

Factors affecting the growth and Needs of Electronic Commerce

- 1) **Supply chain coordination** – Due to supply chain coordination money can be saved by the availability of the material and for this companies should maintain proper internal IT systems to get the benefits of e-commerce.
- 2) **Global sourcing** – Global sourcing creates more capacity, which causes a temporary excess of lower prices and for this there is a need of finding global suppliers especially for custom fabricated products.
- 3) **MRO** – Online MRO purchasing reduces transaction costs. For this it is needed to utilize a software to connect corporate employees with vendor's catalog.
- 4) **Price Monitoring** – Companies want close relationships with vendors, but at the same time want to monitor the prices. For this companies need service to provide pricing information for both catalog and custom fab parts.
- 5) **Security** – Security is needed for growing volume of transactions and rising price tags. But for this greater security is needed for orders, company information provided to vendors and payments.
- 6) **Minimizing Up front cost and Risk** – E-commerce needs substantial investment with substantial risks. It also needs cost and time for completion and functionality. For this company need to pay per transaction or per month with low up front expense and risk.
- 7) **Extranets** – It is the need of the companies to make production plans and capabilities accessible to vendors and buyers and not to competitors. Use of extranet can solve this problem.
- 8) **Pushing ecommerce to less sophisticated buyers** – Here technology resistant buyers will accept convenience while convenient technology will be used for less sophisticated buyers for e.g. kitchen counter scanners.
- 9) **Growing internet usage** – For this e-commerce will grow both in number of users and their intensity of use. For this it is needed to grow internet infrastructure which needs routers, bandwidth, computers and appliances etc.

Prospects of Electronic Commerce

- 148 million people are online and the figure would increase year by year.
- In 1999, 100 million shoppers are expected to spend US dollar 15 Million in the cyber market space.
- The areas which will be growing are financial services, entertainment, travel and groceries.
- Returns from e-commerce depend upon how the processes are being influenced by e-commerce.

Recommender systems in e-commerce

Recommender systems are the systems in e-commerce which help in information processing and allow the customer to choose the product according to their needs. For the real world this is impossible for the physical market but in e-commerce it is possible. This systems help in suggesting the products to their customers before purchasing the product. The product is suggested depending upon the top sellers on the site and the demographics or the previous buying behavior of the customer upon which it will decide the future behavior. Recommendations of forms include product suggestions for the customer, product information of the required product, summarizing community opinion and then providing community critiques. This systems help to analyze the recommender systems at six market leading sites. Recommender systems are the systems which help in customizing the products according to the product needs of the customers to sale them on the website. . Recommender systems are similar in some respect and are different than marketing systems and supply-chain decision-support systems. Recommender systems which make use of computer are called as *automatic recommender systems*. The examples of the recommender systems are **Amazon.com, Drugstore.com, and MovieFinder.com**. E-commerce sales is increased using recommender systems in three ways –

- 1) **Making website useful for sales:** Visitors only look over the site to see the product information and do not purchase anything. Recommender systems find the product of the choice of the customer.

- 2) **Increasing cross sell:** Recommender systems increase sales by suggesting additional products to the customers.
- 3) **Building faith:** Trust is an important factor for the online business. Recommender systems build trust by creating a value added relationship between the site and the customer.

Intelligent Techniques for E-Commerce

AI systems

AI is the discipline that aims to understand the nature of human intelligence through the construction of computer programs that imitate intelligent behavior.

AI techniques are successfully developed and used in most of the areas of science, engineering, education, business, etc.

AI techniques are extensively used in the development of e-commerce systems. The field of e-commerce can be classified as B2C e-commerce and B2B ecommerce, in terms of AI techniques involved in this field.

Intelligent Agents in Ecommerce

Artificial intelligence (AI) is used in many information systems and they cover a important task of the system. Its use was limited in the past due to its complexity and huge designs. Also there was a lack of expert system developers of these systems. AI systems are necessary in the tasks such as -1) workflow 2) data mining 3) production arrangements 4) supply chain logistics 5) e-commerce. New AI systems have been developed which are small in size. Some of the limitations of e-commerce can be overcome using intelligent agent technology. Basic ecommerce systems need experts to judge buyers, contract negotiators and marketing specialists.

