

CHAPTER 8

ICT TOOLS AND E-COMMERCE

8.1 Introduction:

If it said that internet has changed the mind set of customers where the information is just a click away then it will not be unbelievable. Tremendous and exponential growth of World Wide Web has enhanced the portfolio of the market. And most importantly it has spread its wings in all defined domain. Irrespective of the status of sector whether it is organized or unorganized. Unorganized has the huge percentage and that is retail. Since the economy observes impact of web technology and hence the commerce. Here only the era of e.-commerce begins. The expansion and growth of commerce depends on web technology. It means commerce and web technology ie ICT are related with each other. However Guicheng and Xiuzhu (2010) and Chunhong and Li (2011) had mentioned and discussed the ICT introduction in E-commerce in their research as well.

An Example:

Let us understand the meaning of e-commerce. Karl and Kagneck (2000) had proposed similar methodology for information retrieval and indexing of information. The information retrieval has been always a big challenge for the system. The conventional commercial system was based on physical transaction. Now consider the case where buyer has facility to get delivered a product of his choice without visiting the shop. This is one point. Another point is buyer does not need to pay for the product by cash. Now if we integrate these two points a new sense of shopping emerges. The transactions will take place through some banking gateway with online payment and the buyer will be delivered his product. This is different from conventional transactions which were seen till date. If go little further in e-commerce unlike conventional commercial system the buyer is capable of having information about all the products he is interested in without visiting the shop and that too quickly. Oh! What a new trend it could be. The point is everything is available on web and life is letting you to choose any thing you like. That's e-commerce. It has crossed all boundaries and set a definition called "Globalization". Ultimately web technology or better say Information and Communication Technology has taken the commerce to a new height which will never fall down.

Lets come back on technical issues. Lawrence et al. (2002) proposed invention which is directed to an enterprise management integration tool for providing a centralized repository for storage and processing of information related to the execution of the enterprise management functions. Enterprise management integration tool means ERP(Enterprise Resource management) enable tool. ERP being a big challenge in the industry. Actually in this we try to develop a tool which connects and ultimate integrates all the related entities in the organization so manage and utilize all the resources optimally.

For instance in an Engineering Institute departments like academics, examination, library, placement, research, administration and accounts all are integrated in a system where all can communicate for better utilization of resources available. Suppose placement department has to avail the conference room to conduct a meeting then while allocating the conference room there should be no conflict between two departments and it should allocated to all such that optimal utilization of the resources should be observed. ERP is totally IT enabled and only for the better utilization of resources. It overcomes all the traditional hindrance which comes across for resource utilization. A Bann tool is available for ERP implementation which is globally very popular and efficient.

Further with the growth of e-commerce a huge market of online business comes up with tremendous opportunities for supply chain and management. More specifically logistics has huge scope to grow. It allows buyer to opt for varieties and great deviation is there. On single click a buyer has many options for a product unlike conventional commerce. Here it needs to mention that the product is purchased on the basis of image of the product. Since more options are there hence there is an increment in probability that the buyer will return product if he is not satisfied with the quality. Return operations may be growing due to more and quick options are available. So it increases the rate of return of products and therefore reverse logistics. Reverse logistics has also tremendous opportunity in e-commerce to grow and participate in return management. As organization never likes to let the brand spoil. This is just to mention the importance of return management in supply chain.

Question may come up why do we need to have a consistent return channel?

Answer is if the return channel is absent or not sufficient then there is probability of customer to give up use of e-commerce. It will directly affect the brand and the financial institutions who are depending on e-commerce. It is known that many organizations which are part of e-commerce

emphasize on reverse logistics to achieve customer's satisfaction, brand making of product and reduction in cost. As it cannot grow without support of supply chain and specially return management.

A typical layout of e-commerce is described below. It is of two level. In the core all enterprise enablers like design, development, process and transportation are placed. The consistent enterprise management system ERP, Sales and purchase order system and inventory management are connected with enterprise enablers through world wide web ie web technology.

At the last level files, data storage technologies and applications are placed. Now the client can interact with enterprise enabler and the notification would be sent to first level and last level simultaneously. From here client can be guided for further processing.

Now we take the domain of reverse logistics. The discussion is carried out with the focused area of south East Asia especially China. As stated earlier also the reverse logistics cannot be ignored in e-commerce. Whatever technology the reverse logistics has needs to be revised or improved. Even in some finding it has come out with certain innovative ideas that how to optimize it.

