CHAPTER-1

INTRODUCTION
CHAPTER I

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World’s leading organizations have unleashed plans for transforming their business transactions in a new way to spread across the globe. In spite of the huge growth experienced by multi-national corporations (M N C) they still have some bottlenecks in expanding their business operations. According to a report by Asian Development Bank on "Emerging Tax Issues: Implications of Globalization and Technology" (2003), the obstacles faced by MNCs include irrational policies (tax structure and trade barriers), low investment in infrastructure - physical and information technology, and slow reforms (political reforms to improve stability, privatization, deregulation, labor reforms, etc.). Opportunities for the corporates have transformed due to the developments in the area of Information and Communication Technologies (I C T) and its' adoption by many business organizations. Development of internet and its use by commercial entities has transformed the way commerce takes place in today's competitive environment. Exchange of products by organizations with people across the world is not a new concept.

1.1 TRADITIONAL COMMERCE

The origin of traditional commerce dates back to the history of mankind. In the olden days people used to specialise in their everyday activities, instead of each family unit having to grow crops, hunt for meat, and make tools, families developed skills in one of these areas and traded some of their production for other needs. Eventually, bartering gave way to the use of currency, making transactions easier to settle. The basic mechanics of trade were the same. One member of society created something of value that another member of society desired. Commerce is a negotiated exchange of

valuable objects or services between at least two parties and includes all activities that each of the parties undertakes to complete the transactions. Technically, trade is part of commerce. Trade refers to the buying and selling, whereas commerce refers to the whole system of business activities including financing / banking, insurance, transportation, communication, warehousing, etc.

1.2 INTRODUCTION TO ELECTRONIC COMMERCE

By the opening of the twenty-first century, global communications have changed the fabric of society at a rate never experienced before. The changes are driven by the interaction of Information and Communication Technologies (ICT) and customer demand. The internet, in particular has redefined and redrawn the map of global economy. To be competitive in today’s marketplace, companies need to expand commercial activities beyond national borders. The global network of electronic infrastructure has played a significant role in this expansion.

Electronic Commerce (EC) therefore the most important phenomenon of this century. Its presence is becoming crucial to the effective functioning of organizations, especially in a world where companies need to deal with suppliers, customers, partners and their own units across the world.

The growth of EC is not of course uniform around the world. While organizations and consumers in countries with mature technological infrastructure, are gaining access to and benefiting from electronic marketplaces, the economic prospects in countries with an under-developed ICT infrastructure are uncertain. The adoption of EC by people in any country of the world depends upon the ability to use internet technology. The opportunities for economic growth exist by utilizing the internet by both the business and its citizens.
1.3 EVOLUTION OF E-COMMERCE

In today’s information age, the interface between customer and the company is becoming closer by new mechanisms that make it easy to transfer information between various parties involved in commerce. Current state of ICT enabled commerce i.e., E-Commerce (EC) has evolved due to various developments in ICT and their applications by business corporations and customers.

Computerization

Gasser. L² (1986) describes that in the beginning business organizations did everything manually, recorded them on paper. In order to speed up the work, they started using computers in the process of business from the early 1960s in USA and other countries. The computers, in the early days of their existence, were single machines housed centrally and were used to carry out all the data-processing needs of an organization. The terminals connected to them over communication links were simple dumb terminals, i.e., with no intelligence. Advent of the personal computers (PCs), has transformed the applications of computers in business activities.

Networking

With the increase in processing power and decrease in costs, more and more powerful machines have moved to desktops of users’ PCs, and a new scenario has emerged in which the work in an organization gets done with the help of a large number of separated but interconnected computers, i.e., a computer network. Andrew S. Tanenbaum³ (1997) describes a computer network as an “interconnected collection of autonomous computers”.

The business organizations started setting up networks to share information pertaining to their business operations. For any data to get added or to get out of the system, manual interaction was required. Someone had to take a printout and manually re-enter the data into a different network, or copy it on to a floppy and carry it across. The extension of access of this network to cover the computer systems dispersed within the organization and outside, depending on the business scenario. Companies started building Local Area Networks (LANs) and Wide Area Networks (WANs). LANs are computer networks which are owned by organizations or institutions and cover up to a few miles i.e., within a building or a campus. WAN on the other hand covers a large geographical area, which could extend throughout a country or any country in the world, with the companies various manufacturing / marketing facilities.

Subsequent phenomenon was the extension of access of these networks to suppliers. This is widely known as Electronic Data Interchange (EDI). With these, companies started placing orders with their suppliers by using networks thereby started getting rid of paper work. So EDI is the inter-organizational exchange of business documentation in structured and machine-processable form over computer networks. EDI can be used for electronic transmission of documents such as purchase orders, invoices, shipping notices, receiving advises, and other standard correspondence between trading partners. EDI can also be used to transmit financial information and payments in electronic form. When used for effecting payments, EDI is usually referred to as Electronic Fund Transfer (EFT) or Financial EDI. EDI is a method of extending organizations’ computing power beyond its boundaries. Yet the high cost and maintenance of the networks made this method out-of-reach for many business organizations. But this technique of transmission of data between the vendors was very well used by large automobile, retail stores in USA and other advanced countries.
A logical step for any networked company after implementing EDI will be to extend the network to its customers also. But for the most businesses, even for the really big ones, this was impossible, given the geographical dispersion of the end-customers. The internet has made it possible for business to interact directly with both the supplier and the end-users without having to go in for heavy investments. In the process, it has changed the basic rules of doing business. Anybody with a web browser could directly make a purchase from any part of the world. Similarly, anyone with a web server could run a multi-million dollar business without having to invest in warehouses, and infrastructure.

