, Identity, Contract:**

Many issues arise - privacy of information, security of that information and payment details, whether or not payment details (e.g. credit card details) will be misused, identity theft, contract, and, whether we have one or not, what laws and legal jurisdiction apply.

- ## **Defined Services and the Unexpected:**

E-commerce is an effective means for managing the transaction of known and established services, that is, things that are every day. It is not suitable for dealing with the new or unexpected. For example, a transport company used to dealing with simple packages being asked if it can transport a hippopotamus, or a customer asking for a book order to be wrapped

in blue and white polka dot paper with a bow. Such requests need human intervention to investigate and resolve.

- **Personal Service:**

Although some human interaction can be facilitated via the web, e-commerce can not provide the richness of interaction provided by personal service. For most businesses, e-commerce methods provide the equivalent of an information-rich counter attendant rather than a salesperson. This also means that feedback about how people react to product and service offerings also tends to be more granular or perhaps lost using e-commerce approaches. If your only feedback is that people are (or are not) buying your products or services online, this is inadequate for evaluating how to change or improve your e-commerce strategies and/or product and service offerings. Successful business use of e-commerce typically involves strategies for gaining and applying customer feedback. This helps businesses to understand, anticipate and meet changing online customer needs and preferences, which is critical because of the comparatively rapid rate of ongoing Internet-based change.

- **Size and Number of Transactions:**

E-commerce is most often conducted using credit card facilities for payments, and as a result very small and very large transactions tend not to be conducted online. The size of transactions is also impacted by the economics of transporting physical goods. For example, any benefits or conveniences of buying a box of pens online from a US-based business tend to be eclipsed by the cost of having to pay for them to be delivered to you in Australia. The delivery costs also mean that buying individual items from a range of different overseas businesses is significantly more expensive than buying all of the goods from one overseas business because the goods can be packaged and shipped together.

2.5 Risks and Barriers:

Scant comprehensive literature exists about e-commerce risks. Anecdotal evidence indicates that the main risks associated with e-commerce concern hackers, viruses, and interception of credit card numbers traveling over telecommunication lines. Technological advances can mitigate many perceived risks and recent surveys indicate greater concern over more mundane issues such as running out of stock and high shipping costs.

We have categorized risks in three primary areas: information risks, technology risks, and business risks. Information risks stem from information published and contained in web sites and associated with the conduct of e-commerce. Peripheral to information risks are risks associated with misuse of information, such as violation of laws in the United States and other countries. Technology risks include risks involving hardware, software, telecommunications and databases. These risks include the consequences resulting from the misuse of technology or the use of inappropriate technologies required to address business needs. Business risks concern customer and supplier relationships, and risks associated with products and services marketed and distributed over the Internet. They also include risks associated with managerial aspects of the business including personnel and contractual relations.

Because e-commerce straddles many functional and technical areas, authors in many disciplines have identified e-commerce-related risks. Examples of these can be compiled a partial list of risks that appears below.

- **Information Risk:**
  1. Content on web page exposing web publisher to libel, defamation of character, slander
  2. Copyright infringement and invasion of privacy suits stemming from posted textual content
  3. Copyright infringement and invasion of privacy suits stemming from digital scanning and morphing
  4. Copyright, patent, or trade secret infringement violations by material used by web site developers
  5. After unauthorized access to a web site, online information about employees or customers is stolen, damaged or released without authorization
  6. Electronic bulletin boards containing defamatory statements resulting in liability or embarrassment
  7. Worldwide legal exposure resulting from use of creative material (e.g. names, likenesses) that violate laws of countries outside of the home country
  8. Credit card information intercepted in transit is disclosed or used for fraudulent purposes

9. Information that has been changed or inserted in transmission is processed leading to erroneous results

10. Flight of intellectual property due to employees moving to competitors

- **Technology Risk:**
  1. Negligent errors or omissions in software design
  2. Unauthorized access to a web site,
  3. Infecting a web site with computer viruses
  4. Internet service provider (ISP) server crashes
  5. Software error and omission risks causing unauthorized access
  6. Software content risk that violates a copyright or is libelous.
  7. Third party intercepts credit card information in transit causing breeches in security for online payments.
  8. Intercepting and copying or changing non-credit card information during transmission
  9. Insufficient bandwidth to handle traffic
  10. Obsolete hardware or hardware lacking the capacity to process required traffic
  11. Risk due to excessive ISP outages or poor performance
  12. ISP phone numbers being busy
  13. ISP or home-company servers being down
  14. Scant technical infrastructure to manage cycle time to develop, present, and process web-based products
  15. Risk of improperly integrating e-commerce system with internal databases
  16. Risk of improperly integrating e-commerce system with internal operational processes
  17. Risk due to poor web site design manifesting themselves in long response times
  18. Inability of customer or supplier computers to handle graphical downloads

- **Business Risk:**
  1. Web page content exposes web publisher to libel, defamation of character, slander
  2. Electronic bulletin boards containing defamatory statements resulting in liability
  3. Worldwide legal exposure resulting from use of information in violation of home-country laws
  4. Using web sites to conduct illegal promotional games, such as a sweepstakes or contests

5. Risks related to payment to web site developers and disputes between developers and clients

6. Lack of maintenance on existing web pages

7. Impact on business due to intellectual property lost due to employees moving to competitors

8. Changes in supplier relationships re: data access, data ownership, distribution strategy, and marketing tactics

9. Changes in customer relationships re: data access, data ownership, distribution strategy, and marketing tactics

10. Products out-of-stock due to poor communication with operations

11. High shipping costs required for distribution

12. Inconvenient return policies ~ lack of coordination with physical system

13. Excessive dependence on ISP to support firm's business strategy

14. Inability to manage cycle time for developing, presenting, and processing web-based products

15. Risk due to unprotected domain names which are usurped by other organizations

16. Improperly integrating e-commerce systems with internal operational processes

17. Insufficient integration of e-commerce with supply chain channels

The above risks can lead to events resulting in the deliberate or inadvertent loss of assets. Deliberate loss of assets can result from disclosing information, fraud, or deliberate disruption of service. Inadvertent loss of assets can occur through inadvertent disruption of service, legal penalties due to disclosure of information, or direct or indirect losses due to lost business.

- **Risk Comparison:**

To compare risks in electronic and non-e-commerce risks we postulate three risk categories:

Category A: Those risks that are essentially the same in either environment. For example, legal liability due to information improperly posted on a web page essentially is the same as legal liability due to information disseminated by printed or other electronic media.

Category B: Those risks that are essentially the same but that have unique dimensions dictated by e-commerce. For example, insufficient integration of e-commerce with supply chains might be an example of this risk.

Category C: Risks those are unique to e-commerce and which have never appeared before in other environments. Analyzing the risks enumerated in the last section, yields a preponderance of risks falling in Category A. For example, analysis, albeit subjective, indicates that all the Information risks - risks 1 through 10, Technology Risks 1 through 14, and Business Risks 1 through 14 all fall in this category. Conclude this because these risks ~ although they occur in e-commerce essentially are the same risks that occur in other environments and have been managed in those environments.

There are several risks that we classify in Category B: Technology Risks 15 through 18 and Business Risks 15 through 17. For these, conclude that although the risks are similar, the e-commerce environment is different enough to require unique treatment.

We found no risks in Category C ~ risks unique to e-commerce and not encountered elsewhere. Even those things that appear to be unique ~ for example illegal use of a domain name or risks associated with ISPs ~ have counterparts in use of logos or corporate names, and risks associated with organizations contracted for outsourcing data processing. Naturally we do not imply that the above list of risks exhaust all possibilities — certainly some may exist that fall in our Category B or even Category C. We do believe, however, that the majority of risks encountered in e-commerce environments have been encountered before and generally, are well understood if identified.

Can there be unique risks in electronic environments and if so, although we have not identified any such risks here, we posit that they: in
1. Concern business issues that are unique to e-commerce and that are not found elsewhere
2. Involve technological attributes unique to e-commerce environments with no parallel issues found elsewhere
3. Impact risk in ways uniquely determined by characteristics of e-commerce.

Critical to managing e-commerce risks is a methodology that provides managers with the capability to identify assess and control risks on an ongoing basis. One proposed

methodology that does this is a scenario-based methodology patterned on Information Security Management Planning (ISMP), a methodology implemented at a large money center bank to control information-based risks. [4]

- **Methodology to Manage Risk:**

Our methodology, E-commerce Risk Management (ECRM), is based on scenario analysis and decision analysis, but differs from these techniques in several ways. First, by integrating business, operations, and systems managers into the risk analysis process, ECRM increases non-technical managers' ownership of the process and of the information-based risk issues. Second, ECRM is flexible enough to address issues specific to unique processing, geographic and organizational environments. Third, ECRM can be implemented at relatively low cost. ECRM can identify potential risk events in their early stages and by preventing their occurrence, lead to lower risk management costs. The actual risk management process consists of three phases:

1. Preliminary Risk Assessment:

The Preliminary Risk Assessment (PRA) is a structured meeting between senior business, operations, marketing and systems managers. The PRA's purpose is to highlight for further analysis, the key risk issues and areas facing the business unit.

E-commerce risk is categorized in terms of risk target (where the risk occurs) and risk-type (Information Risk, Technology Risk, or Business Risk). The PRA focuses on outcomes based on errors, omissions, structural weaknesses, and deliberate acts.

The resulting grid generates "target-risk combinations". The risk assessment involves the senior business manager's providing a risk rating for each target-outcome combination, given existing controls. Highly rated risks include an explanation for why the rating was applied.

2. Detailed Risk Assessment:

In the Detailed Risk Assessment (DRA) the project team develops detailed risk scenarios for each highly rated PRA target-outcome combination. The bases for the DRA are scenarios based on the risks enumerated in above section. The DRA procedure is sequential includes:

1. Meetings with managers from target areas to gain insights regarding risk scenarios;
2. Brainstorming sessions and follow-up reviews to identify potential scenarios;
3. Rating the scenarios regarding risk on a 1 to 5 scale;
4. Identifying potential controls;
5. Selecting controls to be implemented.

In this process, DRA risk ratings need not reflect the PRA target-risk combination rating. Cursory cost-benefit analysis often is sufficient to select or discard controls. Formal decision analysis is usually unnecessary and may be problematic.

The DRA's final step occurs when senior department and division managers review the scenarios and preliminary recommendations for final approval.

3. **Controls Implementation:**

In Controls Implementation the senior managers who participated in the PRA review the study findings and recommendations. Recommended controls frequently close security gaps for "high risk" scenarios, reduce risk exposure at minimal cost, or scrap obsolete controls which are holdovers from previous years and now address non-existent risks. Actually implementing the recommended controls is the methodology's final phase.

Barriers of e-commerce:

Some barriers and there solutions are following:

• **Security Concerns:**

The Internet still reflects its origins as an open venue for scientific and engineering research. Security was not a major issue in the early days of the Internet as it was assumed researchers using the system would not jeopardize their jobs. And of course, the intent of the Internet was open, not to move private data around the planet. Security has come a long way, with strong "military grade" encryption becoming the norm. However, highly publicized security concerns of the early days of the commercial Internet still resonate with online consumers and these concerns are periodically reinforced with high profile news Copyright 2008 Voloper Creations Inc. 5 stories of identity theft at major web sites. At the end of the day: if a site does not look secure to a consumer, the consumer will not trust it.

Solution:

When selecting an e-commerce platform and hosting service, the merchant needs to ensure the platform employs strong encryption for payment processing and customer data retention. The data center that physically hosts the customer data should likewise employ onsite security. While it might be impractical for the merchant to inspect the hosting facility, the hosting service should detail to prospective merchants what physical security systems are in place (for example, server rooms are protected from unauthorized personnel by security cards, etc.). As well, the merchant should ensure the hosting facility has proper disaster recovery procedures, servers should be backed up daily, and back-ups should periodically be stored off site, and so on.

If the merchant is using an online third party credit card processor, the merchant also needs to ensure the payment processor is secure. There are many such payment processors and a merchant needs to diligently research each. The merchant also needs to ensure the e-commerce platform supports the desired payment processor.

All of the above steps will be for naught if they are not properly communicated to the customers. Most online shoppers are savvy enough these days to look for the small lock symbol and https:// as confirmations that a transaction is secure. However, a merchant should still visually or textually reinforce on checkout pages and various other site collateral that transactions and customer data are secure.

Finally, a merchant should not forget to include real world methods for the customer to contact the merchant. Also the merchant should consider providing a method for phone orders. A prominently displayed "Contact Us" page is critical. The "Contact Us" page should have a phone number and, ideally, some physical mailing address. And as noted, for customers still squeamish about ordering over the net, an e-commerce platform should provide a method for the merchant to manually enter and process phone orders. [5]

• __Confusing Checkout Process:__

According to studies 48% of customers abandon the checkout process. This is akin to nearly half of customers getting into a brick-and-mortar store's checkout line and then walking away before getting to the cash register. If this were the case in a brick-and-mortar store, the

problems would be likely easy to diagnose: the line is too long, too many customers ahead have to do price checks, etc. It would be manifest to the merchant 6 Copyright 2008 Voloper Creations Inc. what steps needed to be taken to correct this shocking loss of sales. In online transactions, a loss might not be so obvious to an Internet merchant.

According to surveys 1, the top reasons customers abandon the checkout process are:

1. Hidden charges at checkout (36%)
2. Having to register to buy (31%)
3. The customer was simply comparison shopping (30%)
4. Shipping charges were too high (27%)
5. The customer did not have time to complete the checkout (27%)
6. The product was out of stock (16%)

Solution:

To help prevent 'sticker shock", (problem 1) an e-commerce platform should always have a visible running total of purchases prominently displayed during the customer experience.

Problem 2 and problem 5 are both problems related to customer time constraints. Some customers simply don't want to register but want to make a purchase. While for marketing purposes the merchant wants to retain this customer data via a registration process, the merchant should weigh the cost of losing a sale today. It is likely a customer who does not register is far less likely to be a return customer. Hence any future marketing efforts will have little effect on that customer. So, the e-commerce platform should provide a way for the customer to purchase without going through a registration process. For registered customers, the e-commerce platform needs to make maximum use of stored data during the checkout process. The e-commerce platform should auto complete the customer's shipping information and credit card and, of course, give the customer the opportunity to override.

An e-commerce platform that allows the merchant to display both the suggested retail price and the online store's price can help a comparison shopper. As well, the e-commerce system should have a good promotions engine, allowing the merchant to offer everything from volume discounts to creating "razor and blades" type promotions (that is to say, the customer gets the razor at a good price if the customer buys x number of regularly price blades). Also, instead of forcing a customer to commit an item to a basket, thee-commerce system should

have a "Wish List" alternative. This way a customer can add a list of items and come back later to compare.

The problem of "shipping shock" can be handled by matching shipping as accurately as possible with the product being shipped. Too many online merchants pad out the shipping, charging more to make up any possible loss on another product. Amazon.com, for example, has a rather generous shipping and handling rate it pays to used book and CD merchants. It's so generous that it has created the interesting phenomenon of being able to buy any number of books for a mere penny. The small time used book merchant simply sells the book for a token amount to profit from the padding Amazon.com adds to its shipping charge. To wit, an e-commerce platform should allow highly granular control over shipping charges. The merchant should be able to create a general shipping tier along with product specific overrides.

Selling out of stock items can easily be prevented if the e-commerce platform tracks stock and matches sales to stock. If the e-commerce platform's stock tracking function detects a product has sold out, the online store can flag the item as out of stock for the consumer.

- ## Customers Cannot Find the Store:

If a merchant has an online shoe store, the hope is search engines like Google will drive traffic to the site. A Google search on "online shoe store" produces nearly 400,000 results. The odds a new online store will bubble to the top of search results are vanishingly small. In this highly competitive "key word" space, the primary barrier to being found is bigger, established merchants have adopted search engine optimization techniques (SEO) to increase their site's relevance and popularity.

Solution:

Fortunately, SEO is less a matter of hiring expensive consultants or tricking search engines with arcane techniques and more of a matter of employing a handful of straight forward optimization methods such as the correct use of meta-tags and the title tag, rearranging page text in a fashion that can logically broke down by a search robot, and good site layout. An e-commerce platform should support implementing SEO techniques. These methods are

beyond the scope of this White Paper. However, Voloper Creations Inc. has created a highly detailed White Paper on Internet Marketing, which includes SEO.

- ## Customers Can't Find Products:

Customers can quickly grow frustrated if they can't find the exact product they are looking for. Stores with poorly laid out categories or a lack of a search interface can cause a customer to abandon the site.

Solution:

Your e-commerce platform must support the ability to present the customer with nested categories as well as a search box. One should also remember customers are not always looking for one specific product (e.g., "Nike Air Pegasus shoes"). They want to be presented with a range of choice and they want that range of choice filtered in various ways. Consider an online computer store. A customer knows he wants to buy a laptop. He might first want to view laptops by a "under $800" category. He might then want to view laptops by a "15 inch monitor" category. He might want to then view laptops via a "3 or more GBs of memory" category. Hence, the e-commerce platform needs to be able support products belonging to multiple categories as well as the ability to generate nearly an unlimited number of categories.

- ## Achieving Good Design:

Good design is a balance between looking professional and maintaining usability. A significant barrier to any online retailer is attaining both a professional look and achieving a good, useable layout. Poor layout is the equivalent of an unkempt brick-and-mortar store. It subtly cues the customer that goods and order fulfillment will be substandard. However, design can also be so professional that it frustrates the customer experience. Extensive use of Flash animation can present users with an unfamiliar interface. It might require the customer to update Flash before being able to use the site, which can very well prompt the customer to seek another site instead of waiting for a Flash update. Flash prevents a customer from passing on URLs of products to friends to gain comment or approval before a purchase. If a site uses music, not only does this take the site longer to load but it can make it appear as if the browser is hanging. The user might close his or her browser thinking the site causes his/her browser to crash.

Poor design or professional design that employs Flash and Java in its navigation and catalog structure can also confuse search engines and result in a poor search result ranking. Such design can also exclude users with disabilities and may ultimately bring the retailer into conflict with local laws governing equal access. Copyright 2008 Voloper Creations Inc. 9

Solution:

The World Wide Web Consortium has published a set of Web Accessibility Guidelines at: http://www.w3 .org/WAl/

Following the Priority guidelines ensures both accessibility and a predictable navigation scheme that a search engine can understand. The W3C Guidelines can be daunting to interpret and implement, therefore one should look for an e-commerce platform that builds these specifications into its structure. As well, an e-commerce platform should also include some basic store templates that "out of the box" produce a professional store front with a clean, clear navigational structure.

- ## Unable To Sell Products under the "Long Tail":

Traditional retailers with limited shelf space tend to focus on a narrow range of products that sell in high volumes. A retailer would much rather devote shelf space to items purchased ten times a day versus once a year. However as the figure below demonstrates low sales volume products can equal or exceed sales generated by the high volume products highlighted in yellow. This often ignored product range is known as the "Long Tail".

Successful retailers such as Amazon.com and Apple's iTunes tie their catalogs to their suppliers. If a book is not in Amazon.com's warehouse but exists in a publisher's 10 Copyright 2008 Voloper Creations Inc. catalog, Amazon.com can automatically redirect the order to the publisher to complete fulfillment. E-commerce removes the shelf space barrier however it presents a technical and logistical challenge for smaller merchants.

Solution:

To sell from the Long Tail with minimal effort, an e-commerce platform should be able to automate the process of order fulfillment from a wholesaler or a manufacturer. When an order is taken by the e-commerce software, the software needs to generate an order request for the wholesaler.