This model finds the buying behavior of customers and to decide actions and decisions which are involved while buying goods and services. This model is used generally for retail markets but it covers many areas such as business to business and business to consumer as well. Electronic commerce covers many problems which are not related to buying behavior model. Buying behavior of the customer is explained by many models which are -1) Nicosia model -1) Nicosia model 2) Howard-Sheth model 3) Engel-Blackwell model 4) Bettman

information processing model, 5) the Andreasen model. These models are having a list of six basic stages of buying process. These models also explain whether agent technology can be used for the shopping. Six fundamental stages of buying process are-

- **Identification:** This stage finds out the need of the buyer which is not fulfilled yet. This need arises due to product information. During purchasing, agents can help the customers in purchasing depending on the similar suppliers or habits of customers. The oldest example of this is software agents named monitors which are having a set of sensors or data streams. These sensors start operating when any pre specified condition is found. In general use there are plenty of examples. One of this is notification agent called Eyes of the website Amazon.com which notifies the customer about the availability of a book required by the customer.
- **Brokering:**
 - a) **Product Brokering:** Once buyer decides to buy, he has to decide what to buy using the product information. Customers need is decided by several agent systems like *PersonaLogic*, *Firefly*, and *Tete-a-Tete* which lower the system cost. This stage gives us the set of goods.
 - b) **Merchant Brokering:** This stage combines the above stage of which product to buy and helps to determine from whom to buy. Many customers are not concerned with only the price but also want to consider the value added services like warranty, availability, delivery time and reputation.
- **Negotiation:** Price and other terms of transaction are finalized in this stage. Transaction cost increases due to real world negotiation this cost can be high for consumers and merchants. In the real world there are many hurdles for negotiating such as time required, irritations, searching locations of all the parties etc. which do not arise in digital world. Most of the business to business transactions need negotiations. In Retail sector we are well known with fixed product prices. Hence the merchant does not need to fix the price. So the burden of price fixing is pushed to the market place.

- **Payment and Delivery:** This stage comes after the termination of the negotiation phase or negotiation can come after this stage. Sometimes product and merchant brokering can be affected by the payment or delivery options.
- **Product Service and Evaluation:** In this stage product and customer service is given. It also determines overall buying experience and decision.

On the basis of above stages we can find out the roles of agents as mediators in ecommerce. The nature of agents decides whether they can be the mediator for the consumer behaviors which includes information filtering and retrieval, complex coordination, personalized evaluations and the interaction based on the time. These roles are related to the identification need, brokering of product and merchant, stages of negotiation of the buying behavior model. The following table gives stages of buying behavior and their several representative agent systems. **Table 1.8: Stages of Buying Behavior and their Several Representatives**

	Personal Logic	Firefly	Bargain finder	Excite's Jango	Kasbah	Auction bot	Auction web	T@T
1 .need Identification								
2.Product brokering	✓	✓		✓				✓
3.Merchant brokering			✓	✓	✓	✓	✓	✓
4.negotiation					✓	✓	✓	✓
5.Payment and delivery								
6.service and evaluation								

Examples of intelligent systems

PersonaLogic (<http://www.personalogic.com>)

This tool finds out the products which meet the needs of the consumers using different features.

Firefly (<http://www.firefly.com>)

After comparing the consumer's product ratings with other consumers, recommendation mechanism known as the "collaborative filtering" is used to find the products needed. This system uses like minded peoples recommendations which may include products like books, music also the products which can not be characterized easily like restaurants and web pages.

BargainFinder (<http://bf.cstar.ac.com/bf>)

This tool is used to find the prices and availability of music CDs required by the user. To find this required product it uses meta crawler, a meta search engine which uses the parallel search architecture.