**Internet**

The internet is an international network of networks. It is a worldwide information highway. It also signifies information resources on innumerable servers on the net. It allows millions of computers to be linked together offering a global network that connects everyone in the universe and enabling the world to truly become an information society.

Its origin can be traced to an experimental network established with funding from the Advanced Research Project Agency (ARPA) of US Department of Defense (DoD) to enable the scientists engaged on projects to communicate with one another. Starting in 1965 with four sites in the US, it soon expanded into Europe. Electronic Mail over the ARP net, as it was called, was a great success. The National Science Foundation (NSF) took over the academic community network project in the mid-1980s, after defense traffic was moved away from the ARP net to MILNET. In 1987, the NSF created NSF net.

NSF upgraded the lines to 56 Kilo bytes per second (Kbps) to connect the five super computer centers. Regional and Corporate networks were permitted to connect to the NSF net. Connecting networks to the nearest neighbors created geographically contiguous chains. Each chain was
connected to a super computer center. This enabled any computer in any
network to communicate with any other network computer by using the store
and forward techniques. It is the NSF net, which was later christened as the
internet. The US Federal Government, which owns the NSF net, forbids its
commercial use. The commercial internet, on the other hand, comprises
several private backbones run by a number of internet Service Providers
(ISPs). Reliability of the internet provided by the ISPs depends on the
adequacy of phone lines, bandwidth and computer used by the end-user.

The internet is neither run nor owned by anyone. Every organization
that is connected to the internet is responsible for its own conduct. Among the
advantages of being on the internet for business are absence of membership
fees, censorship, and governmental control. Though originally established as a
private channel for research activities and academics, the internet is now
being exploited by business for a wide range of commercial services.

Internet will become the force to reckon with as a comparatively cheap
carrier for EC transactions. More and more commercial organizations are
getting connected to the internet. It automates the complete process starting
from order-taking till the delivery of products to the end-customer. Thus,
businesses are able to react faster to customer demands, and keep market
uncertainties to the barest minimum.

1.4 DEFINITIONS OF E-COMMERCE

Different authors and organizations have described EC. Some of these
definitions are stated below. Wigand, R. T\textsuperscript{4} (1997) observes, "...Electronic
Commerce includes any form of economic activity conducted via electronic
connections". This definition of EC includes all those economic activities that
are carried out by organizations electronically. This definition fails to explain,
what those economic activities are. The researcher also reviewed the

\textsuperscript{4} Wigand, R. T. "Electronic Commerce: Definition, Theory, and Context", The Information Society,
13(1), March 1997, Pp: 1-16
definition of EC which was described by Electronic Commerce Task Force of the Government of Canada. According to this committee, EC is the conduct of business activities – including production, sales and other transactions by means of advanced communications and computer technologies. EC also includes transactions involving automated banking machines, credit cards, debit cards, electronic data interchange and the internet. Definition given by EC taskforce of Govt. of Canada, which describes all the economic activities viz., production, sales and other transactions carried out by using ICT. This definition also describes the involvement of various advanced payment options involved in EC. But, it fails to describe the benefits to business and consumers by adopting EC.

Hence, researcher considered the definition of EC given by U.P. Singh (1999) who describes that EC as “electronic i.e., on-line and mainly internet based methodology, to address the need of business and consumers for cutting costs while improving the quality of goods and services”. Convenience of shopping on the internet, open for 24 hours a day, seven days a week, makes it further attractive. It allows people to transcend the barriers of time and distance and take advantage of global markets and business opportunities not even imaginable, opening up a new world of economic possibility and progress. This definition describes further aspects of EC like convenience of shopping, 24 X 7, global market reach for both customers and companies. Chary T. S (1999) supports the views expressed by specialists referred to earlier and describes EC as the application of sophisticated computer technology for commerce through electronic media. It is a marketplace where business is using the information technology and network computing to securely transform their business relationship and selling, buying the goods and services.

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1. http://www.globalx.net/eca
Customers around the world can sit in the house and can accomplish what they desire through a few mouse clicks and taps on the keyboard. They can select their commodities through the multi-colored catalogs. So the customer need not face such problems in his purchases as “no stocks”, “closing time” and flying or driving long distance. This view has added the additional dimensions of EC i.e., hassle-free transactions. So the definition by Chary can be considered as the most appropriate for the current study context.

1.5 DIFFERENCES BETWEEN TRADITIONAL COMMERCE AND ELECTRONIC COMMERCE

The difference between traditional commerce and EC process lies in the method of transmitting the information regarding choosing the product, making payment for the purchase, order tracking, post-delivery aspects related to the product / service purchase. Through EC, the customer has a wide choice of products / services, besides the option of making comparison between various offers before selecting one to buy. This is more evident in EC over traditional commerce.

Customization

In EC, the customer has the option to involve himself in the design of products / services, but it is not the same in traditional commerce.

Payment Options

In traditional commerce the customer has many payment options after he decides to purchase a product like through cash, cheque, debit / credit card, even though all the above stated methods of payment are available in EC, but the most preferred payment option will be credit cards. He can also make the payment after receiving the product.
Delivery

The product can be delivered to the customer immediately in most of the cases in traditional commerce, subject to availability and reach. The trading company maintains the inventory. In EC, the delivery of the product to the customer can happen within 72 hours, depending on the logistics. Delivery of digital products like software, music, pictures, movies, etc can be done instantaneously as and when the customer places the order for these products.