While electronic merchandizing eliminates the shelf space barrier, it does not remove the problem of entering large numbers of products into an online store's catalog. Spending a lot of time manually entering low volume products into an online catalog is likewise a barrier to selling from the Long Tail. Ane-commerce platform then needs to have an import function. An Import function allows a retailer to get a delimited Microsoft Excel or Microsoft Access file from the wholesaler and quickly import dozens or hundreds of products at the click of a button.

- ## **Customers Can't Touch and Feel a Product:**

Amazon.com was founded when CEO Jeff Bezos went looking for a product amenable to online ordering. Books seemed a good fit. Customers don't have to try on books. Despite adages to the contrary, book buyers generally judge a book by a cover. And books generally sell themselves via reviews and word of mouth. Other products have proven more difficult to sell online as customers are generally accustomed to picking up and examining the product. Groceries and clothing are two notable examples. Merchants wishing to sell certain classes of goods online may face this barrier.

Solution:

An e-commerce platform needs to support product images. Images need to fairly and accurately reflect the product. An e-commerce platform should also support the ability to attach multiple pictures to a product catalog page, allowing the consumer to view the product from multiple angles.

Another solution involves leveraging human psychology. Human psychology is such that humans trust the stories of their peers. Consider, a person can read half a dozen positive reviews about a product by industry experts but if his/her friend has negative criticism, the peer's story will be given far more weight and credence than any number of Copyright 2008 Voloper Creations Inc. 11 expert opinions. Adding the ability for peers (other customers) to review products can go a long way in overcoming the hesitancy customers might exhibit when confronted by a decision to purchase a product he/she can't pick up and examine. Hence, an e-commerce platform should support customers being able to add reviews on a catalog page. Of course, the system should have moderator ability, allowing the store owner to reject unduly harsh criticisms. However, the merchant should also be cautious about

rejecting fair, reasoned criticism. Customers are savvy enough to understand when a merchant might be throttling criticism that, while negative, can be helpful.

- **No Sales Staff Means Any Chance of Up-Selling:**

"Would you like fries with that?" is a classic example of up-selling. Without a salesperson's help alerting customers as to what products complement or enhance a purchase, online stores suffer an inability to up-sell. As well, customers sometimes rely on a sales person to inform them of additional required products. For example, a digital camera needs batteries and a memory card.

Solution:

An e-commerce platform needs to be able to associate products with related and complimentary products. These associations need to be displayed automatically on product pages. A robust promotional engine should be able to tie the purchase of one product to a discount on another product or even a category of products. For example, an online electronics store might want to create a promotion where a purchase of a digital camera over $200 triggers a 10% discount on the purchase of batteries or memory cards.

- **Language Barrier:**

While English is the current lingua franca of business, there are a great number of consumers who speak economically important languages like Spanish or Arabic. Ignoring large pools of potential non-English speaking consumers can be a missed opportunity. Computers can't currently offer accurate translations and making a site multi-lingual invariably requires human translation services. Unless talent is in-house, this can mean contracting out at a very high hourly rate.

Solution:

An e-commerce platform can cut down translation time if properly architected. The system should allow all translation to be done centrally. A translator can quickly translate product names, descriptions, etc. without having to toggle between multiple screens.

- **Geographical Barrier:**

While a small brick-and-mortar store in say, Columbus, Ohio might never have to confront the possibility of fulfilling orders from other nations, an online store has the potential to vend to the world. In addition to the language problem discussed above, shipping, different weights and measures, and currencies all vary depending on geographic region. If the merchant's store suddenly became popular in Brazil (a nation of nearly 200 million consumers), the merchant needs to be able to handle shipping and will need to be able to price shipping properly. What if a merchant starts getting a large number of orders from another nationand finds a large percentage of orders are resulting in expensive charge backs because of credit card fraud? In a drop shipping arrangement it could be quite time consuming as the merchant has to manually call vendors and cancel orders.

Solution:

The e-commerce platform needs to be able to work in either Metric or Imperial weights or measures. An ability to work in many different currencies is a customer-friendly feature, allowing customers to correctly price goods in their own currency. The e-commerce platform also needs to be able to black out certain nations and simply reject orders from nations with high incidents of credit card fraud. As well, some sellers of advanced electronics cannot legally vend to certain nations. An e-commerce system that can beforehand reject orders from certain nations can save a merchant from having to make time consuming overrides after the fact.

2.6 Impact of E-commerce on Society:

Following main impact of e-commerce on society:

1. People can now shop online in the privacy of their own homes without ever having to leave.
2. Compared to shopping malls, online shops allow people to buy products any time of the day.
3. Electronic payments arrive securely and quickly when transmitted over the internet.
4. Provide protection against fraud and theft losses.
5. Shopping online also allows people to have access to wide selection of products.

Some other impact of e-commerce on society is following:

Internet's widespread usage has pushed many business entities to venture on electronic commerce or e-commerce. E-commerce refers to the buying and selling of products and services over the Internet or other computer networks. It is conducted in two ways: business-to-business (B2B) and business-to-consumer (B2C). Anyone can engage in e-commerce, even small and medium enterprises.

E-commerce offers vast opportunities for internet entrepreneurs. Because of the Internet's accessibility, anyone can put up their own business online. E-commerce has given birth to online shops, a common form of B2C. Many businesses put up online shops because many people prefer to buy through them. Online shops give people the convenience of buying products and services from the comfort of their home. Compared to shopping malls, online shops allow people to buy products any time of the day.

Shopping online also allows people to have access to a wide selection of products. Many shopping search engines offer price comparisons and reviews for buyer who would like to make the most out of their money. Payments are made through debit cards, electronic money, cash on deliveries and checks to name a few.

E-commerce has also given birth to website development Today, many web developers offer services to help online shops develop public image. Some services offered by web developers are custom design e-commerce web site, search engine optimization (SEO), internet marketing, software development and social network marketing to name a few.

A custom design e-commerce web site requires the meticulous process of planning and designing. A well-designed website is meant to encourage web traffic by attracting web visitors and to build a favorable image for their audience. Web design is an effective marketing strategy for online shops and is therefore used by many businesses outsourcing web designers to manage their websites.

For many online entrepreneurs, venturing on custom designed websites and e-commerce software development not only allows them to meet the needs of their business; it also allows them to navigate and reach a wider scope of their target markets. Businesses can now provide a virtual environment and convenient products and services to their consumers while opening their doors for global opportunities.

2.7 <u>Impact of E-Commerce on Business:</u>

E-commerce has made a profound impact on society. People can now shop online in the privacy of their own homes without ever having to leave. This can force larger brick and mortar retailers to open an online division. In some cases, it can also force smaller businesses to shut their doors, or change to being completely online. It also changes the way people look at making purchases and spending money. E-commerce has changed the face of retail, services, and other things that make our economy work. Undoubtedly, it will continue to influence how companies sell and market their products, as well as how people choose to make purchases for many years to come. The following are the impact of e-commerce on the global economy.

<u>Impacts on Direct Marketing:</u>

There are many impacts on direct marketing. They are:

- **<u>Product promotion</u>**: E-commerce enhances promotion of products and services through direct, information-rich, and interactive contact with customers.

- **<u>New sales channel:</u>** E-commerce creates a new distribution channel for existing products. It facilitates direct reach of customers and the bi-directional nature of communication.

- **<u>Direct savings:</u>** The cost of delivering information to customers over the Internet results in substantial savings to senders when compared with non-electronic delivery. Major savings are also realized in delivering digitized products versus physical delivery.

- **<u>Reduced cycle time</u>**: The delivery of digitized products and services can be reduced to seconds. Also, the administrative work related to physical delivery, especially across international borders, can be reduced significantly, cutting the cycle time by more than 90 percent.

- **<u>Customer service:</u>** Customer service can be greatly enhanced by enabling customers to find detailed information online. Also, intelligent agents can answer standard e-mail questions in seconds and human experts' services can be expedited using help-desk software.

- **Corporate image:** On the Web, newcomers can establish corporate images very quickly. Corporate image means trust, which is necessary for direct sales. Traditional companies such as Intel, Disney, Dell, and Cisco use their Web activities to affirm their corporate identity and brand image.

Other Marketing Impacts:

The other marketing impacts are:

- **Customization:** E-commerce provides for customization of products and services, in contrast to buying in a store or ordering from a television, which is usually limited to standard products. Dell Computers Inc. is a success story of customization. Today, we can configure not only computers but also cars, jewelry, gifts, and hundreds of other products and services. If properly done, one can achieve mass customization. It provides a competitive advantage as well as increases the overall demand for certain products and services.

- **Advertisement:** With direct marketing and customization conies as one-to-one or direct advertisement, which is much more effective than mass advertisement? This creates a fundamental change in the manner in which advertisement is conducted not only for online trades but also for products and services that are ordered in traditional ways.

- **Ordering system:** Taking orders from customers can drastically be improved if it is done online. When taken electronically, orders can be quickly routed to the appropriate order-processing site. This saves time and reduces expenses. So sales - people have more time to sell. Also, customers can compute the cost of their orders, saving time for all parties involved.

- **Markets:** The physical market disappears as does the need to deliver the goods to the marketplace. In a market space, which is an electronic market, goods are delivered directly to buyers when purchasing is completed making markets much more efficient. For those products that are digitally based-software, music and information- the changes will be dramatic. Already, small but powerful software packages are

delivered over the Internet. This fundamentally affects packaging and greatly reduces the need for historical distribution.

New selling models such as shareware, freeware are emerging to maximize the potential of the Internet. New forms of marketing will also emerge, such as Web-based advertising, linked advertising, direct e-mail, and an increased emphasis on relationship marketing. Customer's convenience is greatly enhanced, availability of products and services is much greater, and cheaper products are offered. All these provide EC with a competitive advantage over the traditional direct sales methods. Some people predict the "fall of the shopping malls," and many retail stores and brokers of services are labeled by some as "soon to be endangered species."

Impacts on Organizations:

Impacts on organizations are:

- **Technology and organizational learning:** Rapid progress in E-commerce will force companies to adapt quickly to the new technology and offer them an opportunity to experiment with new products, services, and processes. New technologies require new organizational approaches. For instance, the structure of the organizational unit dealing with E-commerce might have to be different from the conventional sales and marketing departments. To be more flexible and responsive to the market, new processes must be put in place. This type of corporate change must be planned and managed.

- **Changing nature of work:** The nature of work and employment will be transformed in the Digital Age; it is already happening before our eyes. Driven by increased competition in the global marketplace, firms are reducing the number of employees down to a core of essential staff and outsourcing whatever work they can to countries where wages are significantly less expensive. The upheaval brought on by these changes is creating new opportunities and new risks and forcing us into new ways of thinking about jobs, careers, and salaries.

The Digital Age workers will have to become very flexible. Few of them will have truly secure jobs in the traditional sense, and all of them will have to be willing and able to constantly learn, adapt, make decisions, and stand by them.

- **New product capabilities:** E-commerce allows for new products to be created and existing products to be customized in innovative ways. Such changes may redefine organizations' missions and the manner in which they operate. E-commerce also allows suppliers to gather personalized data on customers. Building customer profiles as well as collecting data on certain groups of customers, can be used as a source of information for improving products or designing new ones. Mass customization, as described earlier, enables manufacturers to create specific products for each customer, based on his or her exact needs. For example, Motorola gathers customer needs for a pager or a cellular phone, transmits them electronically to the manufacturing plant where they are manufactured, along with the customer's specifications and then sends the product to the customer within a day.

• **Impacts on Manufacturing:**

E-commerce is changing manufacturing systems from mass production to demand-driven and possibly customized, just-in-time manufacturing. Furthermore, the production systems are integrated with finance, marketing, and other functional systems, as well as with business partners and customers. Using Web-based ERP systems, orders that are taken from customers can be directed to designers and to the production floor, within seconds. Production cycle time is cut by 50 percent or more in many cases, especially when production is done in a different country from where the designers and engineers are located.

Companies like IBM, General Motors, are assembling products for which the components are manufactured in many locations. Sub-assemblers gather materials and parts from their vendors, and they may use one or more tiers of manufacturers. Communication, collaboration, and coordination become critical in such multitude systems. Using electronic bidding, assemblers get sub-assemblies 15 percent to 20 percent cheaper than before and 80 percent faster.

• **Impacts on Finance:**

E-commerce requires special finance and accounting systems. Traditional payment systems are ineffective or inefficient for electronic trade. The use of the new payment systems such as electronic cash is complicated because it involves legal issues and agreements on international standards. Nevertheless, electronic cash is certain to come soon and it will

change the manner in which payments are being made. In many ways, electronic cash, which can be backed by currency or other assets, represents the biggest revolution in currency since gold replaced cowry shells. Its diversity and pluralism is perfectly suited to the Internet. It could change consumers' financial lives and shake the foundations of financial systems and even governments. [6]

Chapter 3: E-Commerce Statistics

Global business-to-consumer e-commerce sales will pass the 1 trillion euro ($1.25 trillion) mark by 2013, and the total number of Internet users will increase to approximately 3.5 billion from around 2.2 billion at the end of 2011, according to a new report by the Interactive Media in Retail Group (IMRG), a U.K. online retail trade organization.

The study estimates that business-to-consumer e-commerce sales in 2011 increased to 690 billion Euros ($961 billion), an increase of close to 20% from a year earlier.

The United States remains the world's single biggest e-commerce market, IMRG says, followed by the United Kingdom and Japan. IMRG estimates that growth rates in those countries will be approximately 10-15% a year. But with China's e-commerce sales growing more than 130% in 2011, it is only a matter of time before the Asian giant becomes the single largest market in the world. [7]

3.1 E-commerce Statistics B2C:

1. To better inform the committee on consumer policy's work on ensuring effective protection for consumers in the online marketplace, this document provides a quantitative overview of the status of business-to-consumer (B2C) e-commerce. Much of the data referenced is derived from private sources, because statistical offices of member countries are only beginning to collect such data.

2. This paper begins with a discussion of the methodological challenges involved in quantifying e-commerce activity around the globe. Examples are presented in the following section of different estimates for total B2C e-commerce, as well as estimates of e-commerce distribution by sector/product and by geography. The paper then includes a brief overview of the relationship between access and pricing issues and the potential for e-commerce development. Turning to conclusions, the paper discusses the expected path of B2C e-commerce sales in the near future and the importance of gathering more data on B2C e-commerce. Methodological issues

3. Until recently, there has been no internationally-agreed definition of what e-commerce is. It is therefore difficult to compare estimates of its size, breakdown and growth (OECD, 1999a; OECD 2000a). A variety of sources produce estimates,

including IT market research firms, investment banks and increasingly, national statistical offices. Not only are their definitions different, but the methodologies are often not comparable, leading to a wide range of estimates and forecasts. In addition to estimating the value of online purchases, different types of indicators can be used to collect additional information on B2C e-commerce; for example, the number of people who have purchased items online and the frequency of purchases. Although difficult to size, all studies agree on the fact that many facets of this economic activity are growing quite rapidly; a recent study estimates that about 40% of all Internet users have made at least one online purchase (Angus Reid, 2000).

Figure 3.1 presents a broad set of indicators about B2C e-commerce for selected OECD countries, while Annex 1 presents a more comprehensive list of indicators which can be used to measure B2C e-commerce activities in both quantitative and qualitative terms.

	Value of transactions (USD million)	Penetration rate of retail sales (%)	Number of buyers ('000's)	Number of buyers as a percentage of Internet users (%)	Internet shoppers as a percentage of working age population (%)
United States	25 845	1.01	19 666	27	16
Japan	7 644	0.26	..	20	6
Germany	1 199	0.30	1 370	17	5
France	345	0.14	310	7	2
Italy	194	0.09	360	7	1
United Kingdom	1 040	0.37	970	18	5
Canada	774	0.26	811	12	4.0
Australia	380	0.36	1 335	10	4
Austria	96	0.23	120	13	2.2
Belgium	82	0.16	90	11	3
Denmark	193	0.20	90	16	9
Finland	51	0.22	160	10	4.7
Greece	..	..	30	11	0.4
Ireland	..	..	40	13	1.6
Korea	1 008	1.0	2 140	15	7.7
Netherlands	182	0.34	320	12	5
Norway	61	0.26	100	19	11
Portugal	..	..	50	10	1
Spain[1]	70	0.06	220	7	1
Sweden	232	0.68	260	10	4.6
Switzerland	127	0.29	130	12	2.7

Figure 3.1: <u>B2C e-commerce indicators in selected OECD countries for 2000 or latest available year</u>

4. Following the Ottawa Ministerial Conference on E-commerce (October 1998) an Expert Group from the Working Party on Indicators for the Information Society (WPIIS) was established to "compile definitions of electronic commerce which are policy relevant and statistically feasible". In April 2000 a joint WPIE/WPIIS meeting

was held and agreement was reached on a provisional framework and follow up strategy (OECD, 2000a; OECD, 2000b). This framework consists of a set of definitions, a preliminary list of indicators for measurement, and a strategy for developing and refining future work. The framework is intended to assist OECD countries in developing their own statistical programmers for measuring e-commerce and improve international comparability, although it carries no bindingobligation on countries to apply the definition or modify existing statistical procedures.

5. Ongoing analytical work at the OECD uses a life-cycle model to highlight three broad phases of e-commerce growth. Each phase can be measured with different sets of indicators which also correspond to different policy concerns for governments. Many of the widely available indicators (from both public and private sources) refer to the "readiness" phase of the cycle. In the OECD framework, however, estimates of e-commerce transactions usually focus on the "intensity" phase, i.e. measuring the size and nature of these transactions. Measuring of e-commerce as shown in Figure 3.2. This figure also shown in level of e-commerce activity.
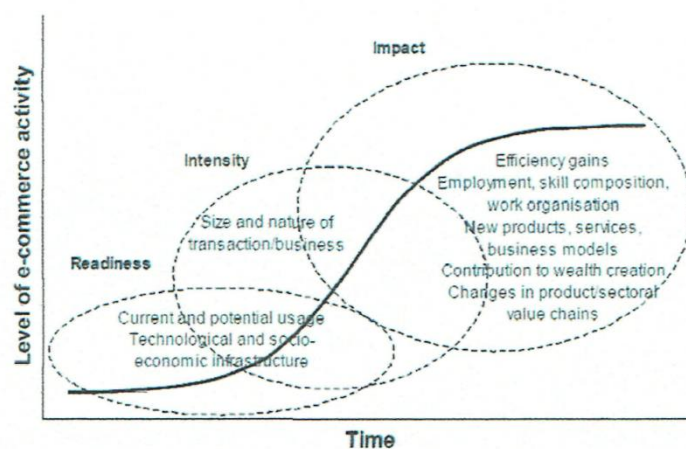
Figure 3.2: <u>Measuring e-commerce</u>

6. When focusing on transactions, the OECD's working definition of an electronic transactions a "sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other public or private organizations, conducted over computer-mediated networks" (OECD, 2000b). This definition includes orders placed over a network, regardless of whether or not the payment and the delivery took place online. Other definitions only include Internet protocol-based

networks (i.e. excluding Electronic Data Interchange (EDI) or other proprietary systems); others only include orders with online payment. This paper will focus on estimates of the value of these transactions, with particular emphasis in differences between countries and product groups.