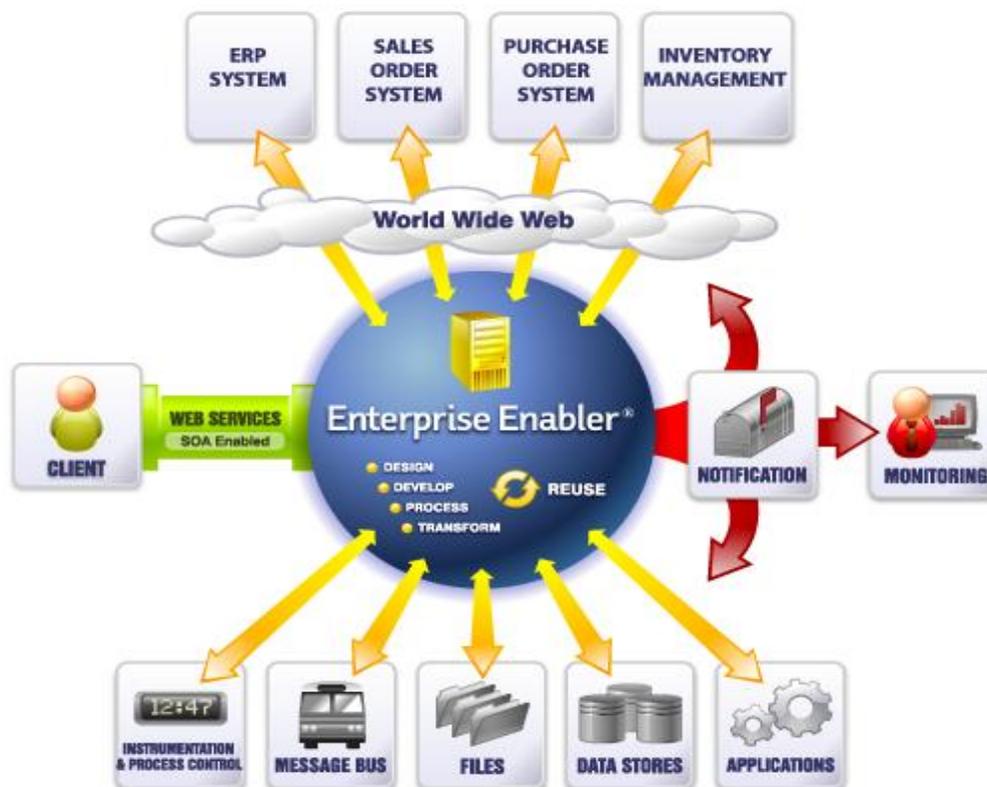


Figure 8.1 Typical layout of E-Commerce

- The first invited idea is to inculcate the importance of reverse logistics to business. It must pull attention on the process. Since the supply chain and management and then after reverse logistics has a well defined procedure where all entities like suppliers, distributors retailers etc have well defined roles. The management should conduct proper coordination with all the intermediate entities. Coordination counts nothing but information management. Enterprise should acquire this with less time consuming methodology so that all logistics related activities should be furnished with the protocol of information system. Protocol includes feedback system from customers, business analysis, forecast activity etc. It has also the working timely constraint. A philosophical statement is organization being never good or bad. Its all about the people who work within make it good or bad. In the same way awareness is to be created among staff members that the importance of feedback and role of quality of product. It will a guiding factor for the business to expand in all related sectors.
- Second idea may be proposed as zero return policy. Most of the cases it has been observed in those companies opt for sale of the products for stock clearing. It comes mostly in off season. Idea is to sell products which have low cost and the product which has no utilization for the company. It is also called one time sell. Here in this case if business and customer's for return they will lose much. Company is offering discount on the products which have low quality and it is known to customers. There would be feedback and no improvement on feedback. Because the sell is not for brand making, sell is to clear the stock. Hence company will go for one time sell. A zero return policy would be followed. Advantages would be no dispute between customer and company as quality is not concerned. It will reduce cost of reverse logistics. Even if the product does not satisfy the customer no economic compensation would be offered.
- Third idea is all related with the human resource and development. The need of skill based people is always there in industry provided they are being paid well. Advantages of skill based employee are they can negotiate well. A trained seller can help a customer to choose the right product out of options available. An experienced and trained staff can manage the dispute between customer and the company. It is not company who handles the dispute off customer but its staff or representative of the company. Now if we see technology wise staff must be aware with the technologies which are being used. Staff

should be capable to make system fault tolerant. Fault tolerant also includes trouble shooting in hardware or software. In reverse logistics in most of the cases company miss to train or hire skill based people which is unfortunate. Reason may be the need of reverse logistics is very hard to be adapted. Since the cost is involved in this process and there is possibility of cost reduction through hire skill based. So this is the area where a company may work upon.

8.2 Concept of E-Commerce

The e-commerce is conceptualized with bringing the market on web portal as remarked by Jia et al. (2009). These markets have elements like conducting transactions, behavior of customers, sharing information of business and maintain relationship between customers and business. The functionalities of all the elements are carried on communication network. It also puts efforts on ethics of business. But the e-commerce does not justify the marginal difference between ethics and legality.

The e-commerce classified in three major segments.