Dispute Resolutions

In traditional commerce, the customer has the access to the supplier in case of any difficulty with respect to the product. In any case of dispute he can approach the appropriate legal authority for resolving the issues. These aspects are definitely different in EC, as the order for the product is taken by a web site located somewhere in the world, the execution of the order is done by some other parties like contract manufacturer, logistics firm, etc. Hence, in case of any dispute it will be difficult for the customer to resolve the issues immediately.

To survive, organizations must compete in an environment in which consumers expect more for less. EC enables organizations to operate at lower costs while maintaining or even increasing revenues. EC also can reduce business cycle times by increasing the speed and accuracy of transactions processed with fewer people. EC also enables organizations to serve the existing consumers via customer service and support web sites. For achieving all these benefits, the organizations should first develop an interactive / user-friendly web site and post it on to a server. The presence of the organization on internet can be felt by the customers only when it makes all-out effort in informing the same through registering the company site with suitable search words with popular search engines followed by press releases, advertisements, e-mails, etc.
The huge up-front investment in site development and process design needed to launch a successful EC business often tempts companies to get into indiscriminate customer acquisition to offset costs. On the internet, the doors are open any time, any place and anywhere. This makes targeting potential buyers even more realistic. Hence, the companies must think what kind of customers they want to attract. It is not the quantity but the quality of customers that count.

What most customers want is clearly displayed information and visuals together with a quick and easy process. Internet shoppers are not necessarily indecisive nor are they looking for the lowest price. The customers want easy-to-use sites, unforgiving when things go wrong. Successful companies know that EC is not about how many prospective customers or “eyeballs” they attract. The real challenge lies in persuading visitors to stick around long enough to buy something and then come back for more. Understanding customer needs and matching expectations will distinguish the winners from the losers in the on-line world.

1.6 PERSONALIZATION VS CUSTOMIZATION

Many of the most successful EC sites use personalization and customization with the goal of creating a strong working relationship with their clients and end-users. However, issues such as privacy, the difficulty of providing an appropriately personalized page, and the fact that many users prefer to remain anonymous, are problems that must be addressed for personalization to be successful.

There are two terms commonly used when discussing an interface designed for a specific user: customization and personalization. Although some might use these terms interchangeably, they refer to two different aspects of design. Customization is used to describe interface attributes that are user controlled; for example, background color or pictures, font size, icon placement, etc. Users often customize their interfaces because of personal
preference they may want a specific background picture on their desktop, and they may prefer their icons to be on the right-hand side of the desktop instead of the left-hand side. Users might also choose to customize an interface to compensate for a disability. For example, a user with low vision might choose to increase the screen resolution so that icons and fonts will appear larger, and might turn on audio alerts so that error and warning messages are read aloud.

Personalization, on the other hand, is an interface attribute that are computer driven, often by an algorithm or user model based on the users' selections, habits, demographic information, etc. The two concepts are closely related and the dividing line between the two can be vague.

The Reasons for Personalization

There are different reasons to personalize an interface. A company might want to cater to different levels of user expertise by showing different users different information. Another reason to personalize might be to provide different interfaces for different levels of authorization. For example, the web master of a secure site will almost certainly see different options than a regular user, since the web master must have the ability to add and remove users; track their usage, control passwords, and other administrative tasks. A regular user does not need these options and therefore should not see them. Finally, a web site or application might be personalized to allow for multiple languages or nationalities. In the case of large multi national corporates web sites, the server might look at the default language setting on the client browser and serve up the web site in the same language.

There are different reasons that a web site might be personalized, and there are also different aspects that can be personalized. The two most common aspects to personalize are structure and content. Personalizing the structure of an application or web site involves altering the location of available links as well as the location of the content (text and images). This aspect of personalization involves placing the links and content that are
determined to be the most relevant to the user in a prominent place. Thus, different users may see different layouts of the interface. Content personalization, on the other hand, changes the content of a web site depending on the user.

One aspect of personalization that is becoming more important is that of delivery. As different delivery devices become available, such as personal digital assistants (PDA), cell phones, in-car navigation systems, and others, content and structure will have to be personalized for these devices. Currently, many web servers check to see which browser is requesting information (for example, Netscape, internet Explorer, Mozilla, Opera, etc.), and possibly the resolution of the delivery device as well, before serving up an appropriate page (or requesting that the user upgrade or use a different browser). Of course, if a cell phone or PDA is the delivery device, graphics, advertisements, and other bandwidth or graphic intensive information may be too much to download or display, thus the server must tailor its data for the device. This aspect of personalization, while currently in its infancy, will become more of an issue as more wireless devices are used to communicate and transact business.

Personalization may Limit Information

Another noteworthy feature of personalization is that, once a web site or application is personalized to a user, the information that users see may be limited by the personalization scheme. Thus, it is possible that users might miss information that is important to them, but that has been deemed unimportant by the user model that determines the information displayed. In addition, unless users can control some aspects of personalization, they may not even know that a site has been personalized, or exactly what aspects of the site are personalized! Most sites seem to hide information about personalization features deep inside the section of the site; however as personalization becomes more prevalent and users are more aware of it, they may demand that this information be made more readily available.
As personalization and customization become apparent for the conduct of EC, issues such as users not wanting to provide the information necessary for appropriate personalization, privacy, and the difficulty in developing and maintaining appropriately personalized content and structure must be addressed before creating a personalized site that clients will visit repeatedly. The issue of privacy is most prominent, and will probably continue to be so until more countries take an active role in defining users’ rights to personal digital information, regardless of whether that information is gathered explicitly or implicitly.