7. Estimates for B2C e-commerce vary widely depending on the source. Figure 3.3 show a range of estimates for Canada, Europe and the United States from a variety of private sector sources. It is difficult to compare these figures given the differences in methodologies (OECD, 1999b), which result in some cases in estimates that vary by a factor of two. Annex 2 compares various estimates and methodologies, while Annex 3 presents a more detailed technical explanation of how a particular example of a transaction estimation model is constructed, and how estimates are produced for each country.
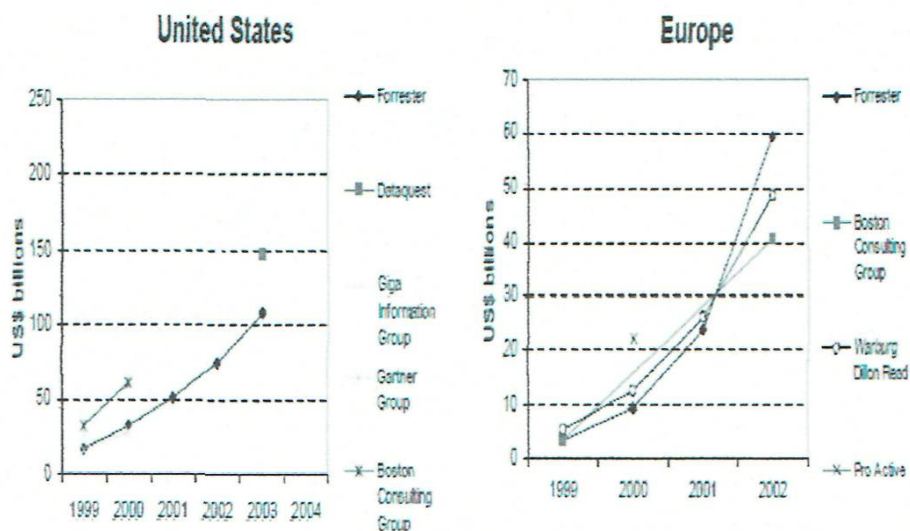
Figure 3.3: <u>B2C e-commerce estimates for the United States and Europe (In billions of USD)</u>

8. Statistical organizations in some OECD countries have begun to collect data on e-commerce, although the surveys do not necessarily use the same categorization between B2C and B2B. Nonetheless, these surveys do provide insights into online consumer behaviors as they usually distinguish retail from wholesale trade.

9. Since 2000, the US Department of Commerce has been publishing data on quarterly online retail sales 1. Figure 5 presents data for the last five quarters. Online retail sales grew from less than USD 5.2 million in the last quarter of 1999 (or 0.63% of all retail

sales), to almost USD *8.7* billion one year later (accounting for 1% of total retail sales). The total value of online retail sales (USD 25.8 billion for the year 2000) should be considered as a lower bound for B2C e-commerce and is not directly comparable with private sector estimates as it excludes certain categories which are included in other surveys, such as online travel services, financial intermediaries, and ticket sales agencies. Quarterly retail e-commerce in the United States, 1999-2000 as shown in Figure 3.4. As an illustration, a monthly survey conducted by the National Retail Federation (NRF) and Forrester Research (Online Retail Index), if adjusted to exclude airline tickets and hotel reservations, estimates online retail to be more than 40%higher (almost USD *31* billion in 2000).
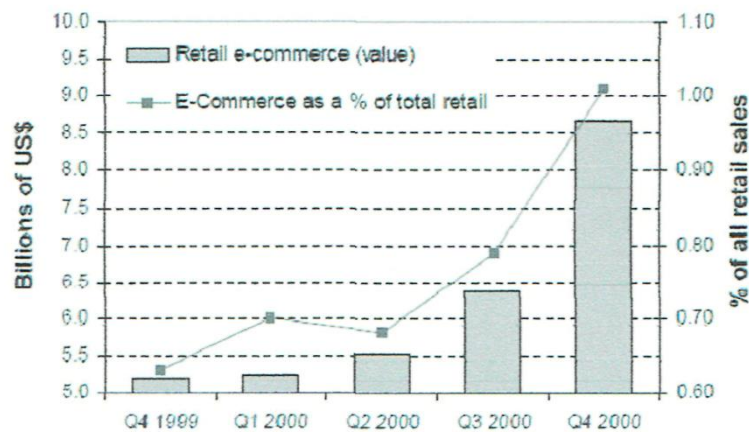
Figure 3.4: <u>Quarterly retail e-commerce in the United States, 1999-2000 (Sales in billions of USD and share in %)</u>

10. Canada published its first official figures on Internet sales in mid-2000 (Statistics Canada, 2000a). Total Internet sales (which include both purchases by consumers and firms) reached CAD 4.4 billion during 1999. In the retail trade sector, sales in 1999 were CAD 610 million, or 0.3% of total operating revenue of the sector figure 2.5 shown B2C e-commerce by type of product. In other sectors where consumers account for the largest component of purchases, Internet sales accounted for a much larger share of total sales (1% in the information and cultural industries sector; 1.3% in accommodation and food services sector).

E-commerce business satiates shown figure 2.5 in US millions dollar. In this figure, growth in 1999 to 2005, In the year of 1999 e-commerce business only 28550 million dollar in the

year of 2000 its business 44120 million dollar. After the years of 2005 its growth becomes 227960 million dollar.
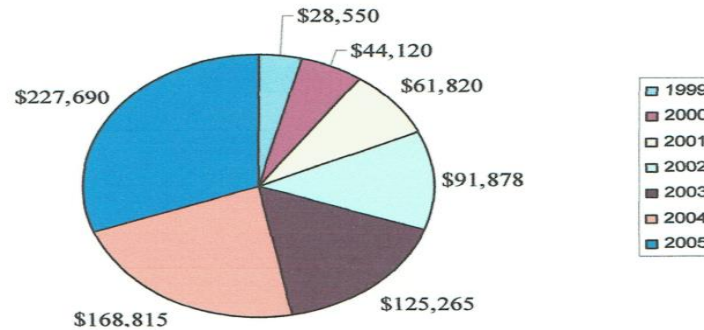
Figure 3.5: E-commerce statistics B2C

3.2 World Wide E-commerce Revenue:

E-commerce penetration logs online advertising as shown in Figure 3.6 there are yearly profit of e-commerce 2002 to 2009. In year 2002 US advertising has 5% and in year of 2009 US advertising has 13.7%.

Figure 3.6: E-commerce penetration logs online advertising

With e-commerce spending performing well over the past holiday season, retailers are hoping this trend will continue into 2011. J.P. Morgan senior analyst Imran Kahn has released his annual report forecasting trends for the New Year that includes a number of positive projections for the e-commerce industry.

The report forecasts that e-commerce revenue will grow to $680 billion worldwide up 18.9 percent from 2010 revenue. Online retail commerce in the U.S. alone will grow 13.2 percent to $187 billion. J.P. Morgan anticipates that global e-commerce revenue will hit a whopping $963 billion by 2013.

The number of people who shop online keeps increasing, with 38 percent buying at least once per month. And the percentage of people who don't shop online declined to 12 percent in 2010 from 20 percent in 2007. Higher income consumers shop online the most often, with 34 percent of those making $100,000 or more shopping online at least three times per month.

While e-commerce spending may be growing, Kahn reports that the pace at which retail is moving online is less rapid than the online advertising space (See chart below). As of 2009, e-commerce was only 3.9 percent of all U.S. retail, however; online advertising represented 13.7 percent of all U.S. advertising.

Kahn writes that the growth in mobile commerce could negatively affect brick and mortar stores and that one potential weakness in e-retail growth is the possibility of an internet sales tax. Higher-income user shop online more frequency as shown in Figure 3.7

Figure 3.7: <u>Higher-income user shop online more frequency</u>

In figure 3.8 worldwide revenue of e-commerce in North America e-commerce revenue 3.50 US millions dollar Asia pacific area revenue 1.60 million dollar Western Europe revenue is 1.50 million dollar Latin America revenue is 81.80 million dollar and Rest of World revenue is 68.60 million dollar.
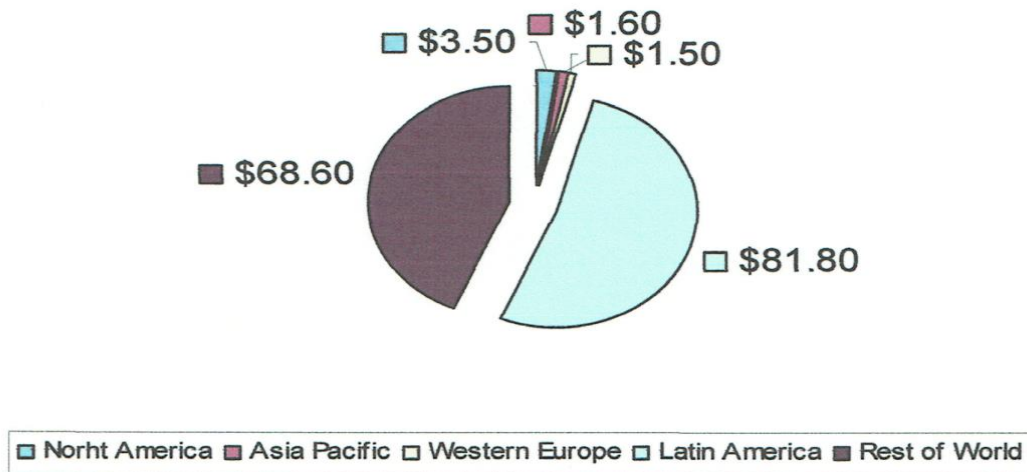
Figure 3.8: <u>Worldwide e-commerce revenue</u>

3.3 <u>Cost of Traditional Vs. Online Purchasing Process:</u>

The major costs you won't incur include:

- ## **Rent:**

The annual rent you'll pay can vary significantly depending on your target customer and the type of store you're looking to open.

We were recently looking at Oxford St. in Paddington, Sydney as a potential location for a Shoes of Prey retail store and rents there can get as high as $150,000 per year for a 70m2 store. A good location in the major mall of a capital city will be much higher than that, as will a store in a premium Westfield centre. Australia has some of the highest retail rents in the world, with Sydney ranking second highest in the world for retail rents and Brisbane and Melbourne are not far behind. By operating online you'll avoid paying rent which is a major cost saving.

- ## **Fit out:**

Unless by some incredible coincidence the previous tenant had fit out the store in a way that exactly suits your brand, you're going to need to spend some money to fit out a physical store if you lease one.

We received a quote for moving some walls, redoing a floor, painting, fitting out an alarm system, replacing the air-conditioning and some other works to a store we were looking at in Paddington.

We were quoted $120,000. That didn't include shelving, fixtures and fittings which would have cost extra on top of this price. To keep a store fresh it will need to be re-fit out every five years or so and requirements to re-fit out stores are usually written into leases at major shopping centers.

- **<u>Staffing:</u>**

A physical retail store needs to be staffed whenever it's open. If your store is going to operate seven days a week and average 10 hours open per day you're going to need two full-time staff just to keep the doors open, and more if you want to have two or even three people in the store during busy periods.

Depending on the quality of the staff you want to hire, you're looking at least $100,000 a year in staffing costs.

You'll need people to run the customer service for your online retail store, so you're not getting out of this cost completely, but if you launch with email-only customer support as we did, it's much more flexible in terms of staffing.

As you grow and hire staff you can add phone and chat support as we've done at Shoes of Prey, but you can get away with much lower staffing at launch to keep your costs down.

- **<u>Electricity, Insurance, Phones and Other Incidentals:</u>**

There are a whole range of smaller costs that you'll incur opening a physical retail store. Many of these you'll also incur with an online store but they will generally be lower.
You don't need expensive down lights to light up your store, insurance for a small warehouse is generally much cheaper than a retail store and you can get away with a skype number instead of a phone line for phone calls.

If you add all that up there are certainly some significant cost savings in opening an online store compared with a physical retail stores.

However, while there are some significant cost savings in opening an online only retail store, there are also some significant disadvantages which need to be weighed up against the benefits.

- **Building Your Online Store:**

Like rent, the cost for doing this can vary significantly. To start out you can try an off the shelf system like Shoplift that makes it really simple to put together a high quality online store without a great deal of technical knowledge.

Hire a designer to put together the graphics and you potentially have a good online store for under $5, 000, plus a percentage of your sales ongoing depending on which Shoplift plan you go with.

At the other end of the scale you might want to do something unique and different like we did with Shoes of Prey. One of our co-founders Mike Knapp is an ex-Google software engineer so he built the site in-house, but the value of the time he's put into the site would be worth many $100,000's.

To get to launch would have cost us around $80,000 in Mike's time so that was still cheaper than if we'd launched our business with a physical retail store.

- **Warehousing:**

Most online retail businesses will need to warehouse the stock they're selling. The size of the stock will determine how expensive warehousing is going to be for you.

Most online retailers I speak to, us included, used the founders' living rooms as warehouses when starting out, so the cost here is more your sanity than a physical cost.

As you grow you'll need to look into warehousing. There are third party providers who will manage the warehousing of your stock for you, or at the other end of the scale you can set up

a multi-million dollar facility as Deals Direct http://www.dealsdirect.com.au have done in Australia.

- **Shipping:**

If you're selling online you're going to need to ship your goods to customers. You'll need to work with a local company such as Australia Post or a local courier service more unique case at Shoes of Prey because our products are mostly made to order. We use DHL to ship our shoes directly from our office in China.

- **Traditional Vs. Online Purchasing:**

Costs of traditional vs. online purchasing processes- USD as shown in Table 3.1 there is show buying paying Reconciling integration Average transaction cost of traditional process vs. purchase card and e-commerce

Table 3.1: Costs of traditional vs. online purchasing processes- USD

Process Step	Traditional Process	Purchase Card + E-commerce
Buying	59.00	3.40
Paying	12.00	0.34
Reconciling integration	19.00	0.74
Average transaction cost	90.00	4.44

Online shopping has opened up entirely new possibilities in the world of shopping. Customers are now allowed to shop worldwide, hit great internet sales, and comparison shop all from the comfort of home.

According to a survey conducted by Nielsen the top three reasons people use online shopping are for convenience, to save time, and the ability to comparison shop. In the past customers were limited to the stores they shopped at or the items available for purchase based on what was locally available.

Customers had a smaller selection of stores and products to choose from if a store was not available in their region or if they lived in a smaller community. Now thanks to the internet,

online shopping has removed those limitations. Customers can shop worldwide with a click of the button. They can now use simple search engines to find unique or specialty items.

Whether you are looking for something from another country or a rare collector's piece you can find it in a simple search. Online shopping has also created better pricing and incentives. From your personal computer you can search for the best available price for specific items. In the past local stores only had to compete with the local market, but now they compete with online stores and online stores have to compete with every online store selling those same items.

This includes internet resale and warehouse type websites which tend to have very competitive pricing. Online shops must be sure they not only carry a wide variety of products they must be competitively priced, and offer incentives such as free or reduced shipping. Online shoppers can now also use the internet to research before they buy. Customers can use online shopping to find internet reviews of products by real consumers to decide if they really are getting a quality product at bargain price. They can also research online stores, and view their customer ratings to feel secure in their transaction with the company.

Payment for internet purchases has also become more secure for the weary customer thanks to very advanced protective anti hacking programs, and safe third party payment companies who create websites that allow for secure transactions to come right out of your checking account or credit card. These protective measures help take the risk or eliminate the fears of purchasing through smaller less known companies.

Chapter 4: E-Commerce in Bangladesh

In Bangladesh there is a limited application and use of B2C e-commerce .This field is not yet much developed in Bangladesh. There are many reasons behind it one simple reason this country is not so developed and most of its citizens are poor and uneducated. It is quit natural that there are few customers who is willing and can shop in internet. It will take years to be developed this sector in bd. The telecommunication infrastructure any country affect the Internet services directly, cause it is largely depended on it.[8] In this chapter Define Need for e-commerce in Bangladesh, different sector in Bangladesh, overview of implementation stage of e-commerce in Bangladesh. And there is some problem such as: low internet speed, no payment gateway and internet range and recommendation.

4.1 Need for E-commerce in Bangladesh:

With the increasing diffusion of ICTs, more specifically the Internet, the global business community is rapidly moving towards Business-to-Business (B2B) e-commerce. The buyers/ importers gain a clear advantage when the Internet gives them access to the global market, by which they can compare prices across regions, find out whether prices vary by order fragmentation, get awareness about substitute/ alternative products. Consequently, the sellers/ exporters make sure that they are well portrayed in the cyber world through websites and portals. Like buyers, sellers also benefit from increased and more efficient access to the global market through the Internet. Bangladesh is pursuing an economic policy of export-led growth. With the rising forces of globalization, it is becoming increasingly important that the private sector, particularly the export sectors are well prepared to meet the requirements and expectations of the importers and also stand out in the competition against exporters in other countries. In such a scenario, two issues are becoming particularly important for Bangladeshi export sectors -one, whether businesses are automating their internal processes with these of ICTs to become increasingly efficient and competitive in a global context, and two, whether businesses have effective presence and participation in the cyber world. International organizations such as UNCTAD (United Nations Center for Trade and Development) and WTO (World Trade Organization) have, over the last several years, put much emphasis on the importance of e-commerce for developing countries. UNCTAD has special programs to facilitate developing countries to transition into e-commerce. The WTO has also developed rules and guidelines for global e-commerce transactions.

Some e-commerce shop in Bangladesh

1. www.haatbazar.com
2. www.bdbazar.com
3. www.bengalcommerce.com
4. www.upoharbd.com
5. www.bdgift.com
6. www.cellbazaar.com

4.2 E-commerce in Different Sector in Bangladesh:

Despite being a under developed country, selected segments of the Bangladeshi business community has embraced technology with reasonable success. Personal computers and the Internet are also emerging as day-to-day business tools. These positive indicators are favoring the prospects of e-commerce in Bangladesh.

1. RMG Sector
2. Banking on the Web (Online Banking)
3. Online Shopping
4. Web Hosting, Domain
5. Online cards, gifts
6. Pay Bill
7. Education

4.3 The Existing Situation and Potential of E-commerce in Bangladesh:

Internet services are presently available in Bangladesh. Its usage for e-commerce by the Bangladeshi producers to export as well as to access inputs will be dependent on their willingness and ability to use this medium as well as that of the buyers of final products and the sellers of intermediate goods and services.

Figure 4.1 depicts the three dimensions of e-commerce. Business to-Consumers (B2C) e-commerce is practically non-existent within Bangladesh, while a very limited level of Business-to-Business (B2B) and Business-to-Government (B2G) transactions exists. The potential for use of e-commerce by Bangladeshi consumers and businesses with foreign firms is much brighter, and can play an important role in boosting the country's exports. A significant volume of B2G is also possible, as the government remains the biggest spender.
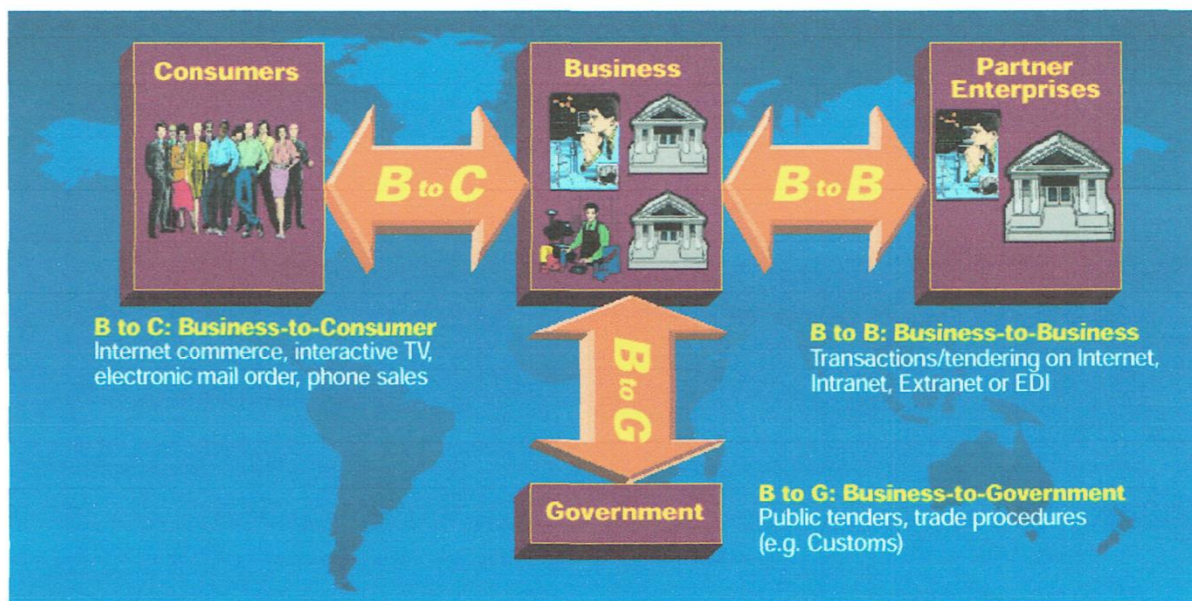
Figure 4.1: <u>The Three Dimensions of E-commerce</u>

- ## **<u>Business-to-Consumer (B2C) Scenarios:</u>**

Business-to-Consumer (B2C) e-commerce is unlikely to be of much use in the foreseeable future in Bangladesh. At the domestic level, low per capita income, limited infrastructural facilities weak legal environment (inadequate contract laws, poor implementation and enforcement), and lack of trust and confidence between business and consumers are going to hinder B2C. In the backdrop of such limitations, the low wage economy, with high levels of unemployment and underemployment, will continue to rely on the physical presence of buyers and sellers during a transaction in most cases. B2C for cross border trade is inhibited by the factors suggested for the domestic front. In addition, non-availability of international credit cards, foreign currency remittance restrictions, delays and informal payments at customs clearance even for small value and quantity items will discourage B2C.