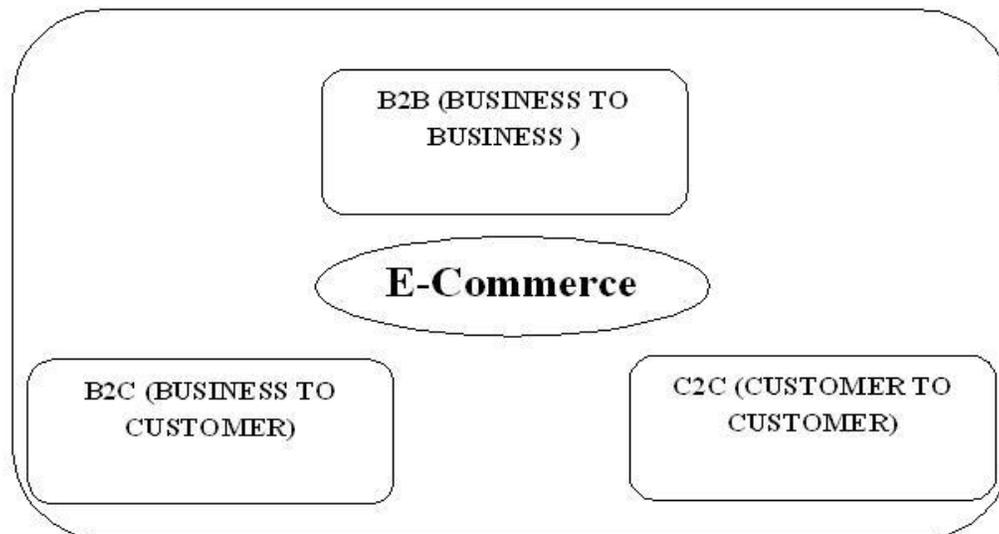


Figure 8.2 Three entities of E-Commerce

- **B2B (BUSINESS TO BUSINESS)**

When two organizations come together to associate and follow common agenda then it is called Business to Business e-commerce. Technically one organizations observes the market and seeks association of another to pull up the performance index of the company. For this organization tries to approach another one with either similar needs or similar goals. Certainly this kind of association reflects the target on the venture. For example a company of software development may need to install a huge number of personal computers and subsequently a computer manufacturing company may be approached to supply computers. If deal gets finalized then deal will be considered as Business to Business model. This deal may seek further any kind of tie up too for mutual benefit. The association may be activities related to product and its reach ability to customers. Here all the rules and regulations are implemented at the organizational level. Merger of companies is an example of this. The technical issue involved here is the platform on things is done. Organization's common agendas discussed and try to find out the feasibility of all concerned areas to be dealt with. Like forecasting, predictions etc are done with the help of ICT tools.

- **B2C (BUSINESS TO CUSTOMER)**

In this category the organization deals with the individuals. The ICT involvement may be observed on the surface of it. Before discussing this let us take an example in conventional commerce where a buyer goes to traditional market or “**haat**” (this terminology is used in villages) where buyer visits so many shops to perform a transaction. It may be in form of retail purchase or whole sale transaction. Here the buyer may directly deal with the business company. Progressively in e-commerce where a buyer visits the online shop of any manufacturer and places an order. After the payment through gateway is over the buyer deserves the product to be delivered. It is perfect example of business to customer e-commerce. Even in case of return management the customer is dealing with company so its customer to business e-commerce. In both the cases the ICT has deep penetration.

- **C2C (CUSTOMER TO CUSTOMER)**

To understand it lets take an example. In conventional commercial system in small town a vegetable vendor (of self cultivating veggies) installs a small shop. Customers use to buy his vegetables and pay him on the spot through shop. This is an example of customer to customer commerce. Here veggies vendor is neither answerable to any third party nor he is depending any supplier. In another example from a metropolitan city, an seller puts an

advertisement about a product to be sold out. Some buyer visits the portal and comes to know about the product. Hence though this computer network communication medium buyer and seller meet and let the transaction take place. The mode of payment may be cash or customer to customer through cheque or online fund transfer. This is example of customer to customer e-commerce. Interesting point is that in former case there is no scope of return but in later the stage of transaction will allow the return of product.

Applications of E-Commerce

This undisputed technology called E-commerce has spread its wings to so many domains where we can observe the direct interpretation. Basically where ever we can see the computer system is installed for commercial purpose and it has connectivity with web technology, e-commerce has penetration there. The information made available from web portals like www.ebay.com, www.flipcart.com, www.olx.com etc. Whether we consider the example of life style of human being or the back end processing having impact on the life style. At microscopic level like ticket reservation system, billing of electricity, billing of telephone billing of water or gas transportation every where it has been interoperated.

Few examples are listed below:

- Retail sectors
- Sites for auctions of goods
- Business with cooperating sense
- Financial Institutions in E-commerce eg. E- Banking:
- Online Ticket Reservation
- Online bill payment facility
- The concept of webinar
- Publishing in the e-commerce era
- Taxation related operations.

The detail discussion is done further.

- **Retail sectors**

When any organized retail store is visited the availability of commodities like house hold, stationary, food commodities, life style equipments may be seen on top. The visit, selection, purchase, billing, return this all process is being done electronically. Even without physical customer can enjoy the ownership of commodities which are retail store

by paying and getting delivered at door step. The return process can also be committed with the same technology. The retail and it related activities are discussed already and few more technological aspects would be mentioned ahead.