1.7 CLASSIFICATION OF THE EC BASED ON THE NATURE OF TRANSACTIONS

The EC can be classified into Business to Business (B2B), Business to Consumer (B2C), Consumer to Consumer (C2C), and Government to Consumers (G2C) by their nature of transactions.

B2B EC refers to the buying and selling between businesses on the internet. Business corporations transact through EDI to minimize the cost and time for completing their transactions to remain competitive. Many leading corporations in the automobile, steel, electronics industries have started using this mode of EC to remain competitive in the new economy.

The next type of EC can be called as B2C EC. In this type of EC, consumers interact directly with the business firm’s system through the computers. It is simply electronic retailing using the Web as a medium to place orders for any products of their choice. Similarly they could utilize services like electronic banking and on-line bookings, insurance or payment of utility bills.

In this type C2C EC the consumer sells directly to other consumers. For example individuals can sell the residential property, cars, music systems and other products and services through classified advertisement on leading
web sites on the internet by posting their offers. A customer interested in the offer will bid for the product/service. On successful matching of the bids, the transactions would conclude between the two customers. This type of EC is the latest in the offer by the Government to its citizens. In G2C EC government will try to provide many services to its citizens by using electronic channels.

1.8 CLASSIFICATION OF PORTALS

A portal\(^8\) is a Web-based application that acts as a gateway between users and a range of different high-level services. They fulfill an essential role on the web. By definition, a portal should be able to attract a huge traffic. After all, it is meant to be a single source starting point for surfers to launch their journey into the net. The first portals on the internet were the search engines, like Alta Vista. Various search engines like google, yahoo and msn indexes published internet pages, so that surfers can enter keywords and select their destination from a list of results. Search engines provide a window to the virtual world. Over time, these sites have grown into so-called horizontal portals. The portal offers one-click links to a variety of contents hosted all over the web from news to shopping sites, from weather reports to travel advisories, from stock market quotes to horoscopes, from business to pleasure. In addition, it also gives the user the opportunity to run searches, set up free e-mail accounts, home pages and chat.

The horizontal portal field is already overcrowded, but there are still lots of space left in the vertical portals field for a new entrant. More than 90 percent of general portals are likely to crash. What are likely to succeed are niche, vertical portals.

But even vertical spaces are getting overcrowded fast. Already, over a dozen sites specialize in cricket. Too many contenders compete in the area of

personal finance and equity research like indiainfoline.com, myiris.com, investmart.com and inequity.com. Even narrower vertical portals (portals) are now cropping up within this space itself like mutualfundsindia.com for mutual funds and assurcindia.com for the insurance industry.

Five players dominate the India-specific generalized portal space: rediff.com, 123india.com, indiatimes.com, satyamon-line.com, and indiaworld.com. Portals in India are also started by leading global players like Australian tycoon Kerry Packer’s e-cop, MSN, Yahoo, Lycos, the IT portal CNET and MTV. Portals can be again classified based on the type of customer viz., B 2 B and B 2 C categories. But a successful portal needs to be the last word on its chosen subject—no easy task. Vertical portals have to spend many times more on content than horizontal portals.

1.9 THE PORTALS BUSINESS MODEL

Although at first glance, the business model for a portal may appear to be based on advertising, it is, more complex. The basic model is to create a site that offers easy entry-points for net users to different topics use it to draw in large number of customers, and then use that traffic to lure advertisers onto their sites. Rayport and Jaworski have indicated that an on-line business model requires the following:

1. the specification of a value proposition or “value cluster” for targeted customers; 2. an on-line offering, which could be a product, a service, and/or information; 3. a unique, defendable resource system; and 4. a revenue model. Value Proposition (Single Segment) or Value Cluster (Multiple Segments) requires management to specify three items (1) target segments that the company should focus on; (2) the combination of customer benefits offered; and (3) the reasons why the firm and its partners are better positioned to deliver the offering than anybody else.

In on-line offering, the senior management team must complete three sequential tasks: (1) identifying the scope of the offering, (2) identifying the customer decision process, and (3) mapping the offering (product, service, and information) to the customer decision process. The resource system shows how a company's value proposition is contained in a set of tailored resources that uniquely deliver the benefits of the proposition. A number of criteria can be used to assess the quality of the resource system, such as the uniqueness of a system and whether there are links between resources and benefits, and links to physical-world business systems.

There are a number of revenue sources for the firm (1) Advertising - Selling of ads, site sponsorships, event underwriting, etc. (e.g., Yahoo, AOL); (2) Product, service, or information sales - Sales of goods and services (e.g., Amazon); (3) Transaction - Charging a fee or taking a portion of the transaction sum for facilitating a customer-seller transaction (e.g., eBay); (4) Subscription - Offering subscription services for information (e.g., FT.com, NYTimes.com); and License fees - Licensing of content (e.g., Microsoft).