AuctionWeb (<http://www.ebay.com/aw>) and OnSale (<http://www.onsale.com>)

These are two popular web sites that sell renewed and second-hand products with the use of auction protocols. Their popularity is due the novelty and entertainment value, negotiation done on the prices of goods, getting the wanted product in least price ^[15].

Factors Affecting the Growth of Electronic Commerce

Growth rate of e-commerce is affected by many factors in different parts of the world. They are as follows -

Trust: The major factor which should be taken care of is the trust and familiarity of the medium by the suppliers and customers.

Understanding: Even if people are aware of internet many people are not having clear understanding of electronic commerce. People should be made aware of the misunderstanding, risks and benefits of e-commerce with the use of awareness program.

Skills: Skills of the workers is an important factor for the growth of e-commerce which should be taken care of. Recently USA, Germany and the UK allowed internet workers to move to their countries by relaxing visa controls. This shows that there is a tough competition and now for the internet expertise.

Existing business processes: As many business enterprises are taken over by new dot com companies they have a fear to loose existing market and hence they are making more and more investment.

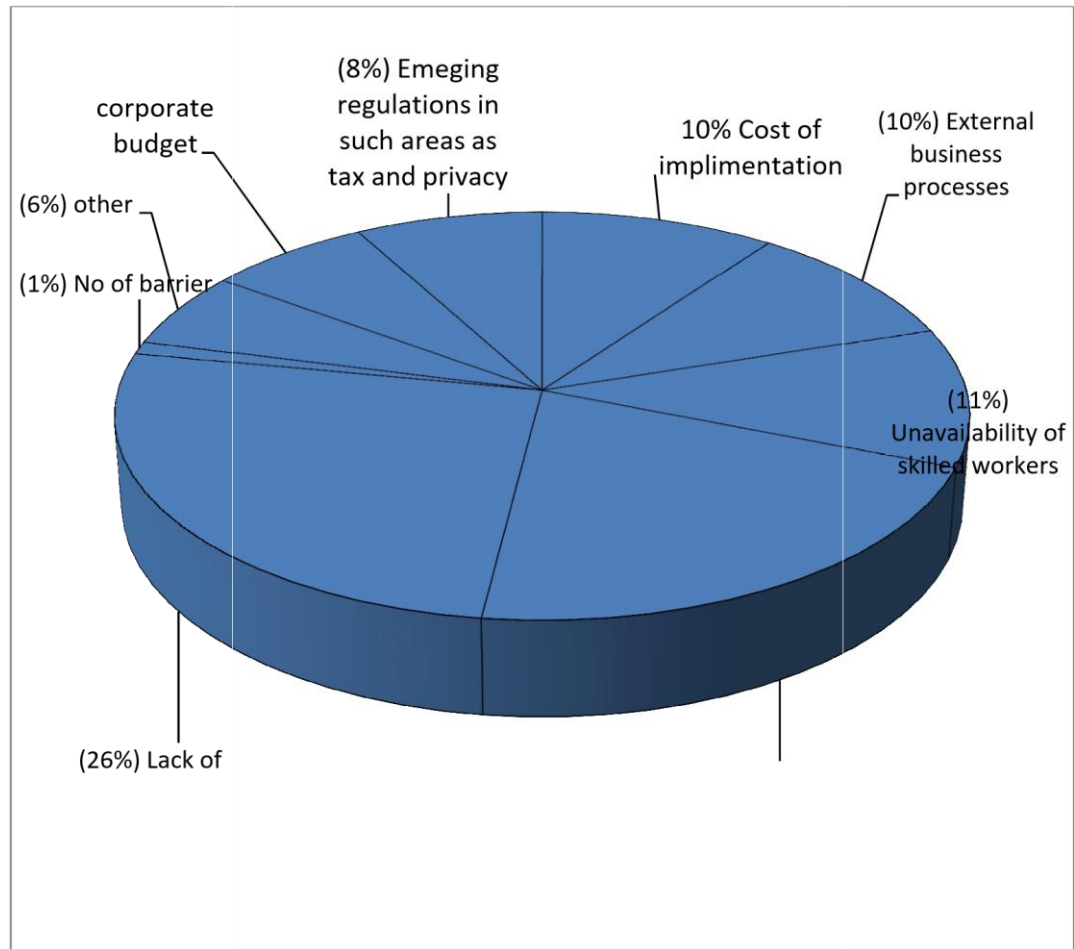
Public Policy: Electronic commerce has many problems associated with the terms of taxation, regulation, security and privacy. The electronic commerce model has been developed in United States is not fit for all the countries and hence there are still important problems which are to be solved in this area.