- **Sites for auctions of goods**

Earlier the auctions were organized with physical existence. It means if anyone has to participate in auctions then the participant was suppose to be present in the process. Now in e-commerce the scenario has been changed. Person can participate in the auctions even being remote. All he has to do is to register himself for the auction and raise the call online. The acknowledgement can be sent through e-mail technology. Here directly there is no inference of return management. In auction any one withdraws the call to get nomination cancelled. Other way round the return management can be observed. Few popular auctions are as below:

- ❖ Auctions for jewelry
- ❖ Auctions for belongings of any dignitary
- ❖ Auction for historical materials
- ❖ Auctions for tenders
- ❖ Auctions for players in league matches like cricket.

- **Business with cooperating sense**

If any organization comes up with some idea to do a business at a specified demographic area then it is not only about the organization specific but it is very much concerned with the competitors who are in standby mode with respect to that organization. Let us take an example. Suppose an organization O has a launched product and has a cost tag with Rs. 10. Now all the company having similar products with equivalent quality should have maintained the same cost tag or within a defined threshold. It is not like that a company will sell his products in just Rs 3. We can say it's a kind of monopoly which is understood to all companies who are doing business. In short the business has to run with mutual cooperation. Now what is the role of ICT here? Firstly the costing of the product with discussion would be decided and will be circulated or communicated by web technology. The information should not be delivered by physical human effort. After this on the basis of the popularity or rejection sense (feedback given by customers) the cost be decided accordingly and again this would be convincing to all related entities. Any

update if takes place the information would be circulated and forwarded to all through web technology. So here the role of ICT can be observed even in cooperation for business among organizations.

- **Financial Institutions in E-commerce eg. E- Banking**

Actually the financial institutes like banks, cooperative banks, assets managements companies, insurance companies etc predict and watch at tremendous scope for application of e-commerce. Let us start with an example with typical banking. The information is taken from the portals www.ndsindia.com, www.onlinesbi.com. Earlier when we were in conventional commercial era suppose a customer has an saving account in New Delhi. His relatives are staying at Mumbai. Suppose there is an incidence where the customer's relative needs some monitory help. The customer can do so. What he will do is in that system, he will go to a bank and request to a bank draft or pay order in his relative's name. After getting issue that bank demand draft the customer will dispatch that through courier or government postal service. Now calculate how much time the process of amount credited into relative's account and over head the customer had to take? It will take at least 3 working days to credit the amount into relative's account. The next scenario is present scenario. All financial institutions are connected globally through Centralized Banking system (CBS). Any bode can access his account from anywhere and can operate too. So it will take a few minutes to deposit money in someone's account and immediatly the account will be credited. Apart from this the bank has also offer the net banking services to its valued customers. It means customer can transfer the fund from his account to any other account by himself within few seconds. It is game of just a click. So how simple and easy the operations are in financial institutions. Clearly the role of ICT can be observed in this case. Like this there may be numerous examples where we see the ICT has been penetrated. In fact in present scenario if bank will offer services without ICT none of the customers is going to visit the bank. It has become the wheel for the financial institutions.

Few Financial institutions are:

- ❖ Financial Banks
- ❖ Insurance Institutes
- ❖ Assets management company

- ❖ Mortgage institutes
- ❖ Chamber of commerce
- ❖ Planning commission
- ❖ Budget department
- ❖ Federation for commerce
- ❖ Stock exchange
- ❖ Trading company
- ❖ Investment management company
- ❖ Treasury

- **Online Ticket Reservation**

Actually it is being always very convenient to describe anything with the help of an example. Again consider the era of traditional commercial system. Lets consider a passenger who has to travel by train. What all he will do is he will go to the train reservation counter and put an enquiry that whether ticket is available for the train he looks into. If the ticket is available then it will be booked into his name. now see the overheads. The passenger had to stand in long queue. Even after standing in queue and wasting so much time if the link of reservation system fails? All efforts goes waste. Even after standing in queue and wasting so much time if the tickets are not available in the desired train? All efforts go waste. Now come back to present era where we have ICT enabled online reservation system. Now if a passenger wants to travel and needs a ticket to be booked or the train, unlike earlier what all he will do is, he will visit the reservation portal. Passenger will scan the availability of tickets in all concerned trains and after that by self he can fill a form and book a ticket. The payment can be made through some gateway of registered financial institutions. Advantage is no link fail because the system is quite robust, no queue and ultimately no overhead. The return policy is again very simple. It will ask for the same procedure and just a click will do the cancelation and account would be credited with eligible amount. Same procedure is followed in all categories of travelling. Few are as follow:

- ❖ Online Rail reservation system
- ❖ Online Air ticket reservation
- ❖ Online Tour & Travels

- ❖ Online Hotels reservation system
- ❖ Online yatra

- **Online bill payment facility**

Actually it was a wish of customers which came true in real world. We may imagine a situation when we need to stand in a long queue to deposit the bill of electricity, water, telephone etc. In the present era of e-commerce all the above undesirable circumstances have been disappeared. The ICT tool may take the credit which felicitates valued customers. One needs not to stand in long queue to deposit the bills but can stay at home and through web technology it can be furnished. It is joint efforts of ICT with financial institution which have enables valued customers to enjoy this kind of service.