To start with, most portals supplemented this with a subscription-led model where, the user pays to access certain services. That approach has problems, particularly as surfers have got used to free content on the net. However, content-driven sites do have a section to free-based access to archives. And most portals continue to have windows of subscription through specialized services. Advertisement-driven model has morphed into marketing alliances where by shopping sites paid portals to be featured in a certain area of the portal. Usually, they would be the only company offering that particular type of service.
1.10 PAYMENT INFRASTRUCTURE REQUIRED FOR EC TRANSACTIONS

For successful completion of an EC transaction between a client and the merchant, the payment gateway is required for the merchant. A merchant needs a specific bank account designated for processing credit card transactions. Since internet credit card sales require more stringent risk management systems, many traditional banks do not offer these specialized services. A merchant account enables the EC firm to accept credit cards as payment for the purchase of goods and services.

**Payment Gateway**

It is a software program integrated to a merchant’s website to transmit transaction data to the credit card acquirer for authorization and settlement. Merchants gain the ability to perform real-time credit card authorizations from a web site over the internet. Customers can pay for purchases across the internet through credit cards within seconds, after the gateway obtains authorization from the credit card institutions. Also an electronic application that integrates with a merchant’s Web site in order to transmit transaction data to the payment card acquirer for both authorization and settlement purposes. A payment gateway accepts transactions from on-line merchant storefronts and routes them to a financial institution’s processing system. The following are the reasons for adopting the payment gateway by an EC firm.

**Security**

When a customer places order on-line they want to know that their credit card details are safe. If they are not comfortable with the security of the site, they will probably not buy products from the EC firm. The best way to alleviate the customers’ concerns will be through secure EC site by using

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10 http://www.jpmorgan.com/cm/ContentServer/x=TS_Content&pagename=jpmorgan%2Fts%2FTS.Content%2FGeneral&cid=1103382094550

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Secure Sockets Layer (SSL). Gateways keep customers' credit card data behind firewalls so that the merchant doesn't have to worry about someone "hacking in" to their system. When a site is secured with SSL - the standard form of encryption currently used on the Web - visitors will see a special symbol in their browser window that indicates the site is secure. Visitors can also tell that a page is secured by looking at the URL. A secure page's URL begins with the letters "HTTPS" instead of the standard "HTTP."

**Encryption**

Gateways use encryption to prevent message tampering while the credit card information is being transmitted over the internet. They provide the most secure encryption technology.

**Back-up Redundancy**

Gateways have a backup system in place to ensure that merchants can continue processing in the event of an emergency. Gateways are services that are constantly upgraded to be up to date with the latest technology. As the gateways are not on merchants' computers, there is no need for the merchants to upgrade their hardware.

**Price**

Gateways save the cost of an additional phone line that would be needed in a dial application.

**The functioning of Payment Gateway**

First the shopper submits an order to the merchant's store from his or her computer. The order arrives over the internet at the merchant's store site. Then the shopper's credit card information is submitted to the payment gateway. The payment gateway sends the credit card information to financial institution that serves as the credit card processor to ensure the card is not stolen or overdrawn. The payment processor may also use fraud detection
software at this time. The processor sends an authorization number back to the payment gateway if the card is valid. Then the transactions are automatically submitted for "settlement" so that the funds can be processed and transferred to the merchant account. Then the product is going to be shipped.

The firm that offers products and services over electronic channels through internet is referred to as an EC firm. It can represent its product pricing in any number of currencies. At the end of the transaction when the client has to checkout for the payment option page, he requires the payment amount to be in Indian Rupees (INR) equivalent only. This is because the final payment in any other currency but INR is subject to the Reserve Bank of India (RBI) Rules and Regulations. If the payment is made in any other currency, the EC firm need not create a different set of shopping cart links. RBI insists that EC firms should settle transactions in INR only and the respective banks give a foreign exchange inward remittance certificate. This would take care of the income tax issues, enabling them to claim exports benefits under section 80 HH of the Income Tax Act.

Shopping Cart

Shopping cart is software that handles on-line stores' catalog and ordering process. A shopping cart is the interface between a business' Web site and its internal infrastructure. Shopping carts allow consumers to select merchandise from a Web page, review what they have selected, make changes or additions, and purchase the merchandise.

1.1 EC PROCESS

There are many types of trading\textsuperscript{11} retailing, wholesale trading, business-to-business trading, etc. EC is characterized by enormous diversity of requirement and implementation. 'Sourcing' may be implemented by Web catalogues, by specialized quotation systems, by order-matching systems, by

ITT, by auction, or by numerous other ways. 'Order placing' may be by fill-out forms, by e-mail, by EDI, by telephone sales agent, etc.

Few EC products tackle problems completely. Most catalogue systems concentrate only on 'sourcing' processes, and sometimes 'order placing'. Such systems are often called 'trading environments'. However, there are support elements that are common to many aspects of EC. Elements such as trust, integrity and security are common to all aspects of EC. A subsystem of EC is the trading environment (sourcing and order placing) and some of its support elements, security and payments. There is plenty of evidence of EC everywhere when one looks on the World Wide Web (WWW). Many commercial Web sites have catalogues, and quite often it is also possible to place orders on the Web. EC includes everything from sourcing to settlement, and all the processes that underlie trading.