- ## **<u>Business-to-Business (B2B) Scenarios:</u>**

As mentioned before, the Business to Business (B2B) scenario prevails in Bangladesh to a very limited extent. The B2B scenario exists mostly in the export sector, especially in the Ready Made Garments (RMG) industry. RMG has the lion's share of the export earnings in Bangladesh, accounting for 75 percent of total exports. The current value of annual exports of the RMG sector is close to $4.35 billion. The RMG sector has begun to use the Internet, and

its dependence on e-commerce is likely to grow significantly in the coming years. E-commerce through the Internet is poised to be an effective business tool for the RMG exporters. The Internet would enable them to seek information about potential buyers as well as raw material suppliers. Similarly the practice of posting a website by individual producers has begun. Opening a website is a step towards the right direction. Also, the adherence of Bangladeshi firms to quality, labor and environmental standards (e.g. ISO 9000, QS 9000) can also be shared and highlighted through the Internet technology.

- ## **Business-to-Government (B2G) Scenarios:**

The government is a major buyer of goods and services from the private sector. Typically, the government procures goods and services by inviting tenders. This has been the traditional method of any government procurement for goods and services. Tender notices are published in the major national dailies followed by selling the Request for Proposal (RFP) documents to the interested bidders. If any bidder seeks clarification on any aspect of the RFP, the customer is mandated to notify that clarification to all bidders by mail. In addition to costing money and taking time, such notification sometimes forces the customer extending the bid-closing deadline. Bidders also obtain the RFP document "unofficially" for a comprehensive understanding of the 'scope of work' as well as for assessing their own capability. The availability of the RFP and other relevant documents on-line provides an alternate choice, thereby reducing the monopoly rent that can be extracted. In order to prevent such unfair practice, the Bangladesh Telegraph and Telephone Board (BTTB) initiated publishing the RFP documents of selected projects in its website. This immediately stopped the illicit practice of unofficially selling the RFP document, and only competent bidders were able to procure the RFP documents. In addition to reducing the extra administrative burden of BTTB, it also enabled BTTB to close those bids within a reasonable timeframe. The posting of the RFP documents on the Web is however an isolated effort being initiated by a few BTTB officials.

- ## **E-commerce growth in Bangladesh:**

E-commerce growth in Bangladesh shown in figure 4.2 in the year of 2000 e-commerce business is 11440 million taka. In the years of 2001 business of e-commerce is 15840 million taka and increase year by year 2002 business is 18980 million taka 2002 to 2004 businesses is

not very fast but in the year of 2005 business of e-commerce is 22480 and end the year of 2006 business of e-commerce growth is 252000 million taka.

	2000	2001	2002	2003	2004	2005	2006
	11440	15840	18960	19720	20480	22400	25200
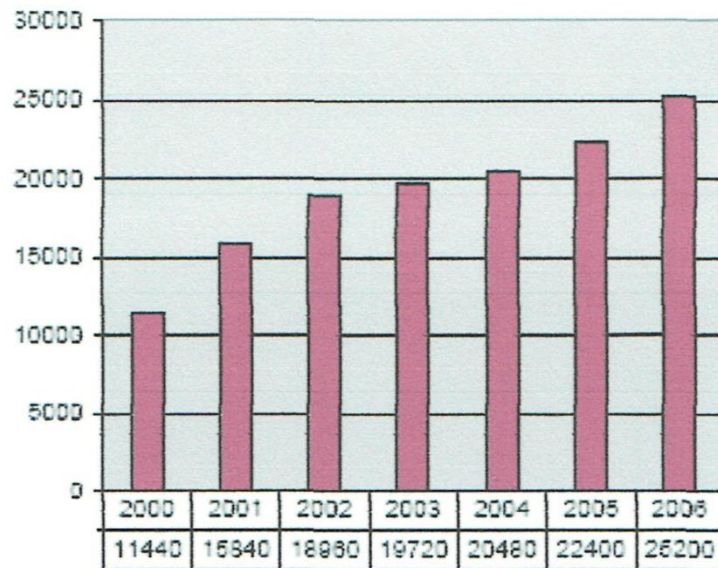
Figure 4.2: <u>E-commerce growth in Bangladesh</u>

4.4 <u>Overview of Implementation Stage of E-commerce in Bangladesh:</u>

Ministry of Commerce, Ministry of Information and Communication and Planning Commission jointly implementing the e-commerce in Bangladesh

1. There is e-commerce committee headed by commerce secretary
2. Ministry of Information and Communication is working for enacting alas regarding "Electronic Transaction act"
3. Online order from foreign buyer has started
4. www.registrarofcompniesbangladesh.com here registration of joint stock company started as online
5. Online non-financial transaction has started by all bank from 31 -7-2002
6. Intra-bank transaction started from 31 -7-2003
7. Some bank already started credit card system in a limited way
8. About 2 months Bangladesh Bank gives permission of E-commerce in local currency through banks within the country.

4.5 Constraints to E-commerce in Bangladesh:

Out of 64 districts, Internet services are available only in 6 major district headquarters. BTTB is planning to gradually roll out an IP network up to the64 district headquarters. In January 2002, the Internet facilities were extended to 12 districts. The project is running on very fast and today almost40 plus districts are getting Internet facilities. Followings are the barriers of e-commerce in Bangladesh:

1. Poor telecommunication infrastructure with limited fixed-line access, unreliable connectivity and low bandwidth (9K);

2. High price of computer and hardware: The per capita income of our people is less than US$520. But in order to buy a computer its needed US$500 and for this reason, it is beyond the capacity for a villager's to buy it. Lack of technically efficient personnel; Lack of investment in hardware and software;

3. The banking infrastructure in terms of electronic payments anointer-bank connectivity is poor. As such, the customers of 5770brancb.es of the local banks are unable to operate their account with the other branches of the same bank. Inter-bank transactions more cumbersome as the clearing-house of the central bank isn't online. An inter-bank transaction may take even 2 weeks if the branches are different cities. Only branches of the private banks are interconnected with their respective head offices. They are also satisfactorily computerized. This represents only 25% of the entire banking sector. Small number of Credit Card users;

Limitations of supportive legal system, Such as, exchange controls, protection of telecommunication monopolies, restrictive trade practice and prohibitions; Absence of cyber law; People's mindset and very slow and expensive Internet services; Enterprise managers' lack of initiative and leadership in taking advantage of e-commerce.

4.6 The Impact of E-commerce in Bangladesh:

E-commerce refers to the buying and selling of products or services over electronic systems through Internet and other computer networks. In fact, E-commerce is a way of conducting business over the Internet. Though it is a relatively new concept, it has the potential to alter the traditional form of economic activities. Already it affects such large sectors as communications, finance and retail trade and holds promises in areas such as education, health and government.

- **Impact on Business:**

With the increasing diffusion of ICTs, more specifically the Internet, the global business community is rapidly moving towards Business-to-Business (B2B) e-commerce. Bangladesh is pursuing an economic policy of export-led growth. With the rising forces of globalization, it is becoming increasingly important that the private sector, particularly the export sectors are well prepared to meet the requirements and expectations of the importers and also stand out in the competition against exporters in other countries.

- **Impact on Marketing:**

In Bangladesh, the cost of delivering information to customers over the Internet results in substantial savings to senders when compared with non-electronic delivery. Major savings are also realized in delivering digitized products versus physical delivery. Customer service can be greatly enhanced by enabling customers to find detailed information online. Also, intelligent agents can answer standard e-mail questions in seconds and human experts' services can be expedited using help-desk software.

- **Impact on Organization:**

Technology and Organizational Learning Rapid progress in E-commerce is forcing companies of Bangladesh to adapt quickly to the new technology and offer them an opportunity to experiment with new products, services, and processes. New technologies require new organizational approaches. For instance, the structure of the organizational unit dealing with E-commerce might have to be different from the conventional sales and marketing departments. The nature of work and employment is transformed in the Digital Age. Driven by increased competition in the global marketplace, firms are reducing the number of employees down to a core of essential staff and outsourcing whatever work they can to countries where wages are significantly less expensive. The upheaval brought on by these changes is creating new opportunities and new risks and forcing us into new ways of thinking about jobs, careers, and salaries.

- **Impact on Manufacturing:**

E-commerce is changing manufacturing systems from mass production to demand-driven and possibly customized, just-in-time manufacturing. Furthermore, the production systems are integrated with finance, marketing, and other functional systems, as well as with business

partners and customers. Using Web-based ERP systems, orders that are taken from customers can be directed to designers and to the production floor, within seconds. Production cycle time is cut by 50 percent or more in many cases, especially when production is done in a different country from where the designers and engineers are located.

- **Impact on Finance:**

E-commerce has brought a great impact in our finance system of Bangladesh. Using ATM machine, people now can banking at any time that changes the customers' financial lives and shake the foundations of financial systems.

- **Impact on Education:**

Online learning systems are now available in Bangladesh in which people can take higher study. Online learning systems are taken to mean educational structures that include a web-based technological infrastructure, online course material and online enrolment, tutoring, communication, assessment and administration procedures.

- **Impact on Transportation:**

The use of the Internet to provide sell-side e-commerce has been widely adopted in the transportation in Bangladesh. Almost every transportation company offers its customers the ability to log onto its Web site to make bookings, and to track and trace shipments.

4.7 Challenges of E-commerce for Bangladesh:

1. Network Infrastructure
2. Intra-bank and Inter-bank Connectivity
3. Bank-Client Connectivity
4. Security of transaction
5. Banking mechanism
6. Automation
7. Convertibility of the Bangladesh currency

8. Retention quota

9. International credit cards

10. Capacity Building: Human, Technical and Regulatory

11. Quick Settlement, Online credit Information, Skilled e-Manpower, Regulatory Framework

12. Investment

13. Legal Infrastructure

14. Currency Convertibility: Access to Global Finance

15. E-Culture

4.8 <u>Recommendations:</u>

The assessment of the e-commerce environmental forces of Bangladesh leave us some room to recommend some steps and measures, that should be undertaken by the policy makers and business stake holders forth full-fledged implementation and development of e-commerce in Bangladesh. The recommendations are:

There should be an EFT (Electronic Fund Transfer) Gateway, which will connect all finance and banking institutions, ATMs, POS and related websites. Such Gateway will speed up the transactions among banks, commercial institutions. This sort of infrastructure needs to be implemented on priority basis.

A CCG (Credit Card Gateway) should be established. A credit card gate way is a server that makes online credit card transactions safe (Skinner, 2005). The software protocols in the CCG use the information provided to check for availability of funds and to make sure the credit card is not expired, lost or stolen. This takes only seconds. When the transaction is approved a receipt is generated for the customer, and the funds are transferred to the vendor's bank account through EFT.

Unlicensed radio frequencies should be made available on demand and VSAT operating licenses should not limit the bandwidth.

To improve banking mechanism, Bangladesh government should compel the banking sectors to automate their operation and going online by a specific period. The control of foreign

exchange should be liberalized gradually and easier issuance of International Credit Cards should be allowed, banks should take effective steps here.

Business associations should be made aware of the benefits of e-commerce. Business organizations like FBCCI, DCCI, MCCI, and BGMEA can play a significant role in promoting e-commerce in Bangladesh.

Chapter 5: Existing System, Requirement Analysis and System Design

5.1 Existing System:

E-commerce in Bangladesh actually stated in the year of 1999 based in USA with some non-resident Bangladeshis. This people opened some Bangladeshi sites focused on providing local news and some transactional things like sending gift items to Bangladesh, www.munshigi.com is the first ever Bangladeshi e-commerce web site.

List of different e-commerce-type web sites

    i.   www.hutbazar.com

    ii.   www.cellbazar.com

    iii.   www.bikroy.com

    iv.   www.banglacommerce.com

    v.   www.bdjobs.com

    vi.   www.premium.com

    vii.   www.shoppingcard.com

    viii.   www.ecommercebank.org

    ix.   www.kroybikroy.com

    x.   www.kholabazar.com

    xi.   www.bestway.com

    xii.   www.e-bangla.com

    xiii.   www.bajna.com

    xiv.   www.bangladeshinfo.com

    xv.   www.bdbazar.com

    xvi.   www.bdquery.com

    xvii.   www.quickezine.com

    xviii.   www.Webbangladesh.com

    xix.   www.deshigift.com

    xx.   www.bangla2000.com

    xxi.   www.banglabaskets.com

5.2 Requirement Analysis:

The requirement analysis includes a column to show which uses cases to provide the functionality of each requirement.

5.3 Actors:

Actors can be defined as something that interacts with the system. The actors can be human user, some internal applications or may be some external application. There are four actors for the system.

1. Customer
2. Sales Person
3. Shipping Clerk
4. Bank Account

In this project, there are relationships among the Customer (User/Browser/Application), E-company system and Bank. The Customer interacts directly to the system when connecting to the Internet. The internal part of the E-Commerce system has two roles, the sales person and the shipping clerk. The Sales Person is in charge of updating the product information while the shipping clerk is in charge of product shipments. The Bank Account has responsibility to ensure that order ID used in purchase are valid.

5.4 Data Requirement:
1. Allow customers to view products from their home
2. Allow customers to make purchases and receive products from their home
3. Customers are able to make payments from their bank account
4. Product descriptions must be easily maintained and updated by store employees
5. Fast distribution of product descriptions
6. Inexpensive distribution of product descriptions
7. Fast customer ordering system that is as simple as possible

5.5 Process Requirement:
1. Information needed to created order form
2. Product selections
3. Customer information
4. Billing information
5. Shipping information (if different from customer)

5.6 System Design:

The system design relates to the actual input and output processes of the system. This is laid down in terms of how data is input into a system, how it is verified or authenticated, how it is processed, and how it is displayed as In Physical design; the following requirements about the system are decided.

- Input requirements
- Output requirements
- Storage requirements
- Processing Requirements

Put another way, the physical portion of systems design can generally be broken down into three subtasks-

- User Interface Design
- Data Design
- Process Design

5.7 <u>Use-Case Diagram:</u>
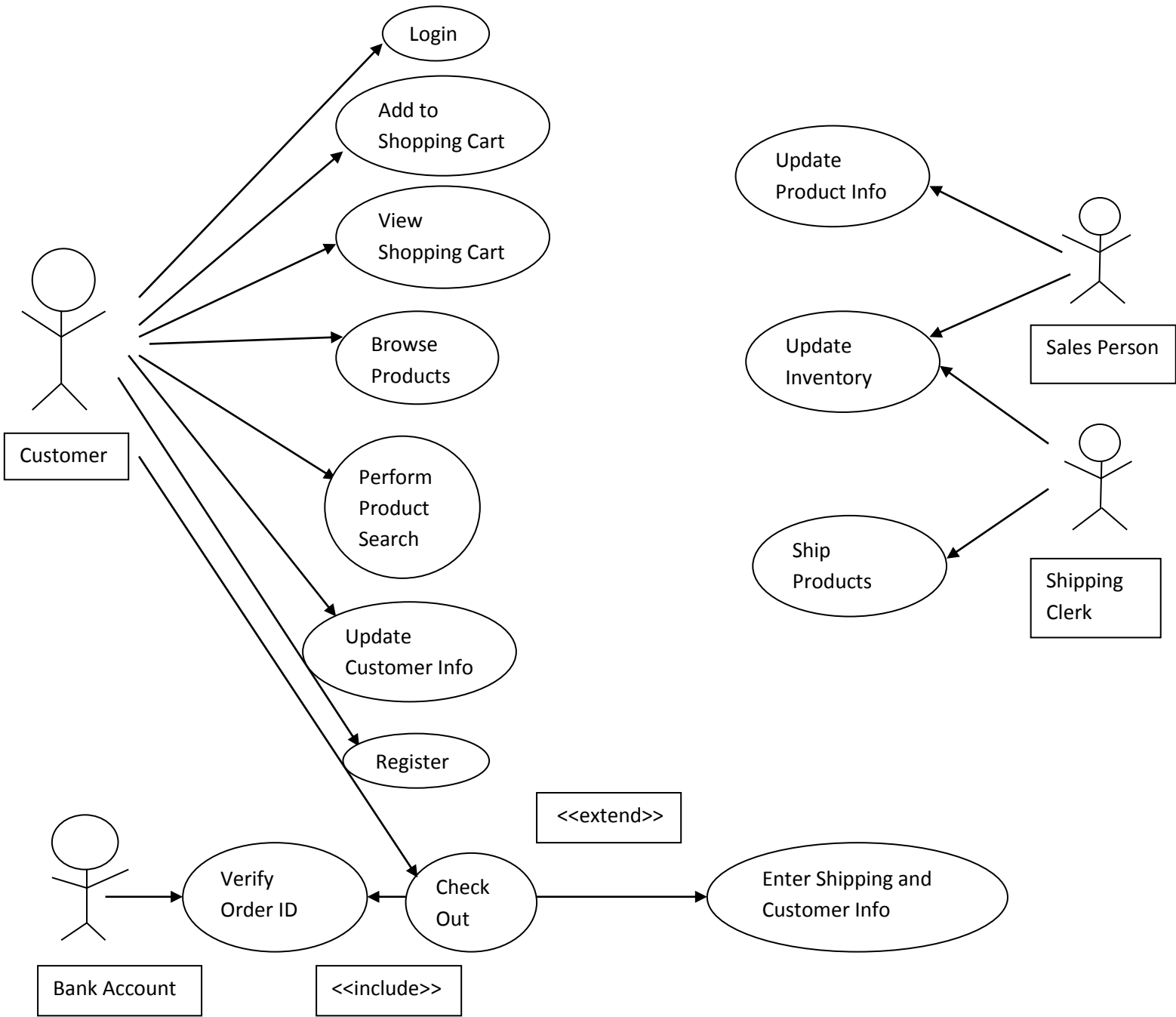
<u>Figure 5.1: Use-case Diagram</u>

Description of Use Cases:

- ## Login:

The customer can login to the E-Commerce shopping system by enter his user name and password. The system will verify that the login name matches the login password. If they do not match, error message will be indicated to the customer.

- ## Add to Shopping Cart:

When the customer finds the products he wants, he adds them to the shopping carts. The system will store and keep track the information of the products that have been added into shopping cart.

- ## View Shopping Cart:

The customer can request to view the contents of the shopping cart. The system will return the contents of the shopping cart to the customer; the unit price and total price will be shown as well.