- **The concept of webinar**

Let us first consider the term “Webinar”. Many are not so much familiar with this term. The term comes from seminar which means group of intellectuals who have come or gathered for a common academic or professional goal. Traditionally people participate in seminars, workshops, conference etc. They all participate physically and interact as well. The ICT has enabled these people to join each other and interact with each other as well on some common platform. This platform is made available by ICT. Advantage is no one needs to go to some place and physically present there rather any one may log in to specified portal and subsequently rest of the people will join that. This way an interactive session may be organized. This is also called virtual meeting which allows us to present at some specific location right form our seating place.

- **Publishing in the e-commerce era**

Categorically this technology has a very significant role in academics. Philosophically the vision of any publication is optimal reach ability to its valued and intellectual readers. Earlier the publication houses used to publish the journals, magazines, newsletters, articles, research papers etc on hard binding. Then it was supposed to dispatch to individuals or registered institutes or vendors, distributors or retailers. After that the end user could get it. This was the tradition the market had at the earlier time. Now in the era of e-commerce everything is done online. Let us talk about the journal publication house. It invites papers though online

or through mails. The papers would be sent for the peer review through mail. Or the reviewer can review the paper with some authentication through any specified portal. After the review process is over the selected papers would be published on line. More specifically all the users, institutions or readers are able to access with authentication online papers. The overhead is over now. Unlike earlier in convention commerce no need to go to publication house to pay for the journal. No need to wait for the vendor to ask for latest edition. All information is in your mail or on portal. Most importantly the cost is reduced as there is no paper work involve. No publication in hard binding. It saves deforestation. Save tree use internet. These publication houses work in following areas.

- ❖ E-books
- ❖ Magazines
- ❖ Journals
- ❖ Newsletters
- ❖ Articles
- ❖ EPUBS
- ❖ Blogs
- ❖ News papers
- ❖ Podcast

- **Taxation related operations**

It was Albert Einstein who had said once “For a science student its very difficult to understand taxation system”. In reality it is true. Here also we can see the introduction of ICT. The role of ICT to make things simple not difficult. Again let us compare both commercial system ie conventional and e-commerce. Generally there is an organization who is responsible for the taxation has calculation of all earning and expenses of an individual or an organization. Every single paisa is calculated. Let us consider the case of return the file of tax. Earlier what a tax payer used to do is the tax payer visits the income tax office. There he could ask for a form in which he is supposed to fill all his income, earning, saving and expensed details. After that the tax payer calculates and refund he is eligible for and then e will file it physically. Even if there be any mistake at initial level the file of return is

accepted. At next level during evaluation auditor may point out the mistake and tax payer can be informed through post. Now in e-commerce the income tax department has prepared a portal through which tax payer may file the return with authentication for which he is eligible. Unlike conventional commerce a filed return will be accepted unless it is filled correctly. Its calculated. This is penetration of ICT in e-governance. Actually this is an example of return management like reverse logistics in supply chain. Like in direct logistics e-governance allows tax payer to pay tax in advance in service sector. So advance tax payment has resemblance with direct logistics and filing a return has resemblance with reverse logistics in supply chain and management. The e-governance portal allows following additional operations to be carried out:

- ❖ To file a return
- ❖ To pay advance tax
- ❖ To settle any dispute over tax paid.
- ❖ Tax claim on previous payment
- ❖ To pay service tax for the organizations etc.

8.3 Advantages of E-commerce

- **Cost reduction in processing of an order**

It is remarkably important to mention that placing an order online costs just a click away. How cost is reduced that's an important question. It is because of elimination of physical presence of the customer and complete elimination of over head which was associated with the customer at earlier days. Technology has made it quite easy, simple and user friendly. It is very easy to understand even for non technical person. We may think on commercial advertisement also that a buyer visits a web portal of some specific product makes a choice of the product then starts comparing that with rest available products. And ultimately after comparison the buyer performs the best deal and puts an order. Here the buyer neither visits the shop physically nor taken advice from the sales man and made a choice of his own and gets satisfied too. This is classical effort made by ICT to get connected and makes customer happy.

- **Transaction and exchange between customers**

A person who has a wish to run a business but he does not have physical space to launch a business may go for his wish with the blessings of ICT. That person can certainly hire a

space on web and start his business. On the basis of advertisement and good managerial skill he may run it smoothly and get spread it worldwide. Since he does not have that much portfolio to launch a company hence in e-commerce he would be treated as customer and will be doing with customers directly. Scope of return is very less as it will spoil his trust value in the market. But of course he can have an opportunity through ICT to execute the concept C2C business.

- **Anywhere, anytime transaction**

An user is all the way travelling via train. Suddenly he gets call to go somewhere by train again on some other date. He does not have much time to reach at immediate destination first then book a ticket for next journey. He also does not want to take a chance to wait for more time as there a possibility that tickets would be sold out. The options left for him are, one he may cancel further journey due to not booking of the ticket second he may ask someone at the same time should rely on that person to book a ticket and the third option is he has network connectivity with him. He can book the ticket himself. The option is well appraised. The bottom line is ICT provides us opportunity to avail the facility of web technology and service providers round the clock. There is no as such timing for the services. An order for a product to be purchased may be placed any time. That's the beauty and utilization of ICT. Lastly why it is available round the clock? The reason behind this is it has global functionality and in the world some time somewhere its is working time so people are working round the clock hence service should be available round the clock.