Integrated Logistics Services and Third Party Logistics

Logistics means planning the distribution process in a scientific and systematic manner, beginning from the procurement of raw material, transportation of raw material to the processing centre, transporting the finished product to the customer, using proper routing, best mode of transport available in terms of speed and economy, type of packaging required, and delivery at the proper time. Third party logistics imply that one company that acts as an agent to look after the logistics aspect of another company or group of companies. A win-win situation where the provider and the companies gain by better service levels at a fraction of the cost is changing the face of logistics around the world. Third party logistics entails a study of the customer's business, supply chain and distribution network, in order to formulate a comprehensive integrated logistics strategy, which will help render all supply-related services from a single window.

Companies have come to realize that procurement and distribution logistics are not their core activity. In the age of EC, it pays to entrust this
important activity to professionals whose core competency is in providing such services. This means that businesses can concentrate on the basic primary functions of manufacturing, marketing and finance. They are assured of round-the-clock (24/7) supply to every corner of the country without actually having to maintain a large network of warehouses and offices. The capital invested in warehouses and remote offices can be diverted into applications that are more productive. This offers tremendous opportunities in reducing costs, a trimmed workforce and more importantly, satisfied customers.

In the age of EC, customers expect delivery, after-sales service and parts replacement without any delays. Unfortunately, customers and suppliers are not situated conveniently close to company's area of operations. Furthermore, businesses are demanding high degree of visibility in the entire supply chain. To comply with this demand, they need to maintain a large network of physical warehouses and supply co-ordination offices incurring heavy costs. Thus, the EC firm can efficiently meet delivery / guarantee commitments round-the-clock. Third party logistics providers offer this facility to companies at a fraction of the costs involved because of the synergies arising from a large base of customers who can be serviced with the same infrastructure. Thus, the facility of third party logistics offers itself as an attractive and viable necessity for any business engaged in manufacturing or trading activity.

1.12 CYBER CRIME & INFORMATION SECURITY

In the wake of increasing security breaches, a growing awareness of information security has set in. India was the 12th country in the world to enact the Cyber-Laws and passed the IT Act 2000, which besides granting legal sanctity to electronic documents, covers a broad range of legal issues. The Ministry of Information Technology has set up an IT security centre at Hyderabad, in line with the American Computer Emergency Response Team.
when requested

Availability: Assurance that authorized user may access a resource

Integrity: Assurance that the resource has not been modified

Confidentiality: Assurance that only authorized user may access a resource

Issues:

Security deals with these primary issues, called the CIA Triad, The

Assess.

We need to identify ways and means to secure our information and IT
assets. We need to identify ways and means to secure our information and IT
security in an organization. It is important to plan all the above-mentioned
FAX Machines, CD, pen-drives, printers, and laptops. With regard to the
networking computers, internet access, PAPER FILES, ELECTRONIC FILES, FAX,
there is a requirement to protect all forms of organizational assets / resources.
Electronic means, shown on printed or spoken in conversation. In a network,
written, or printed on paper, stored electronically, transmitted by voice or using
and business opportunity. Information can exist in many forms. It can be
transmitted to minimize business damages. To maximize return on investments
continuously to minimize business damages in order to ensure business
projects that have not value to an organization and

Information is an asset which has value to an organization and

and the police to address the growing threat to cyber security in the country

Wherein compromised corporate and personal networks from the governmental IT sector
model attacks for promoting HIT the country. As set up a National Cyber
National Association of Software Services and Computer (NASSCOM), a
ITET is part of a multi-proposed approach to combat cybercrime, the

The
Cyber Crime

The Oxford Reference On-line defines cyber crime\(^{13}\) as crime committed over the internet. The Encyclopedia Britannica defines cyber crime as any crime that is committed by means of special knowledge or expert use of computer technology. So what exactly is Cyber Crime? Cyber crime could reasonably include a wide variety of criminal offences and activities. The internet – or Cyber Space as it is sometimes called, is a borderless environment unlike a brick and mortar world. Even though it is indispensable as a knowledge bank, it is a likely tool for someone with a criminal bent of mind, who can use this environment to his/her maximum advantage. It is not a surprise that Cyber Crimes like money Cyber stalking, denial of service, e-mail abuse, chat abuse and other crimes are on the rise. Cyber terrorists and cyber mafia are emerging with great force, whose activities are going to threaten the sovereignty of nations and world order.

Cyber Stalking\(^{14}\) can be defined as the repeated acts of harassment or threatening behavior of the cyber criminal towards the victim by using internet services. Cyber-stalking refers to the use of the internet, e-mail, or other electronic communications device to stalk another person. It is a relatively new form of harassment.

Denial of Service\(^{15}\) is an act by a criminal, who floods the bandwidth of the victim’s network or fills his e-mail box with spam mail depriving him of the services he is entitled to access or provide. This act is committed by a technique called spoofing and buffer overflow. The criminal spoofs the internet protocol (IP) address and floods the network of the victim with repeated requests. Since the IP address is fake, the victim machine keeps waiting for response from the criminal’s machine for each request. This consumes the bandwidth of the network which then fails to serve the legitimate requests and ultimately breaks down.

\(^{13}\) [https://www.cybersecurity.my/data/content_files/13/134.pdf](https://www.cybersecurity.my/data/content_files/13/134.pdf)
\(^{15}\) [Internet Denial of Service Attacks and the Federal Response](http://www.cdt.org/security/000229/judiciary.shtml)
**Hacking** in simple terms means illegal intrusion into a computer system without the permission of the computer owner/user. Hacking is carried out with any of the following reasons like greed, power, publicity, revenge, adventure, desire to access forbidden information and destructive mindset. Hackers write or use ready-made computer programs to attack the target computer. They possess the desire to destruct and they get the kick out of such destruction. Some hackers hack for personal monetary gains, such as stealing credit card information, transferring money from various bank accounts to their own account followed by withdrawal of money. They extort money from some corporate giant threatening him to publish the stolen information, which is critical in nature. Government websites are the hot targets of the hackers due to the press coverage they receive.