- ## Update Customer Info:

The customer can request to update their customer info. Customer information includes the relative information of customer such as username, password, address, etc. The system will display the current customer info to the customer. The customer updates the customer information and the system will store the updated customer info in the system database. After one successful purchase, the payment information is also stored in customer information.

- ## Register:

If the customer is a new user, he can request to register with the system. The system displays a registration page and asks the customer to choose a login name (email address of the customer) and password. The customer is also required to enter their name and address. Shipping information and credit card information are optional entries at this point.

- ## Enter Shipping & Customer Info:

When the customer requests to checkout and he does not have customer information stored at this point (system cannot find his payment information), the system will prompt customer information page. The customer will be given a choice on whether he wants the item shipped to his stored address or to an alternative address. The input payment information will be save into the order form.

- ## Verify Order ID:

When the customer checks out, the bank account validates the customer's order id when given the customer's name, order id, and expiration date, and then returns the validation result to checkout department (sales person). If the response shows that the order id is invalid, the customer will be asked to re-input his payment information.

- ## Update Product Info:

The sales clerk requests to update products information. This includes the products price, description, brand, title, or number. The system will save the updated product information in the database.

- **Update Inventory:**

The sales clerk or shipping clerk requests to update inventory. The system will update the product information in the database.

- **Ship Products:**

After getting the order request, the sales clerk ships the order products to the customer within three to five business days.

- **Checkout:**

When the customer finishes shopping, he requests to checkout. If the payment information of this customer already exists, the system prompts the customer to review or input a new one. The system then forwards the order id and customer information to bank account. If the order id is invalid, the customer is given the option to use another order id or just cancel the order. If the order id is valid, the order form will be processed by the system and checkout is complete.

- **Browse Products:**

The customer requests to view the products in a product category. The system will display the product information of the selected category.

- **Perform Products Search:**

The customer enters product search parameters and requests a product search. The system will search through the products category in its database and return the matches to the customer. If there are no matches, the system will display a fail message.

5.8 Activity Diagram for customer browsing activities:
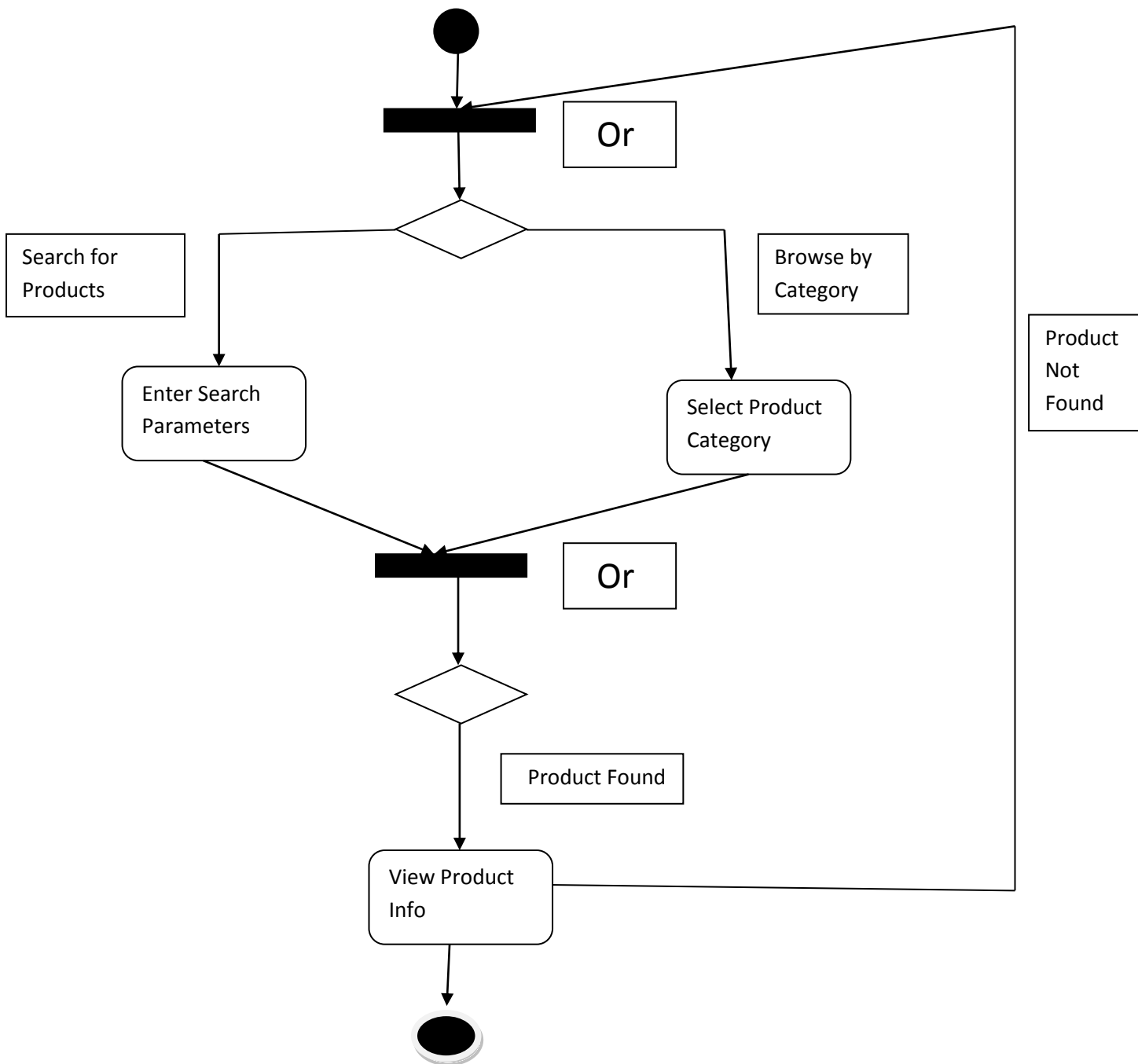
Figure 5.2: Activity Diagram for customer browsing activities

- ## Description:

Customer browsing allows a search for a specific product or an examination of an entire product category. If a product is found it can be viewed, if not found the customer is allowed to search or brows again.

5.9 Activity Diagram for customer checkout activities:
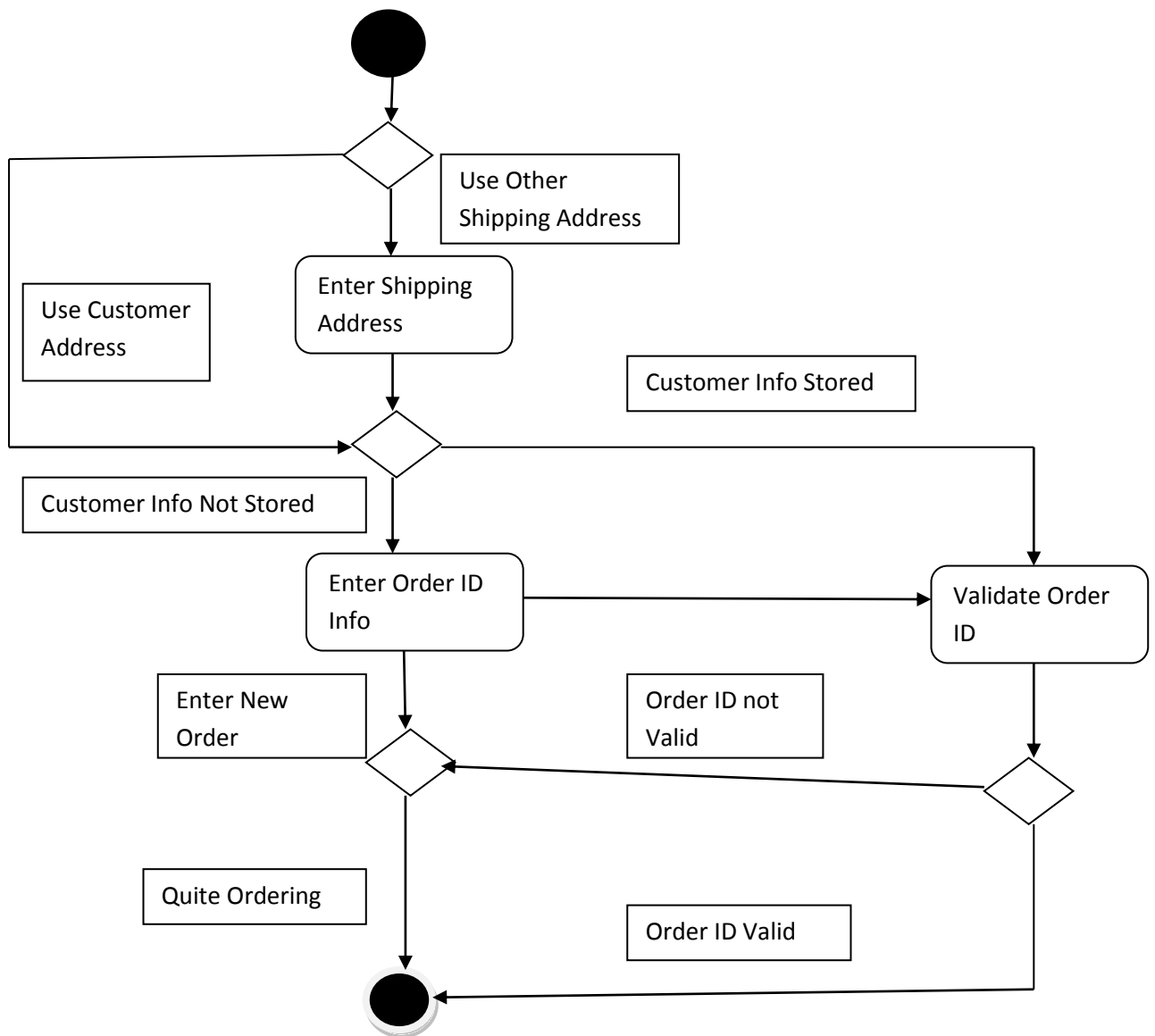
Figure 5.3: Activity Diagram for customer checkout activities

• Description:

Customer checkout first allows identification and entry of the shipping address, then entry or retrieval of customer information, and finally validation of the order ID.

5.10 Activity Diagram for Customer login and update activities:
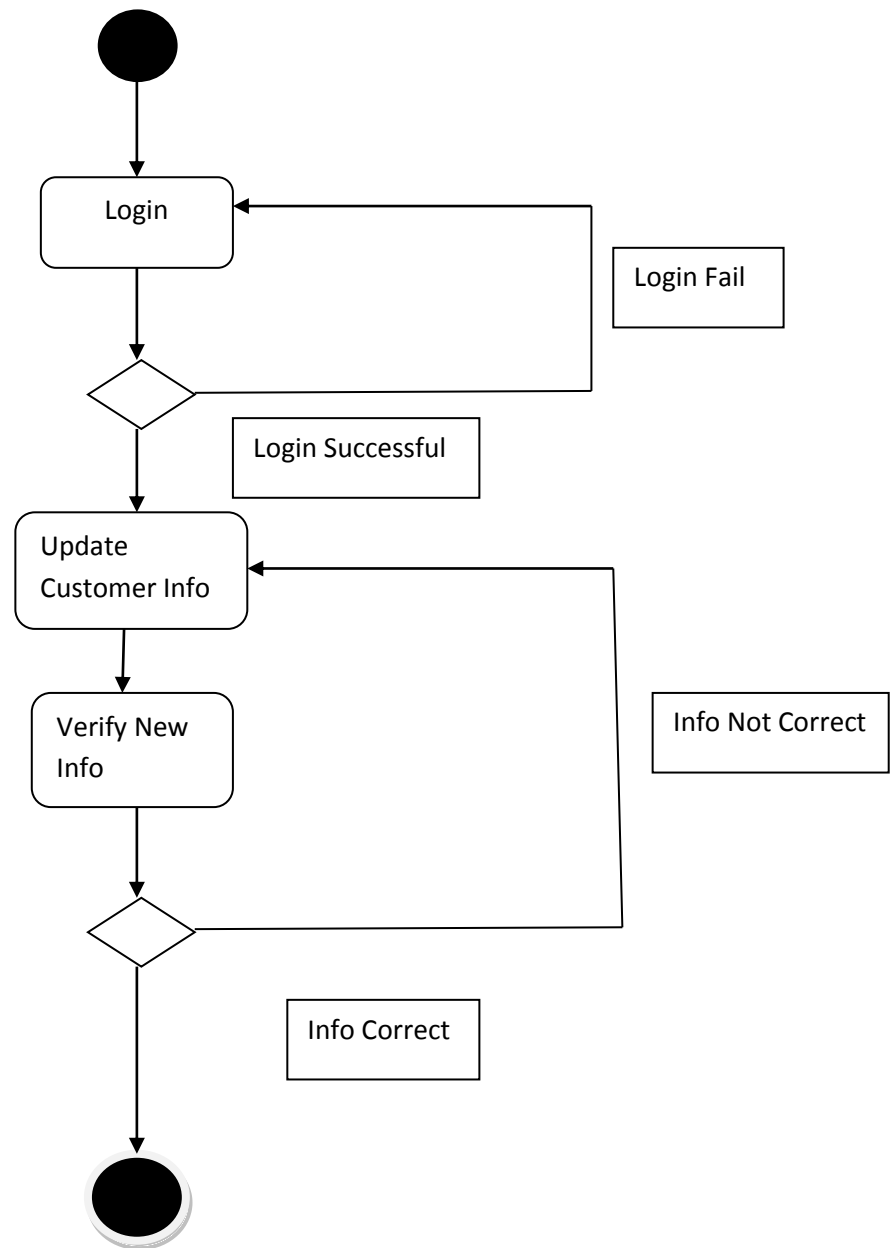
Figure 5.4: Activity Diagram for Customer login and update activities

- ## Description:

Customer login and update allows an update and verification of customer information after a valid login process.

Chapter 6: Software Implementation and Database Design

6.1 Software Implementation:

To implement this software the tools are used fully open sources. So that there are no costing involves developing this software. For designing this project HTML, CSS, JAVASCRIPT are used which is open source. Apache web server is used as web server. PHP is used for coding. MYSQL is used as database server.

6.1.1 HTML:

In this project, website is designed using HTML (Hyper Text Markup Language). HTML is very easy to use. It supports on almost every browser in the client end. It used widely, very easy to learn and the most importantly, HTML is free.

6.1.2 CSS:

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language CSS use for design web site and good looking, its support all browser and its client end language and its free and easy to use.

6.1.3 JavaScript:

JavaScript is a dynamic programming language.lt is most commonly used as part of web browsers, whose implementations allow client-side scripts to interact with the user, control the browser, communicate asynchronously and alter the document content that is displayed.

6.1.4 JQuery:

JQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. JQuery is the most popular JavaScript library in use today. JQuery is free, open-source software licensed under the MIT License.

JQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events and develop Ajax applications. JQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects

and high-level, theme-able widgets. The modular approach to the JQuery library allows the creation of powerful dynamic web pages and web applications.

6.1.5 <u>PHP:</u>

PHP stands for (Php Hypertext Preprocessor), PHP is chosen because, it is a server side language and execute on server side. It support various type of database, like ORACLE, MYSQL. It is way to use and also a open source software.

6.1.6 <u>MYSQL:</u>

In this project as a database server, MYSQL is a database server. MYSQL used in this project because of, it is very efficient for small or medium size application. Support standard Structured Query Language (SQL). It complies with number of platforms like- Windows, Linux, SUN and UNIX etc. MYSQL is also a free tool.

6.1.7 <u>XAMPP:</u>

XAMPP is a windows web development environment. XAMPP is an easy install Apache distribution containing MYSQL, PHP and Perl. XAMPP is really very easy to install and to use just download, extract and start, it allows creating web applications with Apache2, PHP and MYSQL database. Alongside, phpMyAdmin allows managing easily database on the project.

6.2 <u>Database Design:</u>

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

The term database design can be used to describe many different parts of the design of an overall database system. Principally and most correctly its can be thought of as the logical design of the base data structures used to store the data. In relationship model these are the tables and views.

- ## **Users Table:**

	ID	user_login	user_pass	user_nicename	user_email	user_url	user_registered	user_activation_key	user_status	display_name
☐ Edit ⅗ Copy ⊝ Delete	1	sakib	PB9f1yUBbW5cg1j8I0GR/RvIfPNRqLb.	sakib	sakibrahman360@gmail.com		2015-06-17 11:57:53		0	Sakib
☐ Edit ⅗ Copy ⊝ Delete	2	a	PBqgSfOWe4mbibup0yTCB0TEGZnpFRK0	a	a@gmail.com		2015-07-22 08:13:09		0	Abul
☐ Edit ⅗ Copy ⊝ Delete	3	mdrahat012	PB78oOvOzWY2IEHX1sbUBb3Gqq5i7dc.	mdrahat012	mdrahat012@gmail.com		2015-07-30 10:17:50		0	Rahat
☐ Edit ⅗ Copy ⊝ Delete	4	kamrul	PBPv9eDWzbLdAhVVcoBDs9o81p158O4.	kamrul	kamrul@yahoo.com		2015-08-06 08:38:28		0	kamrul
☐ Edit ⅗ Copy ⊝ Delete	5	sakibrahmanj360	PBDsyWtjqMBd4zIVXXPaRQETyNMO80K.	sakibrahmanj360	sakibrahmanj360@gmail.com		2015-08-08 11:07:24		0	Rahman
☐ Edit ⅗ Copy ⊝ Delete	6	nawab	PBYIK9.XPssGggNjgU6HIzMj4xP/Hho1	nawab	nawab@ewubd.edu		2015-08-25 07:45:47		0	Yousuf
☐ Edit ⅗ Copy ⊝ Delete	7	sakibrahman_171	PBJHpmjJsG41MMy/7kXqZ0IEoPrWAIp0	sakibrahman_171	sakibrahman_171@yahoo.com		2015-08-31 13:56:38		0	Rahman