- **Comparisons allows cost optimization for customers**

In conventional commerce if a customer is visiting the retail store or market to purchase a product the customer has limited options available. As in the physical are the stock is limited. In that the cost factor is very crucial. The customer has limited option hence he needs to take a decision from that segment only. No much option for cost comparisons. Now in the era of e-commerce system where the customer has a virtual market available on portal and at the same time various service providers so he may opt for the best and suitable ones. He can go for a comparative study of all offers made by the service providers. It may cost optimization to customer. Here the role of ICT makes it advantageous. If we consider the situation where return is possible, then here also the

reverse logistics are feasible with ICT. We cannot openly talk about if the case comes to C2C enterprises and the reason being the small active domain of C2C enterprise.

- **Global reach ability to clients of enterprises**

Before start discussion on this topic let us see the opportunities for enterprises to expand it. The expansion of business is possible when it find market. Market is available everywhere and the liquidity is present at any point of time. Market is driven by the needs. It is important to mention that the needs can be fetched anywhere but gap comes with the not reach ability of the service provider. If customer needs the service at midnight and service provider is unable to serve the need the expansion of enterprise if not possible in the specific area. It is an example at small scale. If we see this at large domain it becomes the extension of one enterprise to another business enterprise. In global connectivity the distance is being not a problem. Only aspect is the mode of operability of the system. Briefly it can be say that the Indian origin company may find the market at South Africa and provides it services to customers of South Africa. Like this the company may become a global company with global services. This all can be possible only with the help of ICT. Similar operability may be observed for the services in return management.

- **Immediate financial transactions are possible**

It is already mentioned previously that e-commerce provides facilities to valued customers to use bank services optimally. When it comes to enterprises the same is equally applicable. Suppose two or more enterprises come forward to conduct business together. Most important element in the business is finance or capital. A service would be offered to service seeker only if the service seeker is eligible in terms of finance. Since the methodology is global now hence physical reach ability is not required in this case. The service provider has its own terms and conditions with respect to services offered. Whether it can be prepaid or post paid. All it means is the services offered are paid and would be delivered after financial eligibility of customer. It would be delivered as quickly as the payment is made. Since system is global hence the payment can be made through any gateway associated with some financial institution. Actually it is as easy as the availing the services are. It is implemented by ICT.

- **Complexity, speed and cost are justified in SCM**

Since the ICT deals with time and space complexity in principal hence whatever design or proposed should be very much relevant. In theory of computation whenever any technology develops it always examined on two parameters.

- One is time complexity
- Second is space complexity.

Then only it gets commercialized. It is also because technology always has a very close association with the commerce. If anything is technically feasible then to introduce it in market it needs to be commercial feasible too. ICT deals with all the speed of processing. And at the same time the space should be conserved. The technology takes least time to retrieve the information of a product, the time complexity is justified. Without having a physical presence of the store a vendor can run a business, space complexity is also justified. Same procedure if it comes to return management. In short it can be said that the ICT enabled supply chain is relatively fast with compare to conventional commerce and it takes less space too. Now let us talk about the cost involved. As discussed earlier also the cost comparison takes place as more are options available for customers. Hence customer needs to pay optimal sot for an offered service to be availed. Technology makes the complete supply chain and management cheaper and fast.

- **More options are available for customers in chain**

Sibo (2012) and Sheub C Dennis et al. (2002) collectively put the philosophy of this application. The moment customer puts an order he gets associated with the processing of this. ICT enabled supply chain provides a facility to customer to continuous follow up the process. Suppose a buyer has to purchase a product. The very first thing he will do is he start visiting couple of online portals where the information about the product is available. He will scan all related details of the product. Then after this the buyer will optimize cost. After cost optimization buyer will select optimal cost of the product. The best suitable cost will be placed as an order to purchase the product. After the financial agreement is done product will be in process to deliver. If the product which is shipped from far location it will take some reasonable time. Meanwhile customer may use the advantage of GPS to trace the product. It means buyer may come to know what the current location of the product is. How much more time to deliver it? What is the status of the product in term of damage etc? With this facility the service provider has be more

attentive as far services offered are concerned. ITC also enable literacy of IT rate among valued customers.

- **Update at Production Site for the supplier**

In government policy the information should be made available to all its stake holders. It comes under right to information. It also means the service users have right to know about services as it is being pain. Ethically ICT plays a role to make system more accountable.