**Spoofing**" means illegal intrusion, posing as a genuine user. A hacker logs-in to a computer illegally, using a different identity than his own. He is able to do this by having previously obtained actual password. He creates a new identity by fooling the computer as though he is a genuine system operator. The hacker then takes control of the system. He can commit innumerable number of frauds using this false identity.

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16 http://www.syl.com/articles/commonotypesofspoof.html
Table 1.1: Who Commits a Cyber Crime?

Persons who can be typically expected to indulge in a Cyber Crime\textsuperscript{17}

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insiders</strong></td>
<td>Disgruntled employees and ex-employees, spouses, lovers</td>
</tr>
<tr>
<td><strong>Hackers</strong></td>
<td>Crack into networks with malicious intent</td>
</tr>
<tr>
<td><strong>Virus Writers</strong></td>
<td>Pose serious threats to networks and systems worldwide</td>
</tr>
<tr>
<td><strong>Foreign Intelligence Use cyber tools as part of their Services</strong></td>
<td>Use cyber tools as part of their services For espionage activities Can pose the biggest threat to the security of another country</td>
</tr>
<tr>
<td><strong>Terrorists</strong></td>
<td>Use to formulate plans, to raise funds, propaganda</td>
</tr>
</tbody>
</table>

According to a Symantec (NASDAQ: SYMC) report at the end of 2006,\textsuperscript{18} Beijing is now home to the world's largest collection of malware-infected computers, nearly 5% of the world's total. Research report by the internet security company sophos.com (2007), shows that China has overtaken the U.S. in hosting Web pages that secretly install malicious programs on computers to steal private information or send spam e-mails. Quoting Sophos' earlier report Forbes.com indicated that Europe produces more spam than any other continent.

Cybercrime is geographically diverse. Hence it is not just hard to stop; it's hard to track. Cybercrime is not merely spreading to certain countries but is becoming global. A single cybercrime operation can now be distributed among many different groups in several countries. The big problem here is political. It involves sovereignty. No government can enforce law of their nation without the consent of the country where cybercrime is being carried out. The growth areas of the malware industry are not easily predicted. India,

\textsuperscript{17} Nick Nykodym, Robert Taylor and Julia Vilela, "Criminal profiling and insider cyber crime", Digital Investigation, 2, 2005, Pp:261-267

\textsuperscript{18} Symantec Internet Security Threat Report, Volume X, Sep. 2006

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for instance, is a technologically booming country, but ranks surprisingly low on Sophos' list. The U.K. and India together contribute only 1.3% of the world's malware. Of these, the majority of criminal activity comes from the U.K. and relatively India's share of cybercrime is less, due to the "cultural difference" and the success of its legitimate IT industry. Security professionals should expect the subcontinent's malware contribution to grow in coming years. When it does, India may not be ready to contain the problem.

1.13 BENEFITS AND LIMITATIONS OF EC

EC with its ability to reach hundreds of millions of people globally at low cost, interactive nature, variety of possibilities, resourcefulness and rapid growth of the supporting infrastructures (especially the web) result in many potential benefits to organizations, individuals, and society. The benefits of EC such as cheaper procurement, faster knowledge accumulation, dissemination and application, more effective management of the relationship with the customer etc., can translate into significant savings, according to United Nations' Conference on Trade and Development Report, 2001.19 These benefits are starting to materialize, but they will increase significantly as EC expands. United National ICT task force report indicates that Clinton and Gore20 (1997) have expressed "it is not surprising that the EC revolution is just as profound as the change that came with the industrial revolution".

With on-line shopping, consumers can browse the entire product-assortment with minimal effort and time. Further, consumers can efficiently obtain critical knowledge about firms, products and brands, and thereby increase their competency in making sound decisions while shopping. Consumers can also easily compare product features, availability, and prices more efficiently and effectively than with brick-and-mortar shopping. Internet shopping provides a level of anonymity when shopping for certain sensitive products. EC can address both demand and supply issues. Buyer benefits arise

primarily from the structural characteristics of the medium and include availability of information, provision of search mechanisms, and on-line product trial, all of which can lead to reduced uncertainty in the purchase decisions.

Benefits to consumers

An important consumer benefit associated with EC is the access to greater amounts of dynamic information to support queries for consumer decision making. Obtaining purchase-related information has been the most preferred Web activity. Interactive nature of the Web and the hypertext environment allow for deep, non-linear searches initiated and controlled by customers. In addition to the above, the advantages for industrial consumers are reduced costs to buyers from increased competition in procurement as more suppliers are able to compete in an electronically open marketplace. This increase in competition leads to better quality and variety of goods through expanded markets and the ability to produce customized goods.

Benefits to the firm

Organization benefits arise partly from the use of the Web as a distribution channel. First, the Web potentially offers certain classes of provider’s participation in a market in which distribution costs or cost-of-sales shrink to zero.

This is most likely for firms in publishing, information services or digital product categories. For example, digital products can be delivered immediately; hence such businesses may encounter massive disintermediation or even the eventual elimination of middleman. Moreover buyers and sellers can access and contact each other directly, potentially eliminating some of the marketing cost and constraints imposed by such interactions in the terrestrial world. This may also have the effect of shrinking the channel and making distribution much more efficient mainly due to reduced overhead costs.