Costs: E-commerce is a low cost alternative in many countries making the information available in least price compared to with conventional business transactions, making business information available at a much lower price than with

usual, client-server computing. But e-commerce needs additional cost to operate and is an important factor for increase in the cost.

1.2

-commerce industry

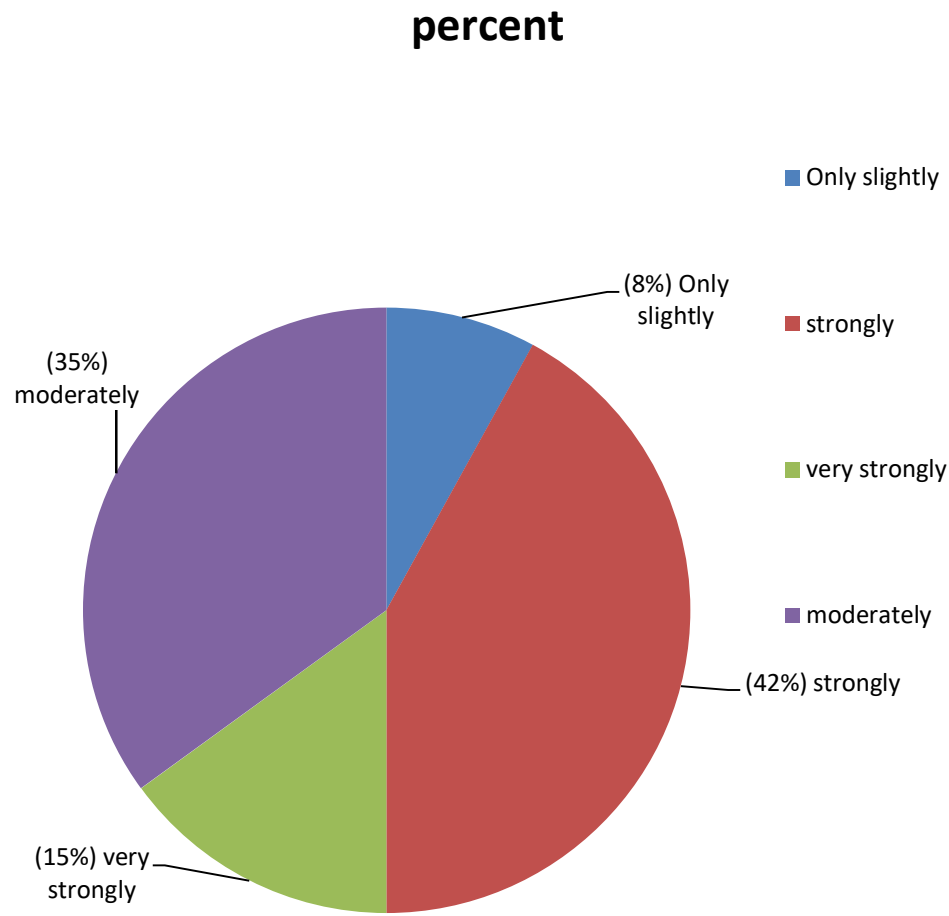


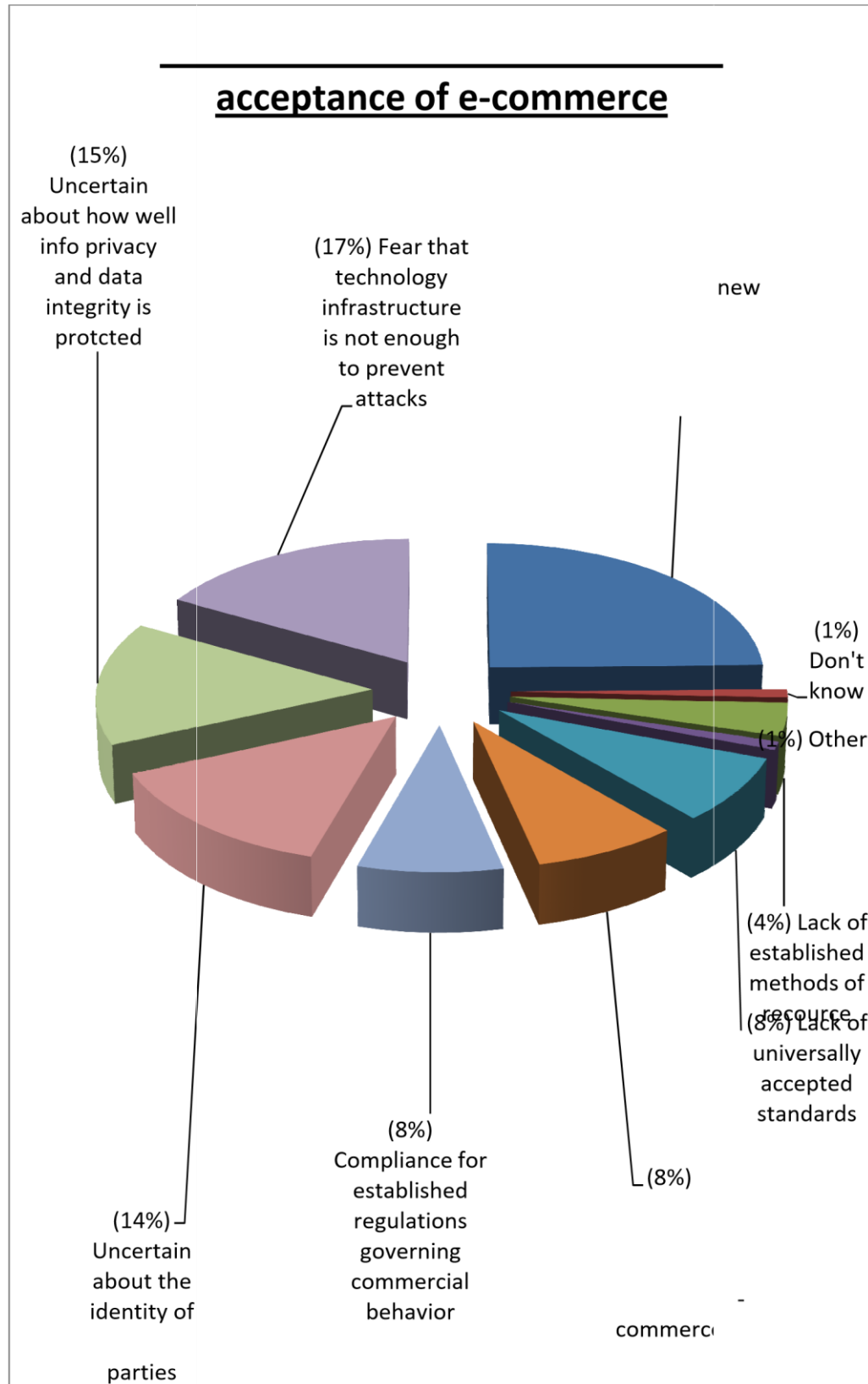
Insufficient Corporate Budget: It is seen that those who want to increase use of e-commerce in their organizations has to tackle the problems such as expenditure for the particular year and the existing IT budgets.