Table T2 Hierarchy in E-commerce System

Virtual LAYERS	SERVICES ASSOCIATED
Application layer	Business to customers, Customer to Business, business to business.
Middleman services	Hosting, gateway services, authentication
Security messaging	Cryptography, EDI, network security system
Web technology services	XML, HTML, OLE, HTTP
Threads of software	Virtual network, local net, worldwide net , extranet
Physical layer of network	Routers, LAN, Bridges, PSTN,

If a customer placed on order and it is of large scale. And suppose it will a long time to deliver it. In this scenario the customer has right or other way round it ethical duty of service provider to allow customer to update about the stages involved in the production of the product. Customer may have a vision to customize the product while it is in process of design. The transparency is another which is involve with the process. It

makes customer more aware and service providers more committed to wards the brand making of the product. Now what is the exact role of ICT? The service provider may update customer through ICT about the stage wise development of the product. It can be done through text updates via mails, chat, facsimile, video conferencing, teleconferencing. Now days the concept of video conferencing is very popular and efficient.

8.4 E-Commerce Tools

Teresa M McCarthy et al. (2002) mentioned that the characteristics of e-commerce provide space to enable tools in this domain. The e-commerce technology has tools which have been operating in the domain of supply chain. These tools are effectively working on every stage in the chain. Electronic data Interchange is a thread which has implemented on web technology very successfully. It is an example in Information technology that let the data transfer take place between connected machines. The transfer of data is done through the TCP/IP protocols. The protocols are five suite and has supports the data transmission across all five layers which are defined on the TCP/IP. The tool electronic data interchange is cauterized at three following levels.

- ❖ EDI Specification
- ❖ Electronic Data Interchange
- ❖ EDI Standards



Figure 8.3 Major tools of E-commerce

8.4.1 EDI Specification

The specification of EDI puts huge transaction sets related to each category of correspondence. It may have the transcript like purchase order, business invoice and related documents. If we talk about the database it defines the attributes of all databases. It clears the segments of the database as well.

8.4.2 Electronic Data Interchange

There is a well defined documented system as far as transactions are concerned in supply chain. Whatever documents we prepare need a format in which the data is to be processed. The data entry should be done in a way so that computer can read it. The documents type can be purchase orders, invoices, receipts, acknowledgement etc. since the organizations are connected logically or virtually hence these organizations communicate on the basis of these documents. The working model is Business2Business (B2B) in commerce. Now we see the logic behind the technology. Why do we need to implement this web technology? Since it is speedy and error free. Manual entry may have some chances to be associated with certain errors which cannot be ignored. The machine if programmed shows guarantee to not to perform any error. Hence it's a need to inculcate mechanical input and remove human effort. Another important point is since

organization are communication with the documents hence it is necessary to have a common agreement that these organizations should follow a well defined commonly acceptable format in which data would be exchanged. EDI also provides standards to all concerned organizations which are exchanging data with common format. It has two distinguished forms or standards are available in e-commerce to be used by organizations. One more possibility is there through which it can be extended to use XML (Extended Markup Language).

8.4.3 EDI Standards

American National Standards Institute had proposed a standard name ANSI X.12. This standard was used in data communication network. The model was interpreted in business to business commerce system. United Nations Economic Commission (UNEC) for Europe for international trade (IT) had also proposed a standard called Electronic Data Interchange For Administration Commerce and Trade (EDIFACT). The standard was introduced globally and being used too. In Indian scenario this EDIFACT standard are implanted in e-governance system. The departments which are using these technologies are defense, finance, excise, custom, taxation, trade etc.

8.5 Security Issues in E-Commerce

Transactions take place at e-commerce in organization are of two types:

- Within the organization (intranet)
- With the organization (Internet)

Transactions can be in any form of application which is taken up in organizations. For the internal processing if transactions carried out it will be within the small network, i.e. within the organization. That is example of intranet. On the other hand if many organizations are communicating with each other then it is in internet. Hence internet and intranet there are two categories. Intranet may be used to maintain company portfolio and internal documents. Of course the security may be chief concerned for data and network. Actually there is a need of security to be imposed on confidential documents and authorized accessibility. For example if any company has received any to be processed then it is important to reveal the information

about the request sender and his identity. When it comes to security for the ICT enabled company there are two chief issues are concerned with security.

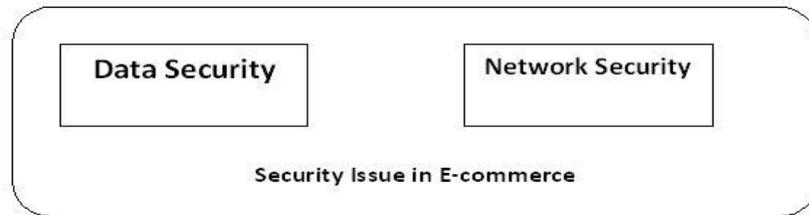


Figure 8.4 Security Issues in E- Commerce

Firstly the network security. Organization a part of the communication and computer network should enjoy the status of security. It is all about the secured network. It means there should be no unauthorized request to come into network. There should be no threat to spoil the network. Accessibility should be protected in network. Now the second mode of security is data security. Let us take an example to explore the idea. If there be transmission of data from sender to receiver. Say the sender send a data called “AAA”. At the receiver side the data should be received exactly “AAA”. It should not be anything except “AAA”. If at receiver’s side data is received other than “AAA” it means data is corrupted or interpreted. The transmitted data is not secured. Hence to transmit the accurate data and to receive the same. Briefly the data should be secured. And this is applicable in all application of web technology. Unauthorized access and data security is being a challenged for the network right from day one.