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through such outcomes as uniformity, automation, and large-scale integration of management processes. Time to complete business transactions may be reduced as well, translating into additional efficiencies for the firm. However, such potential efficiencies must be tempered with market realities.

Further, business on the Web transfers more of the selling function to the customer, through on-line ordering and the use of fill-out forms, thus helping to bring transactions to a conclusion. This permits a third benefit in the form of capture of customer information. Hoffman, Novak and Chatterjee\textsuperscript{23} indicated that the technology offers the firm the opportunity to gather market intelligence and monitor consumer choices through customers' preferences as revealed in navigational and purchasing behavior in the Web. However there are social, legal and technological issues and drawbacks at the present level of technology that prevent firms from fully capitalizing on the benefit.

\textit{Marketing Communications}

Currently most of the firms use the Web primarily to deliver information about them and their offerings in addition to internal and external communication with other firms and consumers. The interactive nature of the medium offers the insight into developing customer relationships, especially to hold the attention of the consumer by engaging the consumer in an asynchronous "dialogue" that occurs at both parties' convenience.\textsuperscript{24} The potential for customer interaction facilitates relationship marketing and customer support to a greater degree than ever before by using traditional media. Round-the-clock availability of Web medium offers unprecedented opportunities to tailor communications precisely to individual customers, allowing individual consumers to request as much information as desired. Further, it allows the marketer to obtain relevant information from customers for the purpose of serving them more effectively in the future.

\textsuperscript{23} \textit{Commercial Scenarios for the Web: Opportunities and Challenges, 1995} (http://jcmc.indiana.edu/vol1/issue3/hoffman.html)

\textsuperscript{24} ibid
The simplest implementation involves engaging customers through the use of email buttons located strategically on the site. More sophisticated implementations may involve fill-out forms and other incentives designed to engage customers in ongoing relationships with the firm. The objective of such continuous relationship-building is double-pronged: to give consumers information about the firm and its offerings and to receive information from consumers about their needs with respect to such offerings. Hence, effective customized advertising, promotion and customer service is another benefit that the commercial Web offers to the firm. Most importantly, the Web offers opportunity for competition on the "specialty" axis instead of the price axis. From a marketing perspective, it is rarely desirable to compete solely on the basis of price. Instead, marketers attempt to satisfy needs on the basis of benefits sought, which mean pricing is dependent upon value to the consumer, not costs. Such opportunity arises when the offering is differentiated by elements of the marketing mix other than price. This results in value-added benefits, including convenience through direct electronic distribution of software and enjoyment through a visually-appealing and unusual Web site. Consumers indicate that price was the least important product attribute considered when making on-line purchases. The ability to compete on dimensions other than price will become especially critical in categories where brands are perceived as substitutes, since it allows for more opportunities to differentiate along other dimensions.

Operational Benefits to EC firms\textsuperscript{25} include reduced errors, time, and overhead costs in information processing; reduced costs to suppliers by electronically accessing on-line databases for bidding. In addition, it helps in

\textsuperscript{25} http://www.remarkable.co.nz/ebusiness/ebusiness_cost_benefit.htm
entering new markets/segments for increased sales by reducing time. This is due to the ability to reach potential customers easily, inexpensively and without delays during the different steps of the business sub-processes.

Limitations of EC

Internet shoppers are not able to gain the experience they usually get when shopping the traditional way, such as interaction with salespersons, feeling the atmosphere, and touching or trying the merchandise. In cases where these features are specifically important to consumers, they will choose to engage in traditional shopping over on-line shopping. Consumers in B 2 C EC need to face many other limitations which can be classified as technical and non-technical.

Technical limitations

There is a lack of system security, reliability, standards, and some communication protocols. Its progress is also hampered due to the insufficient telecommunication bandwidth available for the people. The software development tools are still evolving and changing rapidly. It is difficult to integrate the internet and EC software with some existing applications and databases. Vendors may need special web servers and other infrastructure, in addition to the network servers. Some of the EC software might not fit with some hardware, or may be incompatible with some operating systems or other components.

Non-Technical limitations

Cost involved in developing EC and justifying these investments with respect to some tangible benefits is a major challenge. Security and privacy are important issues in the B 2 C area. There would be user resistance and lack of trust, as the customers do not know the faceless seller, and are uncomfortable with paperless transactions with electronic money.

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26 http://jmc.indiana.edu/vol5/issue2/hairong.html
To sum up, in this chapter an attempt is made to present the concepts relating to the evolution of e-commerce and differences between the traditional commerce and EC. It has also highlighted how modern day corporates (both national and multi-national) are using EC for expanding their business avenues across the globe by overcoming the problems that they face otherwise in traditional commerce mode.

This chapter has also presented many definitions of e-commerce given by various researchers / agencies. The greatest advantage of EC over traditional commerce is personalization and customization. This chapter also presents the various classifications of EC based on the nature of transactions. An attempt is also made to cover aspects relating to portals, as they are means by which EC organizations reach out to the customers. The various business models applicable for EC are also presented in this chapter. The EC process is also presented in this chapter. This chapter also covers the aspects like payment gateways, cyber crime and information security, etc. This chapter also presents a review of Information Technology Act (2000) and its impact on EC in India. This chapter closes by explaining the benefits and limitations of EC.