Technology Limitations: The major opposition to the electronic commerce systems comes due to Speed, the reliability and the usability of it. But the survey shows that technological problems are not as important as compared to human

issues such as trust, familiarity and understanding.

Graph 1.3: How strongly the trust will effect the growth of e-commerce



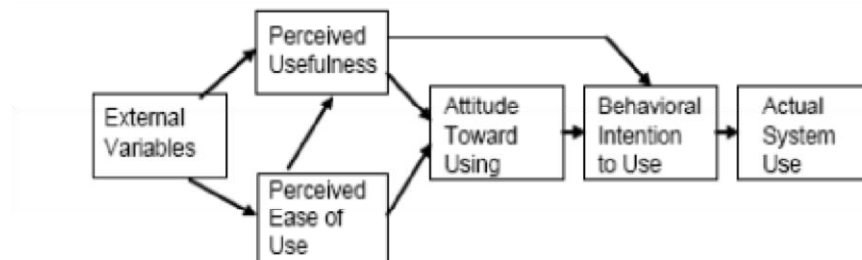


Limitations of e-commerce:

The problem faced by senior citizens

Carrying out business transactions using web is the key of the business. As announced by the U.S. Department of Commerce (2004, 2006a, 2006b, 2007) total retail e-commerce sales in 2007 were \$136 billion. An increase of 25.6% from the previous year and 20.7% increase was observed compared to the year 2002. There is an increase in total e-commerce retail sales For the year 2007 it were at 3.3% of total retail sales. Even if there is growth of e-commerce and in future also the growth will continue, still companies have reported problems in obtaining new customers and retaining existing ones. Also there are problems making visitors actual purchaser of the website. All this can be explained using Technology Acceptance Model (TAM). It states that the success of the system depends upon the acceptance of the system by the user. Acceptance of the system depends upon two variables -1) apparent usefulness of the system 2) apparent simplified use of system. According to the model if both this is points are fulfilled the user has an intention of using system.

Figure 1.11: Technology acceptance Model (TAM)



Seniors face problems of using computers and navigating websites due to age, their sight their cognitive functions and their motor skills change or function slowly. Due to this seniors cannot use the website effectively and easily and they can not conduct the transactions easily. Senior's are having eye diseases. Eye disease can result in vision problems and may cause complete blindness. Senior people can have three major eye problems - 1) age-related macular degeneration 2) cataracts 3) glaucoma. All these eye problems will create problems in the use of a website by a senior citizen. They may have problems like -1) moving a mouse 2) positioning a cursor. Also they may have problems of hands and fingers resulting in impaired

control of the usual input devices for computers like mouse and keyboard. Also they may have memory problems such as - 1) a decrease in working-memory capacity, often seen as short-term memory loss; 2) a decline in the rate at which information can be processed and understood; and 3) a decline in the ability to ignore irrelevant information. Because of these medical problems seniors are unable to operate the website and carry out electronic transactions. Also there is an increase in senior population very year and increased use of computers by them at the same time their limitations due to age to handle computers. To overcome this e-commerce companies are finding new ways to overcome these problems in B2C e-commerce. A senior's behavioral intention to use an e-commerce Web site had a positive but not significant effect on a senior's decision to actually use and purchase from the Web site. Ease of use of the Web site, the constructs *Web Site Usability* and *Internet Usability*. The path coefficients indicate that between the two independent constructs, *Web Site Usability* exerts a greater influence than does *Internet Usability*. Once a senior is confident he/she can use the Internet, it then becomes the usability of the Web site that exerts the most influence.

The test of the robustness of the *Technology Acceptance Model (TAM)* is significant when applied to e-commerce adoption by seniors. With the exception of the very weak relationship between the behavioral intention to use an ecommerce Web site and the actual use of a Web site, the model's predictive and explanatory capabilities still hold true. Useful Web sites have products or services that consumers need or want.

If seniors can overcome computer and Internet usability barriers, they could become eager and willing adopters of these technologies. Web designers should understand that Web sites must be both useful and easy to use and that the aging process can directly influence how easy a Web site will be to use.