↰ ☐ Check All   With selected: ✎ Change ⊝ Delete ⊞ Export

☐ Show all | Number of rows: 25 ▾   Filter rows: Search this table

Figure 6.1: Users Table

- ## **Items Table:**

	ID	post_author	post_date	post_date_gmt	post_content	post_title	post_excerpt	post_status	comment_status	ping_status	post_password	post_name	to_ping	pinged	post_modified	post_modified_gmt	post_content_filtered	post_par
☐ Edit ⅗ Copy ⊝ Delete	1	1	2015-06-17 11:57:53	2015-06-17 11:57:53	Welcome to WordPress. This is your first post. Edit...	Hello world!		publish	open	open		hello-world			2015-06-17 11:57:53	2015-06-17 11:57:53		
☐ Edit ⅗ Copy ⊝ Delete	5	1	2015-06-17 12:05:09	2015-06-17 12:05:09		Shop		publish	closed	open		shop			2015-09-27 07:59:39	2015-09-27 07:59:39		
☐ Edit ⅗ Copy ⊝ Delete	6	1	2015-06-17 12:05:09	2015-06-17 12:05:09	[woocommerce_cart]	Cart		publish	closed	open		cart			2015-06-17 12:05:09	2015-06-17 12:05:09		
☐ Edit ⅗ Copy ⊝ Delete	7	1	2015-06-17 12:05:10	2015-06-17 12:05:10	[woocommerce_checkout]	Checkout		publish	closed	open		checkout			2015-06-17 12:05:10	2015-06-17 12:05:10		
☐ Edit ⅗ Copy ⊝ Delete	8	1	2015-06-17 12:05:10	2015-06-17 12:05:10	[woocommerce_my_account]	My Account		publish	closed	open		my-account			2015-06-17 12:05:10	2015-06-17 12:05:10		
☐ Edit ⅗ Copy ⊝ Delete	12	1	2015-06-17 12:17:26	2015-06-17 12:17:26		artamim		inherit	open	open		artamim			2015-06-17 12:17:26	2015-06-17 12:17:26		
☐ Edit ⅗ Copy ⊝ Delete	14	1	2015-06-17 12:18:42	2015-06-17 12:18:42		balla		inherit	open	open		balla			2015-06-17 12:18:42	2015-06-17 12:18:42		
☐ Edit ⅗ Copy ⊝ Delete	15	1	2015-06-17 12:19:36	2015-06-17 12:19:36		batashi		inherit	open	open		batashi			2015-06-17 12:19:36	2015-06-17 12:19:36		
☐ Edit ⅗ Copy ⊝ Delete	33	1	2015-06-17 13:58:52	2015-06-17 13:58:52				publish	open	open		33			2015-08-04 17:36:27	2015-08-04 17:36:27		
☐ Edit ⅗ Copy ⊝ Delete	34	1	2015-06-17 13:58:52	2015-06-17 13:58:52				publish	open	open		34			2015-08-04 17:36:27	2015-08-04 17:36:27		
☐ Edit ⅗ Copy ⊝ Delete	35	1	2015-06-17 13:58:52	2015-06-17 13:58:52				publish	open	open		35			2015-08-04 17:36:27	2015-08-04 17:36:27		
☐ Edit ⅗ Copy ⊝ Delete	37	1	2015-06-17 13:58:52	2015-06-17 13:58:52				publish	open	open		37			2015-08-04 17:36:27	2015-08-04 17:36:27		
☐ Edit ⅗ Copy ⊝ Delete	38	1	2015-06-17 14:00:59	2015-06-17 14:00:59		layer chicken eggs		inherit	open	open		layer-chicken-eggs			2015-06-17 14:00:59	2015-06-17 14:00:59		
☐ Edit ⅗ Copy ⊝ Delete	39	1	2015-06-17 14:02:00	2015-06-17 14:02:00		masoor		inherit	open	open		masoor			2015-06-23 08:15:37	2015-06-23 08:15:37		
☐ Edit ⅗ Copy ⊝ Delete	40	1	2015-06-17 14:02:12	2015-06-17 14:02:12	http://localhost/wordpress /wp-content/uploads/2015...	cropped-masoor.jpg		inherit	open	open		cropped-masoor-jpg			2015-06-17 14:02:12	2015-06-17 14:02:12		
☐ Edit ⅗ Copy ⊝ Delete	41	1	2015-06-17 14:08:02	2015-06-17 14:08:02		This is New Post		publish	open	open		this-is-new-post			2015-06-17 18:44:22	2015-06-17 18:44:22		
☐ Edit ⅗ Copy ⊝ Delete	42	1	2015-06-17 14:07:14	2015-06-17 14:07:14		amlaki		inherit	open	open		amlaki			2015-06-17 14:07:14	2015-06-17 14:07:14		
☐ Edit ⅗ Copy ⊝ Delete	43	1	2015-06-17 14:08:02	2015-06-17 14:08:02	<a href="http://localhost /wordpress/wp-content/upl...	This is New Post		inherit	open	open		41-revision-v1			2015-06-17 14:08:02	2015-06-17 14:08:02		
☐ Edit ⅗ Copy ⊝ Delete	44	1	2015-06-17 14:17:46	2015-06-17 14:17:46	<a href="http://localhost /wordpress/wp-content/upl...	Atop Rice	<a href="http://localhost /wordpress /wp-content/upl...	publish	open	closed		atop			2015-07-04 10:57:50	2015-07-04 10:57:50		
☐ Edit ⅗ Copy ⊝ Delete	45	1	2015-06-17 14:14:48	2015-06-17 14:14:48		atop		inherit	open	open		atop			2015-06-17 14:14:48	2015-06-17 14:14:48		

Figure 6.2: Items Table

- **Orders Table:**

	order_item_id	order_item_name	order_item_type	order_id
Edit Copy Delete	11	Apple	line_item	440
Edit Copy Delete	1	Atop Rice	line_item	434
Edit Copy Delete	4	Balm Fish	line_item	435
Edit Copy Delete	6	Bashmoti Rice	line_item	438
Edit Copy Delete	35	Bean	line_item	503
Edit Copy Delete	13	Boal Fish	line_item	441
Edit Copy Delete	8	Bottle Gourd (Lau)	line_item	439
Edit Copy Delete	15	Butter	line_item	442
Edit Copy Delete	28	Butter	line_item	491
Edit Copy Delete	2	Cheese	line_item	434
Edit Copy Delete	23	Cheese	line_item	446
Edit Copy Delete	30	Chicken Eggs	line_item	492
Edit Copy Delete	3	Free Shipping	shipping	434
Edit Copy Delete	5	Free Shipping	shipping	435
Edit Copy Delete	7	Free Shipping	shipping	438
Edit Copy Delete	10	Free Shipping	shipping	439
Edit Copy Delete	12	Free Shipping	shipping	440

Figure 6.3: Orders Table

- **Categories Table:**

+ Options

	term_id	name	slug	term_group
Edit Copy Delete	1	Uncategorized	uncategorized	0
Edit Copy Delete	2	simple	simple	0
Edit Copy Delete	3	grouped	grouped	0
Edit Copy Delete	4	variable	variable	0
Edit Copy Delete	5	external	external	0
Edit Copy Delete	6	Rice	rice	0
Edit Copy Delete	7	Pulse	pulse	0
Edit Copy Delete	8	Fish	fish	0
Edit Copy Delete	10	Shop	shop	0
Edit Copy Delete	11	Fruits	fruits	0
Edit Copy Delete	12	Meat	meat	0

Figure 6.4: Categories Table

Chapter 7: Design Specification

7.1 Interface:

A critical aspect of systems design is to create the user interface to the new system. Input and output design focuses on the content of that interface. The specific fields that should be included in screens and reports that are viewed by the users. Once the content is determined, the format for Human Computer Interaction (HCI) is determined. The user interface (UI) is the way the system talks to the users, using screens, forms, reports and error messages. During interface design developers identify procedures for each system activity and the required inputs for those activities. These required inputs become screens or forms. User involvement is critical during these design activities.

7.2 Software Requirement:

User needs a web browser to browse this site.

7.3 User Panel:

In the user panel, this is the front-end. The customers or users can see that pages. No one can change anything or cannot edit or modify it.

7.3.1 Home Page:
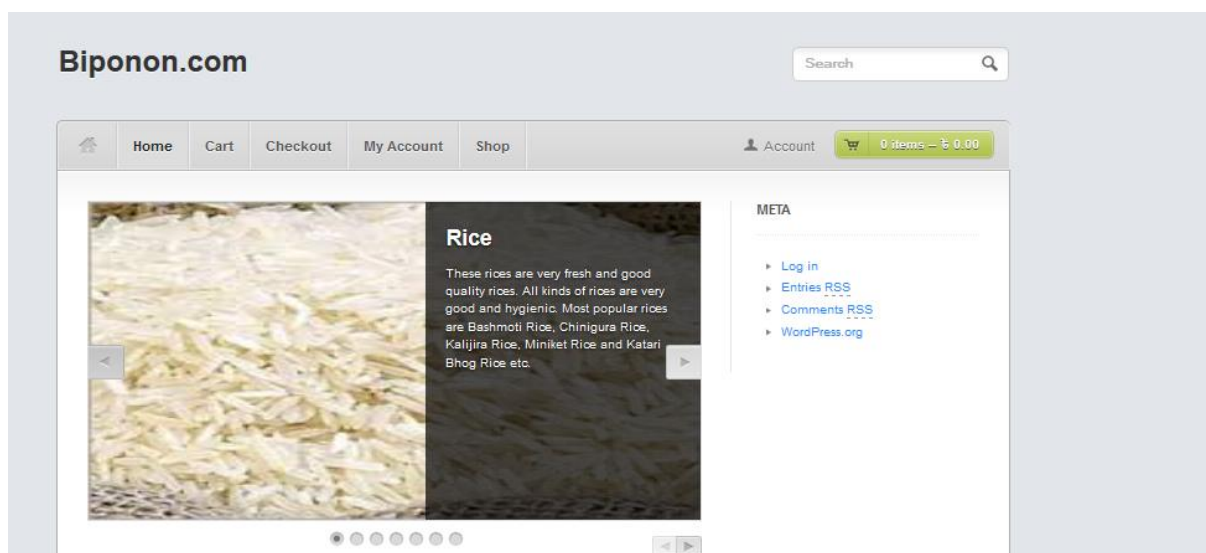
Figure 7.1: Home Page

- **Description:** This is the home page for the system. In that page users can go to other pages. They can search in the Search box. In slide show, users can see the categories and can read the description of those items.

7.3.2 Recent Products:
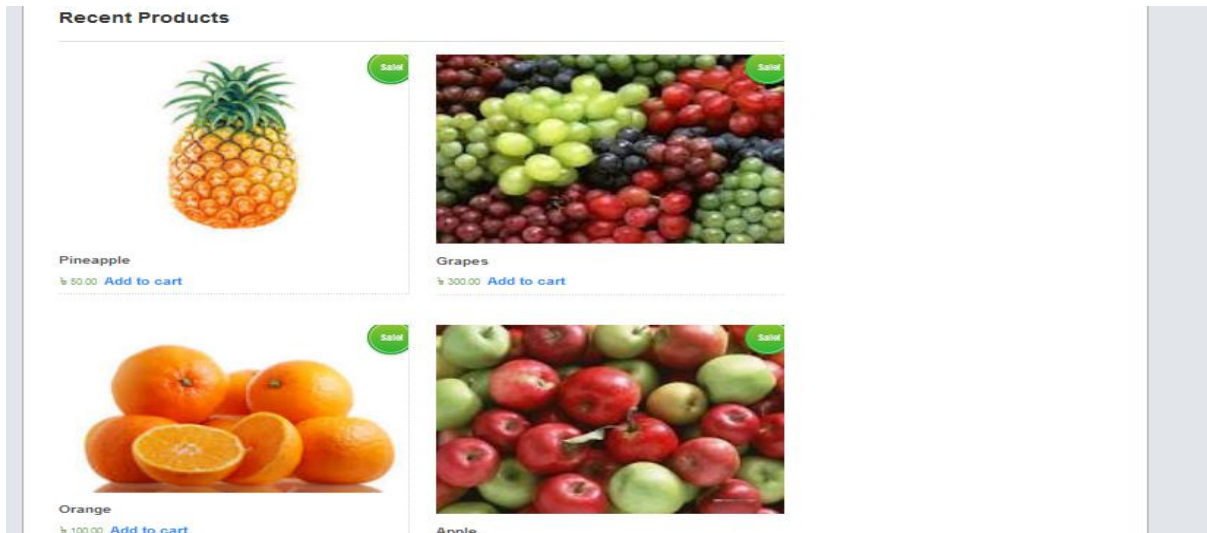
Figure 7.2: Recent Products

- **Description:** In the bottom of the home page, users can see the recently added products.

7.3.3 Cart Page (When Empty):
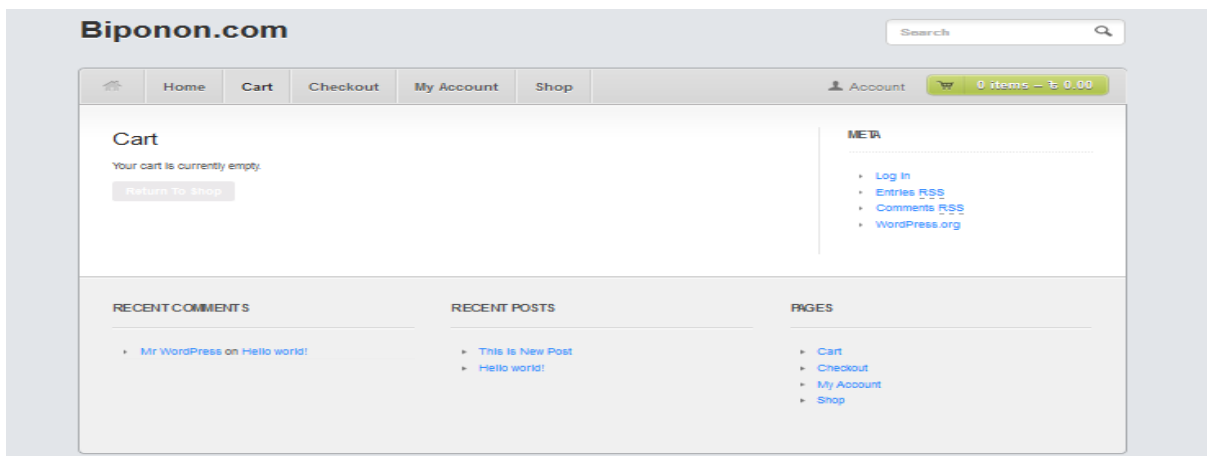
Figure 7.3: Cart Page (When Empty)

- **Description:** This is the cart page for the system. In that page if user does not take any item in the cart then the page will show like this.

7.3.4 Cart Page (When Full):
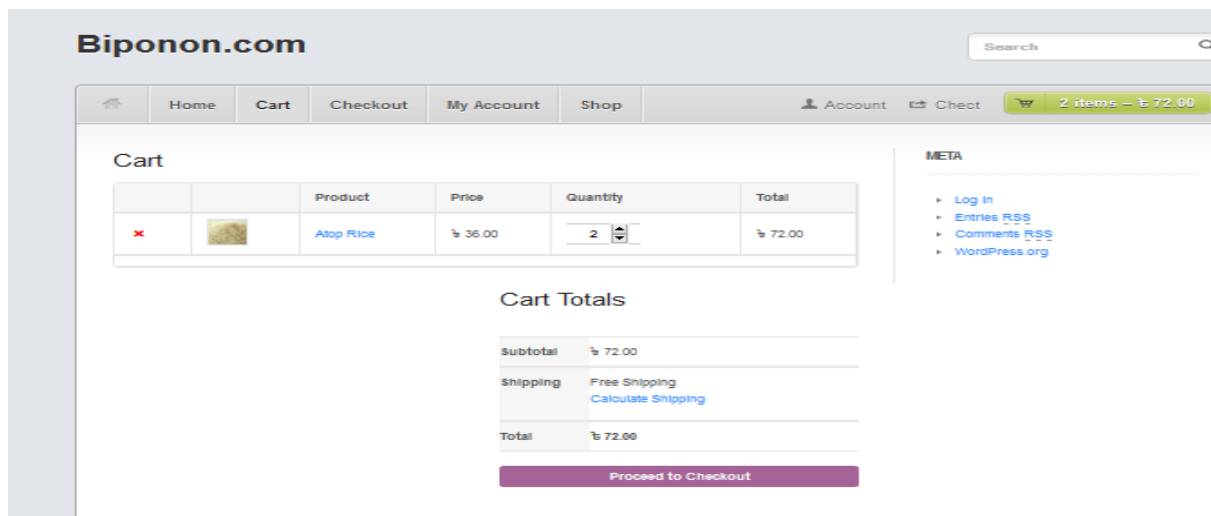
Figure 7.4: Cart Page (When Full)

- **Description:** This is the cart page for the system when users take item. In that page if user takes any item and he/she will see the name of the product, price, quantity and total price.

7.3.5 Checkout Page (When Cart Empty):
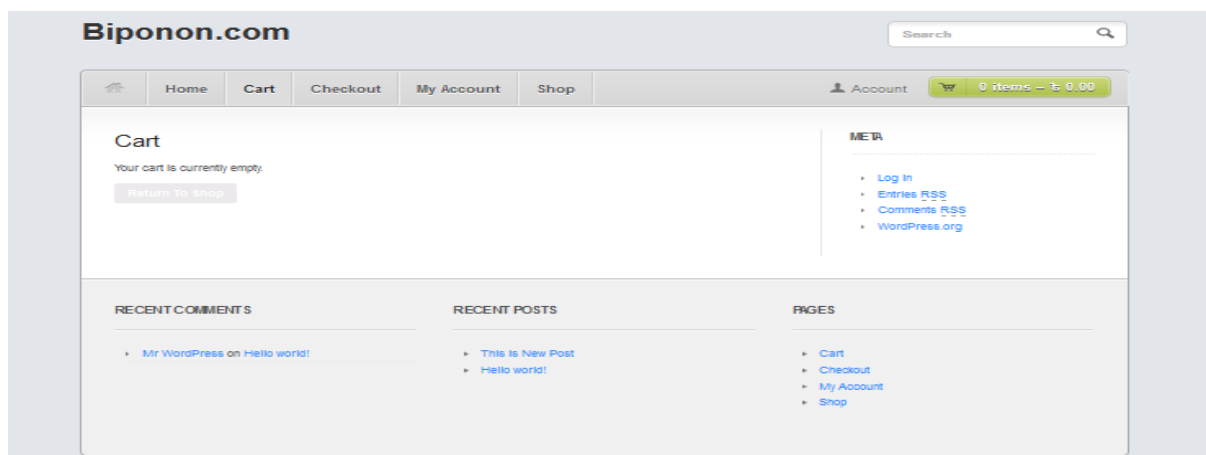
Figure 7.5: Checkout Page (When Cart Empty)

- **Description:** This is the checkout page for the system. In that page if user does not take any item in the cart then the page will show like this.

7.3.6 Checkout Page (When Cart Full):
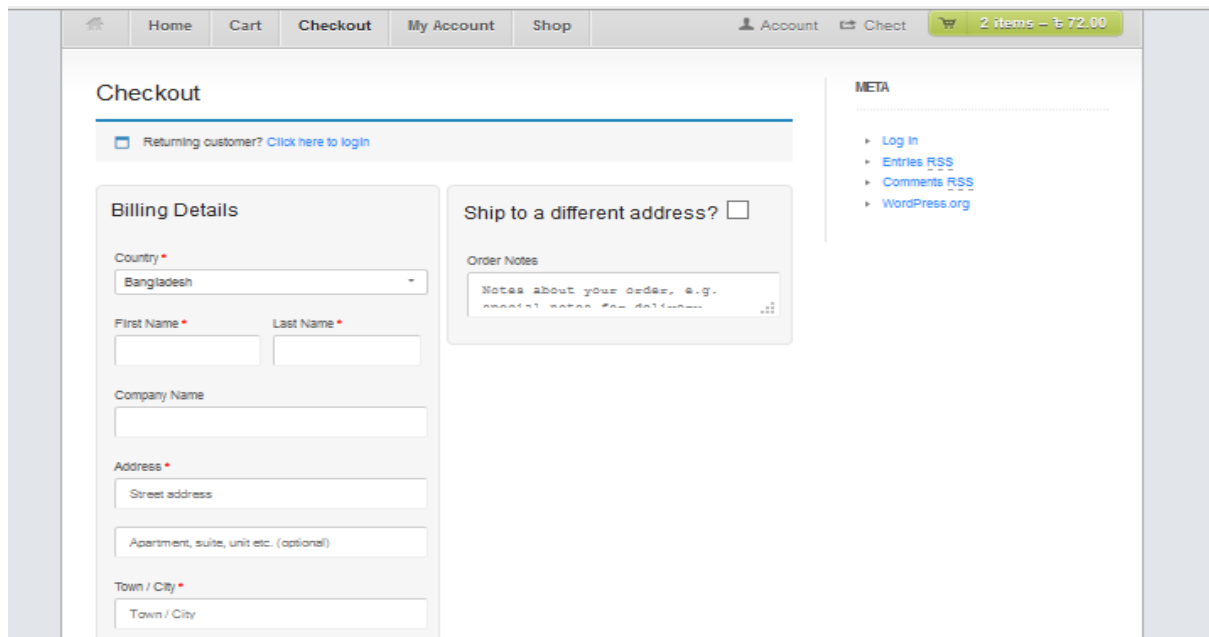
Figure 7.6: Checkout Page (When Cart Full)

- **Description:** This is the checkout page for the system when cart is not empty. Here, the customer will give his/her information. Like- name, address, email address, phone number, create an account, password etc.