8.6 Security of Networks

As discussed earlier also the security of the network is very important. There should not be any unauthorized access is allowed in to the network. It also secured the infrastructure. Following are the threats which are recognized as infecting elements for the network and to be denied. The classification of threat is called STRIDE and is done by the software company Microsoft. The classification is as follow:

- Spoofing
- Tampering

- Repudiation
- Privacy breach
- Denial of services
- Elevation of privilege

Further the same company has extended the above issues. The security threats which have rating of risks are put in five categories. It is also called classification model. It is better known as “Model for Risk assessment”

- Affected users
- Exploitability
- Reproducibility
- Damage\
- Discoverability.

There are some threat communities also by which the network needs to be secured. These communities are in two categories. First is internal second is external. In internal community the network of the organization has put a code of conduct which would be followed by all its employee and administrator. Internal threat community has following elements:

- Contractors/ vendors
- Employees
- Partners

The community for external threats has following agents:

- Virus
- Non professional hackers
- Spies
- Cyber criminals
- Malware
- Activists
- Nation state intelligent services etc.

Above discussion needs to explore the idea of the need of the security. The security threats having many disadvantages and the methodology to remove this have many advantages. In the upcoming sections we are going to discuss the technology through which the threat may be denied.

8.6.1 The Firewall Technology

It is a hardware security device which is installed at the outer layer of the organization. Basically it covers logically the organization with security. Role of firewall is to provide connectivity between company's intranet and web world. It also put a barrier on incoming data traffic. This is done through traffic engineering. Basically the incoming traffic gets filtered and then after it reaches to users. Traditionally routers are the place where the firewalls are being installed. These router allows packets (datagram) filtering for security of networks. There are packets which are based on specific characteristics. These may be:

- IP address of destination or source
- Routing of traffic through traffic engineering
- Time bound
- Accessibility mode like telnet, mail server.

8.6.2 Application of Proxy Gateway

Typically proxy means anything which is false. In execution this technology has the similar meaning. In case of communication network proxy is installed on firewalls. It is a program on security of network. It runs on firewalls. The functionality of proxy (server) is from user's side so that it creates a waiting queue of users to work on internet. Monitoring of all incoming requests is done by proxy (server). Only nominated requests from outside will be acceptable. It will put a barrier on network browsers. It has also responsibility to block all those applications which have protocols leaks. In extension to this the program (application) has provided the facility to let user browse internet who secures authorization.

8.6.3 Application of Proxy Gateway with Firewalls Hardened

It acts on behalf of the user but not in real. Then how can it perform? We need to understand the virtual philosophy of ICT. The concept is virtual. A firewall machine may have authorization not actual but virtual. The authorization can be assign to the firewall machine including id, password etc. The firewall is now proxy server. It acts as server to the user who has sending request from user's PC and at the same time it is acting as client if it raises a request from user behalf. So here it has two roles and both virtual. As the server is proxy hence it has to have some proxy agents to respond to request. The request

may be from protocols like Telnet, http, ftp etc. At this stage being an initiator of sessions the firewall has information about all the activities hence secure the system. It maintains secrecy of the network too. A proxy function is taken up, and the address of source is replaced by IP address of firewall. It results the IP addresses of the organization's computers are hidden. This way it may achieve security and secrecy.

8.7 Conclusion

E-commerce has pulled up the conventional commercial system. Whether it is government working culture or in private sector. Every where the convention commerce is upgraded. The domain of e-commerce like cloud which super imposed across globe. It's a good indication as far as economy of the nation is concerned. Now if we see the reason or the parameters which have been acting for this promotion of commerce is then the fact which comes out with pride called Information and Communication Technology & Network and communication Technology. There are certain tools in the e-commerce which are driving force of the system. Tools are better known as web technologies tools HTML, EDI/XML, Java etc. These are also platforms which provide support to numerous threads to work upon. These threads are alone and work in limited application. When the connectivity of all computer system is discussed the strength of these threads are phenomenally increased. Actually e-commerce enjoys the status of success when it is in web technology ie communication system. Especially data exchange and information sharing. With this progress the wings of e-commerce is likely to expand more and that too with consistent systems.

A Case:

Two dynamic entrepreneurs named The Bansals are well recognized in the world of E-commerce. They have pulled up the conventional commercial system form market and given this to a new shape. This is called online marketing and shopping facility and venture is named as flipkart. Now it is India's one of the most visited online shopping portal. The phenomenal website was launched in and shown a revolution to the market. Of course the people who are IT literate have given this to new height. The significant features of this portal are like inventory management with efficiency, covering doorsteps quickly. The unconventional feature which has attracted people of Indian market is cash on delivery. It has changed the mind set of buyer through IT. According to the article published in news paper called DNA Mumbai edition, the

company is able to touch the bar of \$200 through venture in the current financial year 2012-13. It has pulled the market value of the company up to \$380 so far. Current scenario says with ability of IT company has 10lacs visitors daily and more than 95lacs registered users.