Familiarity and trust in e-commerce

According to the Federal Administration and the Better Business Bureau, increase of e-commerce is possible if people start trusting internet vendors. There is a need to increase peoples trust and confidence. People do not buy online due to the problems such as security of payments, reliability of companies and lack of privacy

policy. Trust is an important factor in many social and economic interactions where new technology and important decisions. Trust is also necessary while downloading any important software from net. For e.g. on Amazon.com website people has to deal with complex operations. This complexity is reduced by the application of trust. This is due to the fact that trust removes unwanted and bad future actions of other future or organizations. In case of Amazon.com it would reduce the unwanted behavior such providing misleading information to the customers by the website or misusing credit card information. Trust is a important factor for customers as well as the vendors. Trust would be necessary in both the cases due to guaranty the customers need in the book purchase. If trust is not there it creates complexity of operations. This theory is supported by the Better Business Bureau's findings and industry reports. This proves that, increased degrees of trust in an e-commerce vendor will increase the trust and will make people to inquire and purchase about the products on the website. Also people find it difficult to find the required information. If people are familiar and have the knowledge and understanding of relevant procedures and technology of the vendor then this would result in increased use of the website by the vendor. This also proves *that “Increased degrees of familiarity with an ecommerce vendor and its procedures will increase people's willingness to inquire about products and to purchase products on that vendor's website”*.

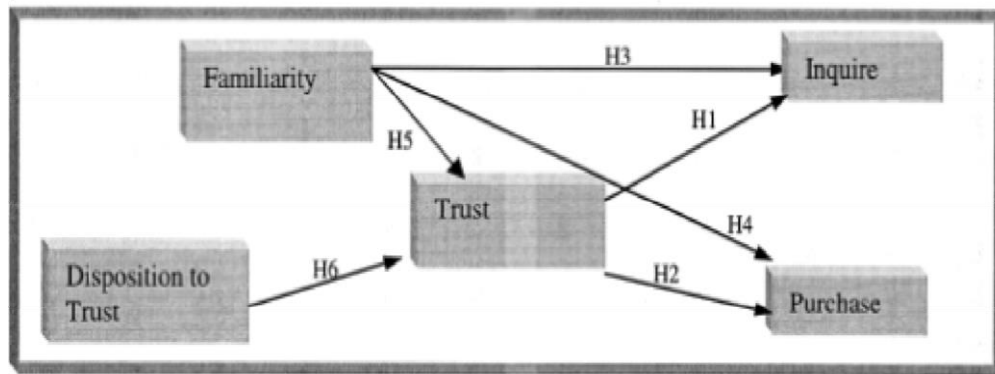
Also familiarity also increases trust due to the fact that familiarity can build trust when the vendor shows trustworthy behavior and ruins trust if the vendor does not show trustworthy behavior. E.g. if people are familiar with Amazon.com website their trust increases. This shows that increased degrees of familiarity with an ecommerce vendor and its procedures will increased trust in vendor. Also the trust can be influenced by the nature of customer. If he is trustworthy in nature he will trust the e-commerce vendor. This shows that *“The stronger people’s nature to trust is the more they will rust e-commerce vendor”*.