7.3.7 Payment Options:
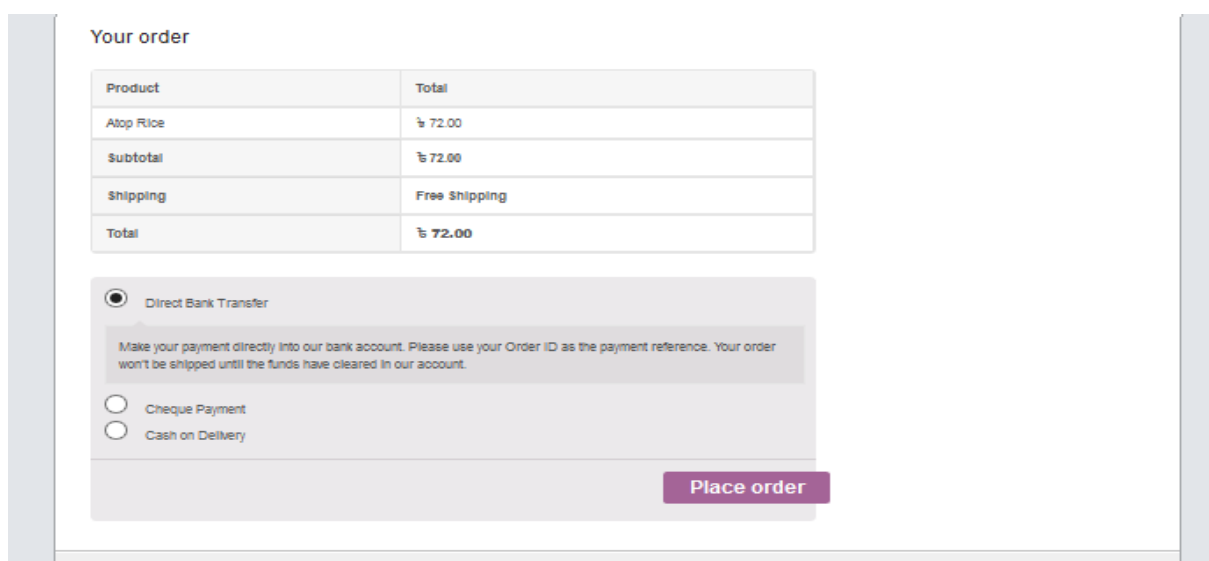
Figure 7.7: Payment Options

- **Description:** In the checkout page, there are three options for payment. They are-Direct bank transfer, Cheque payment and Cash on delivery. Users can choose any three of this.

7.3.8 My Account Page:
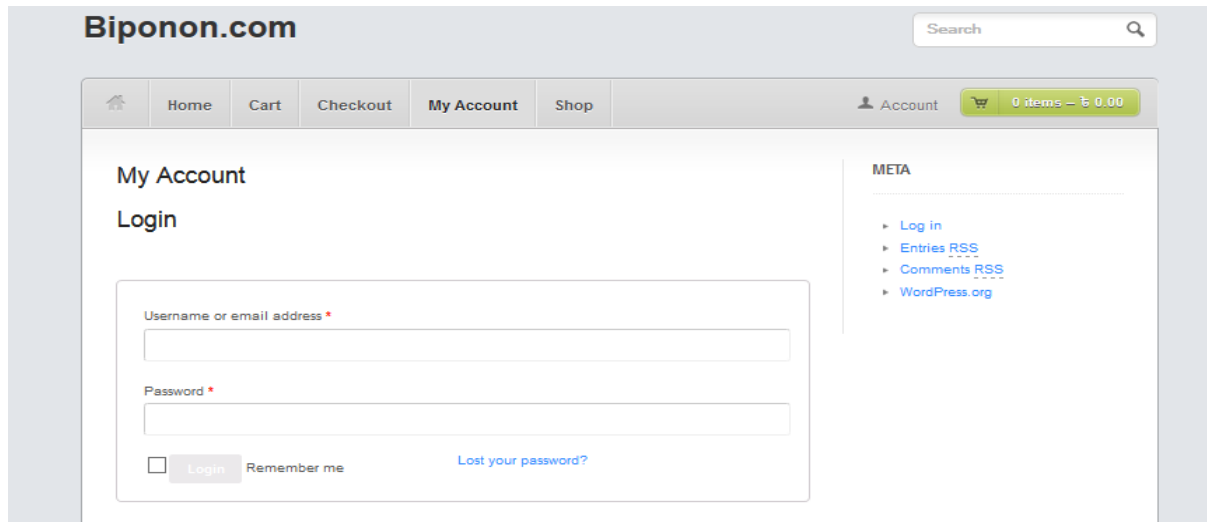
Figure 7.8: My Account Page

- **Description:** This is my account (login) page. The users who created an account before or the admin can login from this page.

7.3.9 Shop Page:
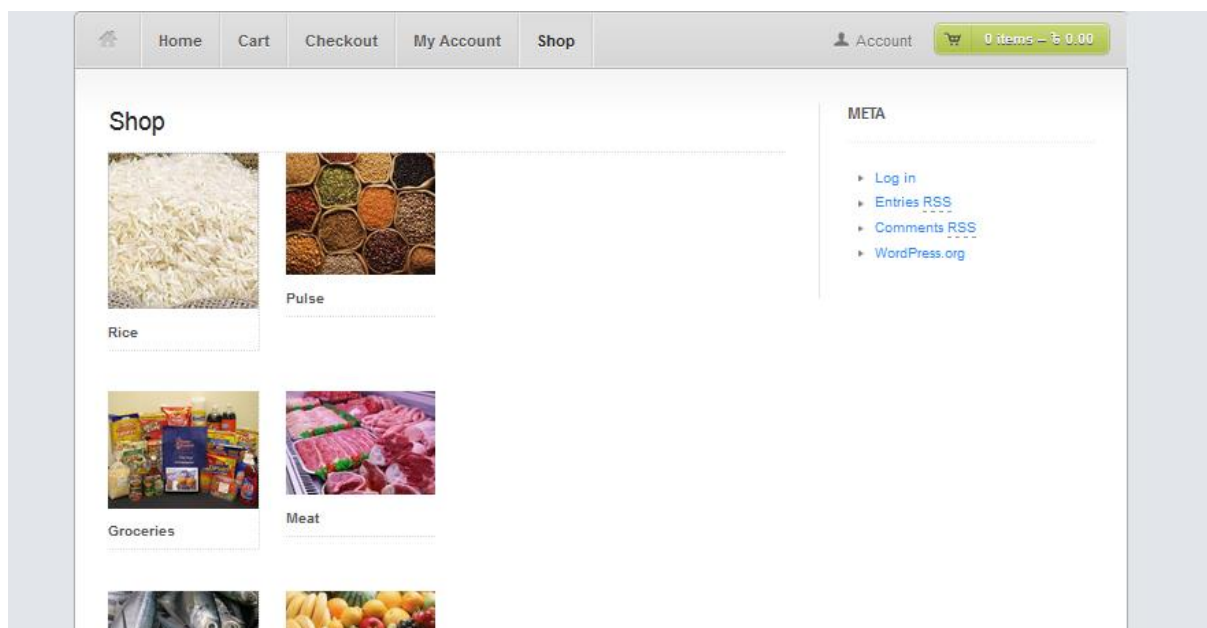
Figure 7.9: Shop Page

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- **Description:** This is the shop page. Users can enter that page and see the categories and products on that page. Users can select a category and then select products and then add those products into the cart.

7.3.10 Rice Category Page:
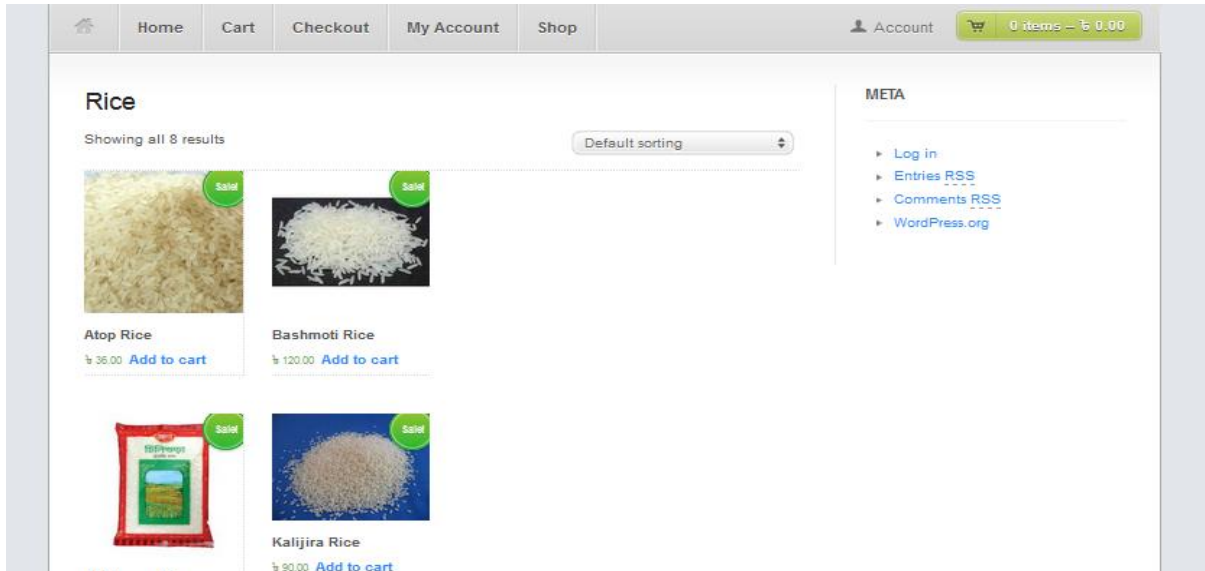
Figure 7.10: Rice Category Page

- **Description:** This is the rice category page. Users can select the rice category and then see eight kinds of rice. Then he/she can select any kinds of rice.

7.3.11 Pulse Category Page:
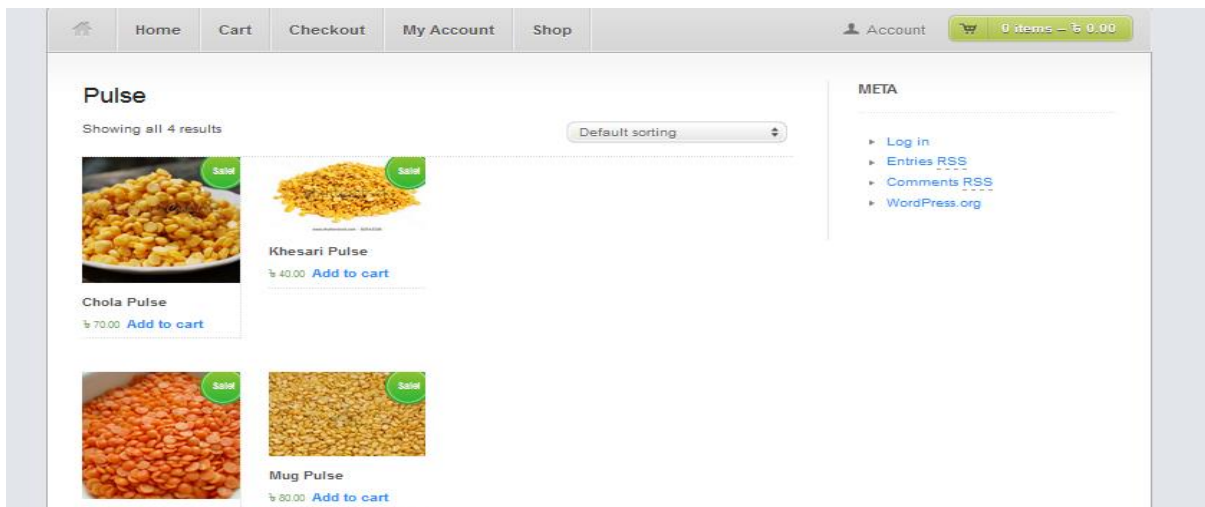
Figure 7.11: Pulse Category Page

- **Description:** This is the pulse category page. Users can select the pulse category and then see four kinds of pulse. Then he/she can select any kinds of pulse.

7.3.12 Groceries Category Page:
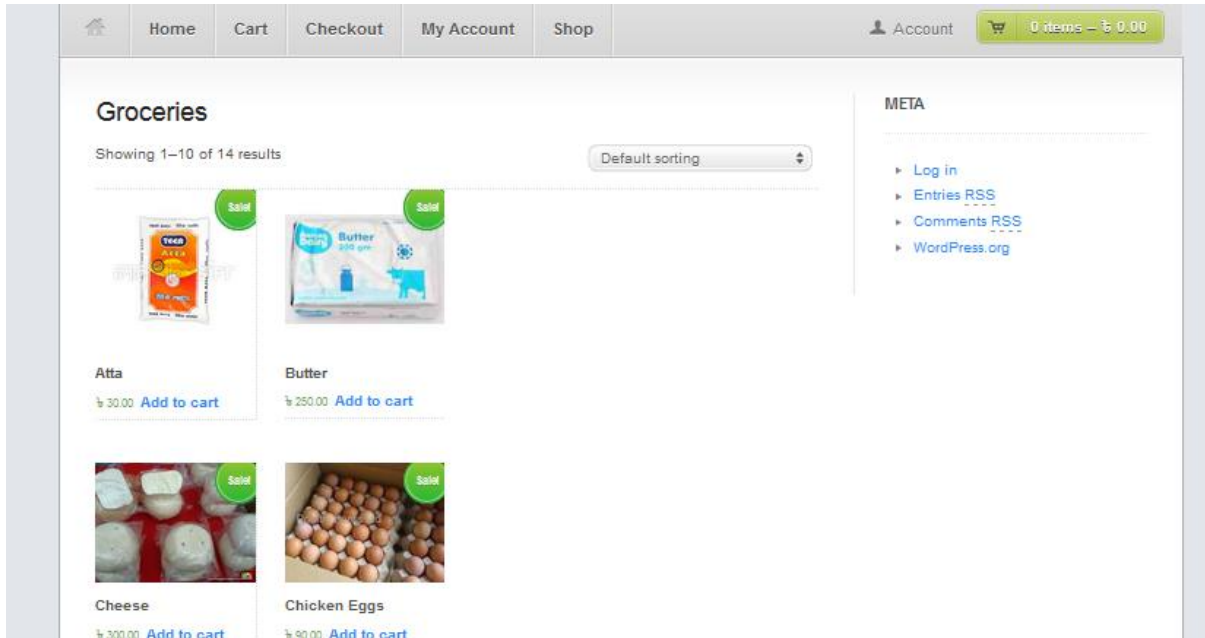
Figure 7.12: Groceries Category Page

- **Description:** This is the groceries category page. Users can select the groceries category and then see fourteen items. Then he/she can select any items.

7.3.13 Meat Category Page:
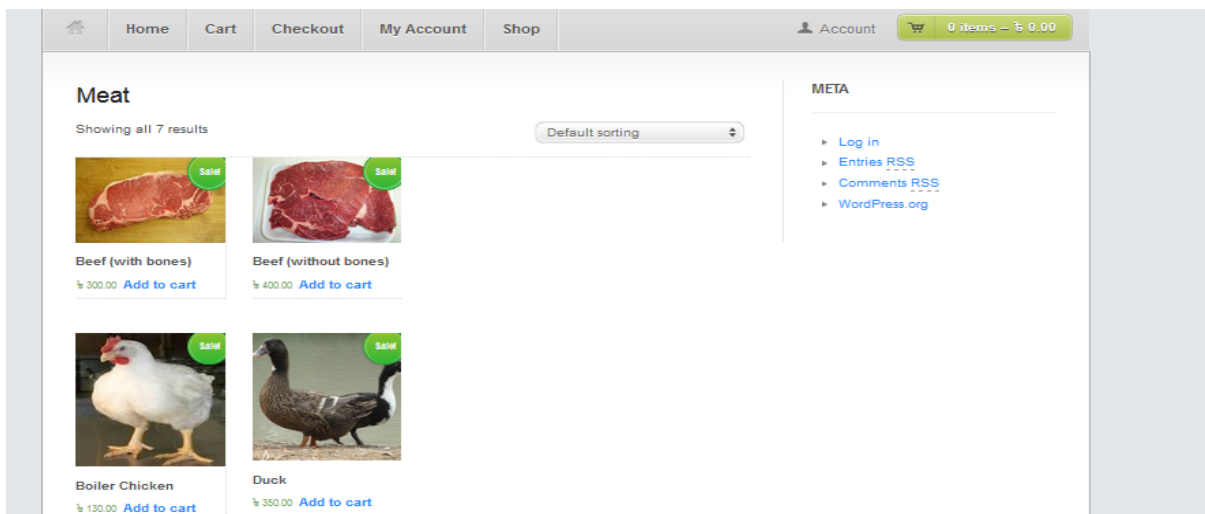
Figure 7.13: Meat Category Page

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- **Description:** This is the meat category page. Users can select the meat category and then see seven kinds of meat. Then he/she can select any kinds of meat.

7.3.14 Fish Category Page:
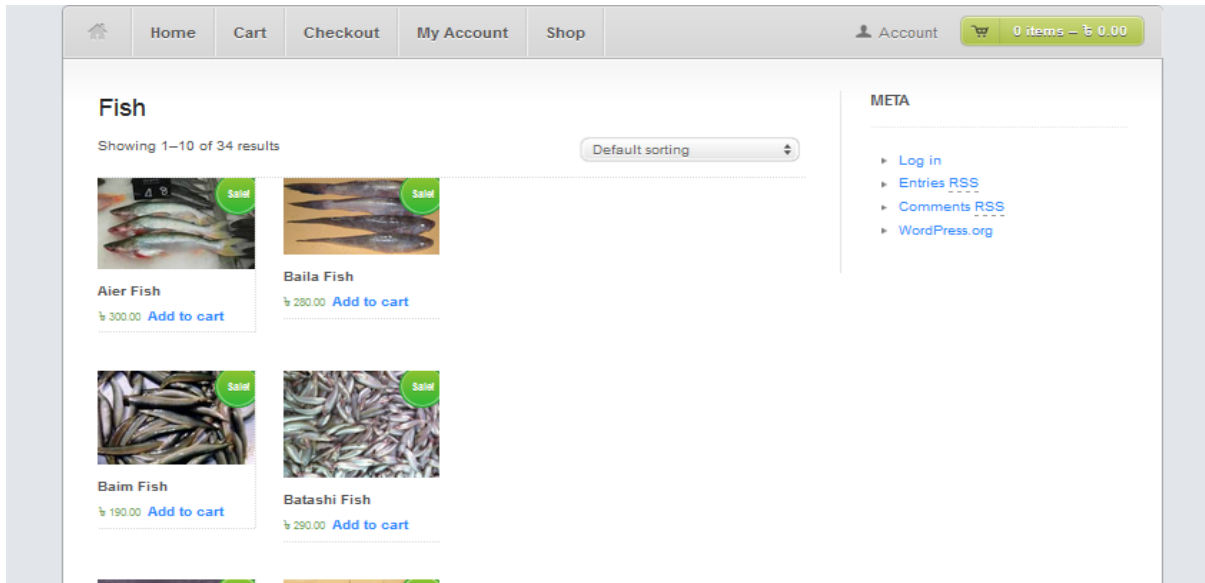
Figure 7.14: Fish Category Page

- **Description:** This is the fish category page. Users can select the fish category and then see 34 kinds of fish. Then he/she can select any kinds of fish.

7.3.15 Fruits Category Page:
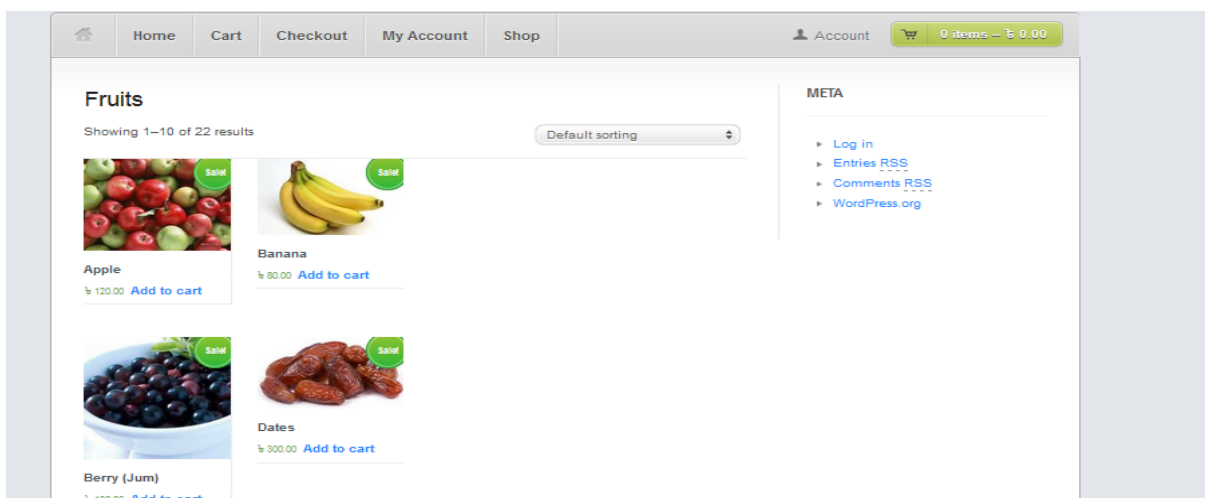
Figure 7.15: Fruits Category Page

- **Description:** This is the fruits category page. Users can select the fruits category and then see 22 kinds of fruit. Then he/she can select any kinds of fruit.

7.3.16 Vegetables Category Page:
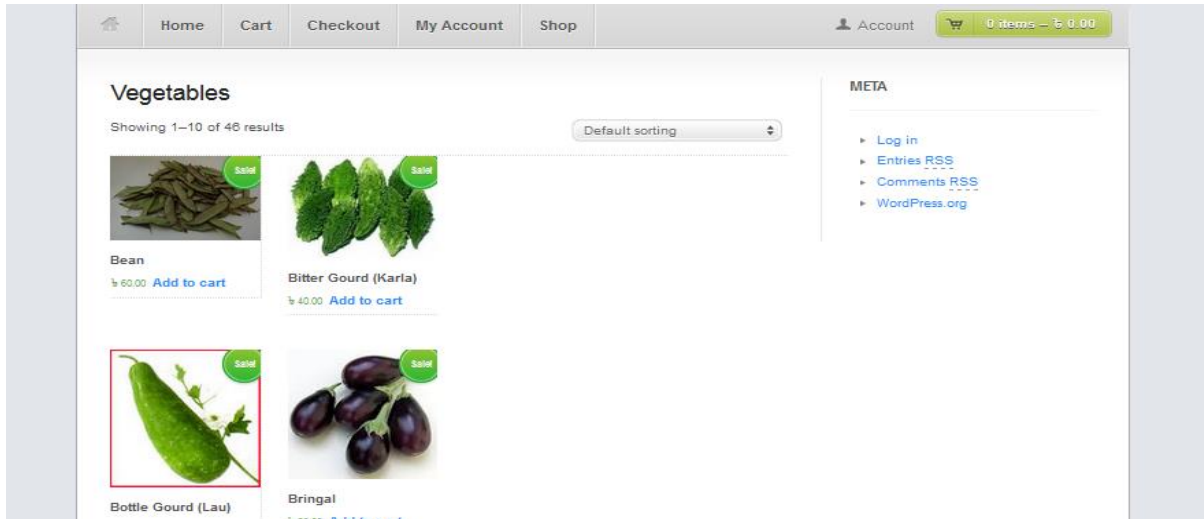
Figure 7.16: Vegetables Category Page

- **Description:** This is the vegetables category page. Users can select the vegetables category and then see 46 kinds of vegetable. Then he/she can select any kinds of vegetable.

7.3.17 Item Details Page:
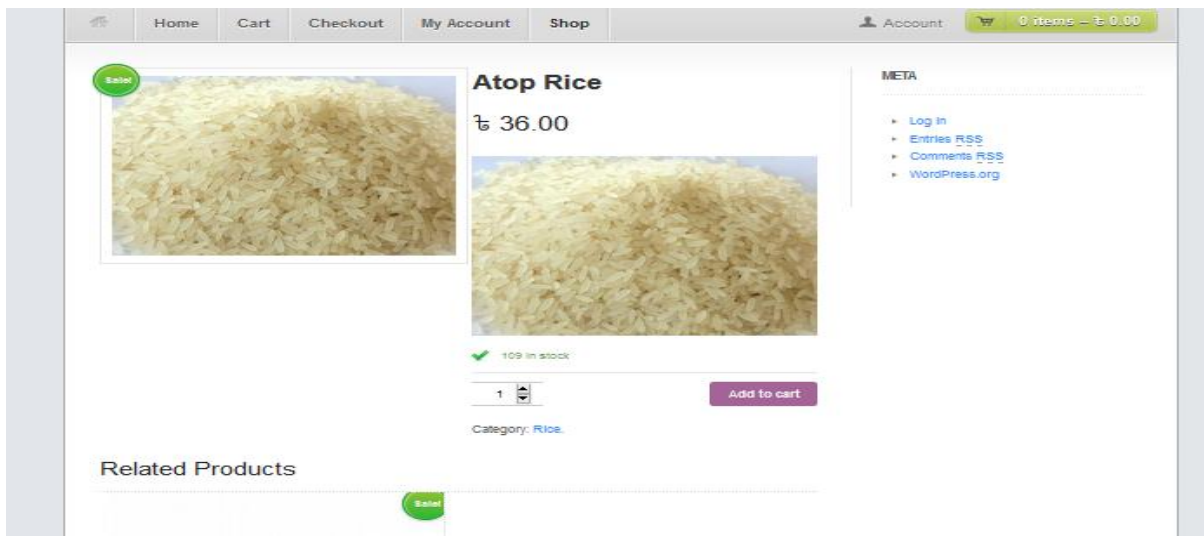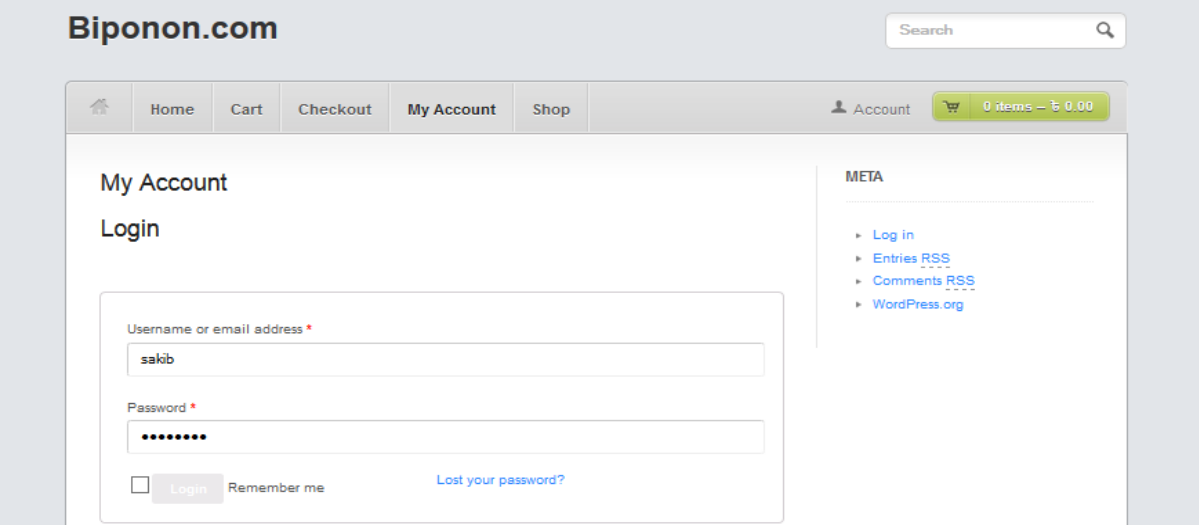
Figure 7.17: Item Details Page

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- **Description:** This is the item details page. Users can select an item then he/she can click that item and this page will appear. Here, users can see the price, number of items in the stock and also see the related items that he/she can choose it. In this page users can take any quantity of item they wants (like- 1kg, 2kg, 3kg........ etc).

7.4 Admin Panel:

In the admin panel, this is the back-end. The customers or users cannot see that pages. Admin can change anything or can edit or modify it and also user panel.

7.4.1 Admin Login Page:
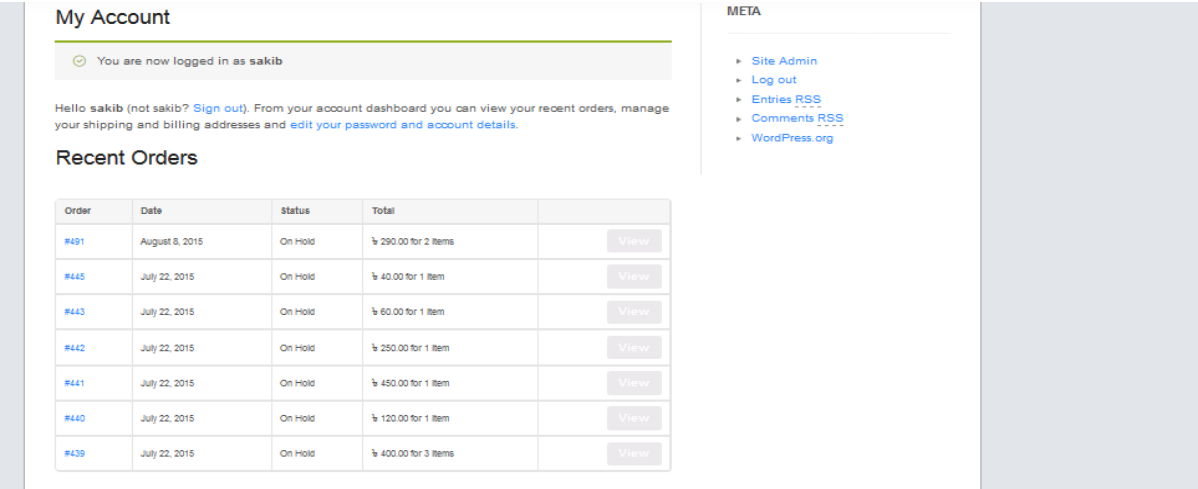
Figure 7.18: Admin Login Page

- **Description:** This is the admin login page. The user name of the admin is 'sakib'. Then after enter the password, admin can logged into the system.

7.4.2 Admin Page:
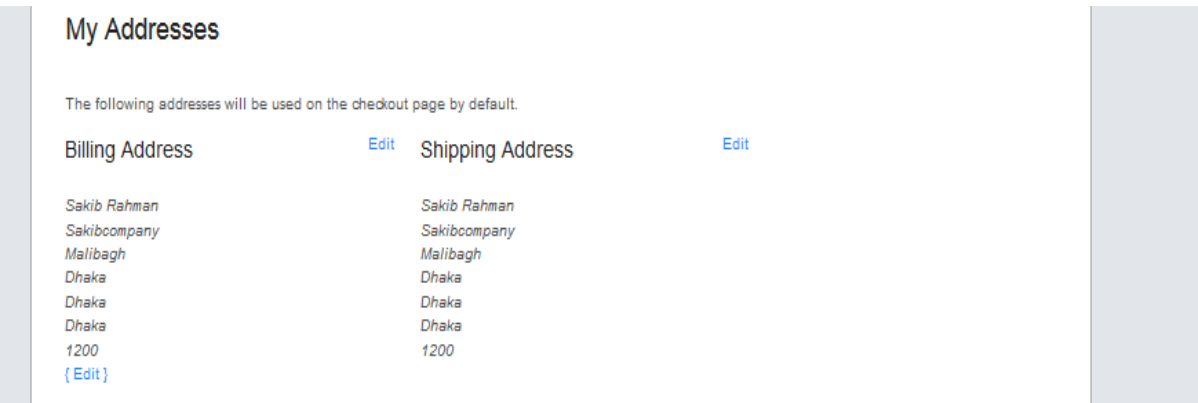
Figure 7.19: Admin Page

- **Description:** This is the admin page. After logged in as admin, admin can see the page. Admin can also see his recent orders.

7.4.3 Admin Address:
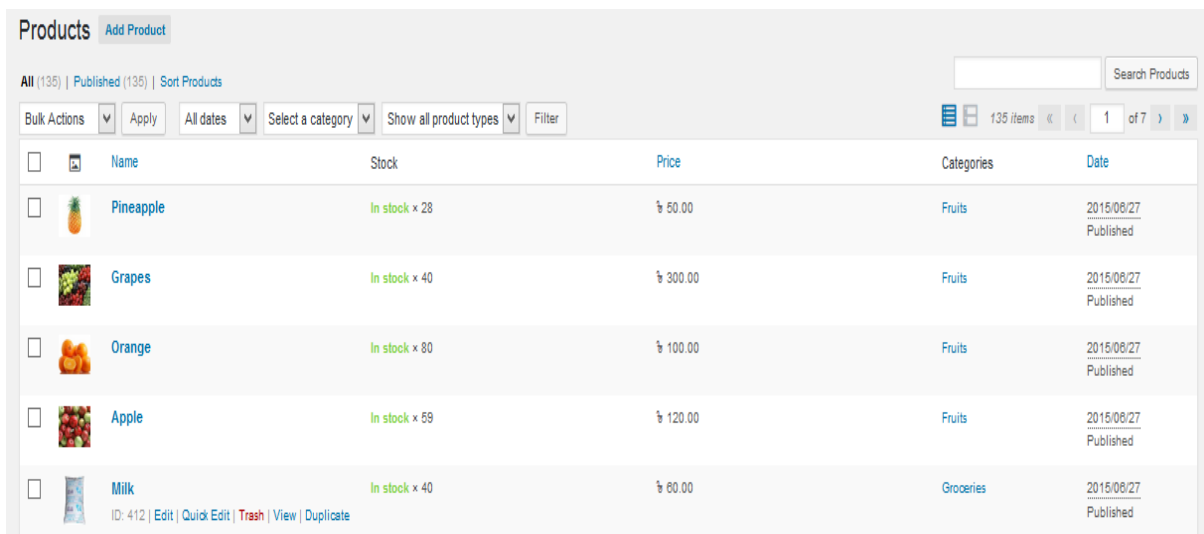
Figure 7.20: Admin Address

- **Description:** In the admin page admin can see his addresses. Like- Billing address and Shipping address.

7.4.4 <u>All Products:</u>

Figure 7.21: All Products

- **<u>Description:</u>** After admin go to the dashboard and then go to the products, then admin can see the all products option. Here, there are 135 products**.**

7.4.5 <u>Add New Products:</u>

Figure 7.22: Add New Products

- **<u>Description:</u>** In the products option, admin can see the options add new product. On that option admin can add new products, select category, give image, give price and also give quantity of that products.

7.4.6 Edit Products:

Figure 7.23: Edit Products

- **Description:** In the all products option, admin can select a product and can edit it. Admin can change the name, price, quantity, image of that product.
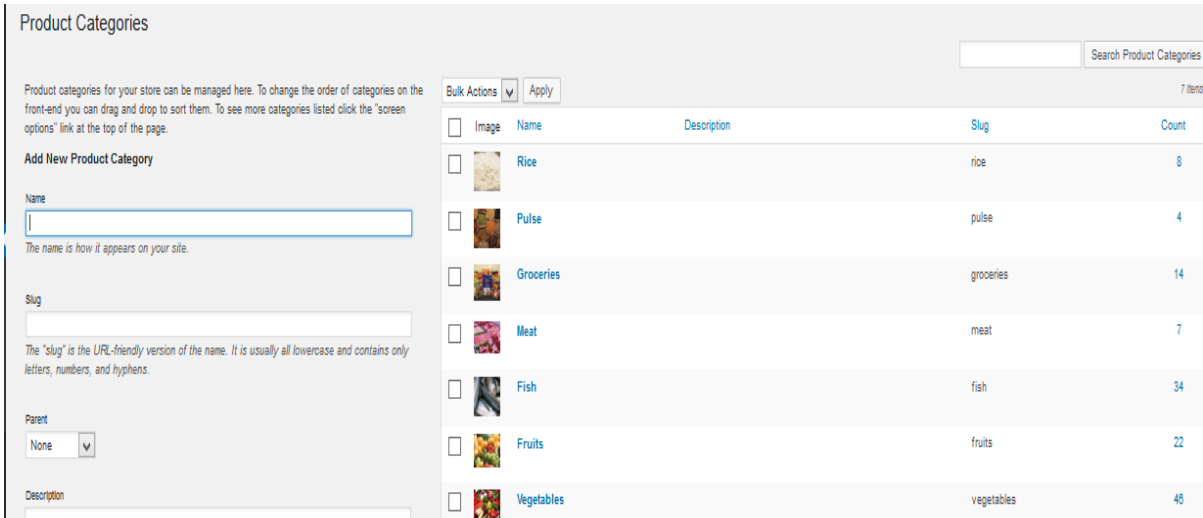
7.4.7 Delete Products:

Figure 7.24: Delete Products

- **Description:** In the products option, admin can select a product and can delete it. Admin can enter on that product and then click move to trash to delete the product.

7.4.8 Add Product Category:

Figure 7.25: Add Product Category

- **Description:** In the category option admin can go to product categories option. Then admin can see all categories that created before. Admin can also create new category by write name and give image of that category.

7.4.9 Add New User:

Figure 7.26: Add New User

- **Description:** In dashboard admin can create new user. Admin can select user option then admin can give the accurate information and fill a form. Thus admin can create new user.

7.4.10 Edit User:

Figure 7.27: Edit User

- **Description:** In user option admin can edit user. Admin can change the information of those users. Like- username, email address, name, address etc.

7.4.11 Delete User:

Figure 7.28: Delete User

- **Description:** In user option admin can see all users. Then admin can delete any users from the list by press the delete option.

Chapter 8: Conclusion and Future Works

8.1 Conclusion:

E-commerce has the potential to be the application that ushers in the large productivity gains. Achieving these gains is therefore contingent on a number of factors, including access to e-commerce systems and the needed skills. In my project, I have developed a Business to Consumer (B2C) e-commerce web service that customers can buy products via Internet. From my web service users can easily access it, can select the categories, select the products and take which quantity they want and paying by bank account, cheque or on delivery. I also studied the technical perspective of e-commerce how it is build and what software and hardware are needed to run it. I use several methods to reach our goals to develop an e-commerce, design and developed front-end for normal users and back-end for admin. However, what is unique about e-commerce over the Internet and the efficiency gains is that it promises the premium placed on openness. To reap the potential cost savings fully, firms must be willing to open up their internal systems to suppliers and customers. This raises policy issues concerning security and potential anti-competitive effects as firms integrate their operations more closely.

8.2 Future Works:

The future plan of this project is to improved design; implementation and documentation in such a way that anyone can use this project. I will develop this site more dynamically. In future I will add the following module for better improvement of the project:

1. Customer to Customer
2. Location Locate
3. Build Communication with B2C
4. Wish Cards and store History of View
5. Consumer Store
6. Consumer Terms and Conditions
7. Mobile Platforms
8. New Payment Systems

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