Tax issues due to use of internet for the business

Table 1.9: Sales & Use Tax	
Tax System Feature	Conflicting Internet Feature
A type of tax designed to elaborate a state revenue source which is for the industries and dependant on physical items within the state borders.	In the information technology or the internet age borders doesn't matter services and We are now in the information-age where borders are not very important, and intangibles and services are a bigger part of GDP Under the e-commerce model taxes are dependant on the location than they were years ago. A company can achieve large customers with only few locations.
In taxing jurisdiction Collection of the tax is done if there is physical connection with the buyer. States can collect use tax from the residents but such collection is difficult.	Internet-based businesses may just need one physical location, yet sellers can deal with buyers throughout the world (from the single physical location). Thus, the quantity of remote sales (where nonpresent vendors are not required to collect use tax from customers) will increase and tax collections will decrease.
In this type it is necessary to know whether the transferred item is tangible or intangible.	It is not easy in today's transactions to find whether the item is tangible or not. In addition some tangible items can be converted to intangible items for e.g. digitized music transferred via a modem. It is not known whether the item should be taxed according to the principle of neutrality. Or if a particular item is intangible makes it non taxable.
It is necessary to know the type of seller whether he is a irregular seller and also need to know buyer as he may be irregular buyer.	With some types of e-commerce transactions, it might not be easy to determine the type of buyer or seller. For example, some sellers at auction sites are businesses and others are individuals making an occasional sale. Also, exchange sites may have customers buying both for self-use and for resale and it may not be easy to track different types of purchases
As the tax depends upon the location the tax is destination based tax.	This type of tax is not dependant on the location.

Also this type of tax charged differently in each jurisdiction and this depends upon rate terms, due dates, forms, definitions etc. It is jurisdiction dependent. There are total 6,000+ jurisdictions in the U.S.	It is not jurisdiction dependent. Internet can be operated from any part of the world using any portable location. Of physical location are not necessary. Internet addresses are geographically indifferent. These addresses are not dependant on geographical locations.
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Figure 1.12: Familiarity and Trust in E-commerce



- Various tax issues exist due to the introduction of internet. This tax issues exist because numerous tax issues already existed and therefore had a lot of uncertainty.
- Various previous rules do not fit well within the rules and theories underlying current tax rules that were created in a world involving tangible property and the ability to physically observe transactions. The following overview of sales and use tax will show the problems of applying sales tax and use tax to the internet.

Myths of E-commerce

E-commerce is having a lot of myths associated with it. They should be understood in order to use e-commerce in future. Which are listed below –

1) Myth 1: E-commerce is primarily about technology.(E-commerce is 5% technology and 95% business.

Only 5% of E-commerce is technology and 95% it is a business. The use of Uniform Interactive Communication code is not the same used by all the electronic industry participants which are used for transferring the business in ecommerce. Unique

rules and standard should be maintained to overcome the large business issues which must be sorted out first before using e-commerce for the business. Electronic industry has IPC which would set the standards for the use of e-commerce. E-commerce is not just a technology but an agreement on the set of rules.

2) E-commerce will replace purchasing

Many evolutionary changes are observed in purchasing. Twenty or thirty years ago, it was seen that, cost of materials or equipment and period was dependant on the purchasing function. Some benefits were provided by the selling process for the purchasing agent such as long luncheons, sports tickets, and vacations. The electronics industry and business started taking care of the technology and began to take care of the quality to survive in the race and to cope with the rapid changing technology. The purchasing agent and not the buyer turned his attention to the metrics such as quality, on-time delivery, and product innovation, probably best described as lowest total cost in use. Today there is a tremendous growth in outsourcing. The supply chain has obtained more significance; purchasing professionals are changing their role in to relationship managers. Industry suppliers and their performance may increase or reduce the customers. In addition, generational changes which are shaping the latest trends. The business practices has replaced three-martini dinner and a long night out with the supplier. The latest trend is getting the information 24/7 hours and giving time for personal things like family, extracurricular activities etc. When the company is not making use of e-commerce, this can be treated as a threat since it may affect the procurement process. In reality, buyer will likely take expanded role in the purchase order placement process. It is possible to have product knowledge and PO placement available 24 hours.

Wide ranging product databases can be seen online which allows the buyers to access data sheets, cross reference product, address upgrades, deal with obsolescence, and locate hard-to-find products at night. A knowledgeable materials management person will not be dependant on /product/quality engineering for the calculation of the bill of materials. A buyer now can access a large number of suppliers for the availability of the product, pricing, delivery and terms. Business partnerships can be formed where as offers can be effectively analyzed for the exchanged for the exchange of product and business data on a regular basis. Trust

is developed and also performance is improved and hence phone calls, faxes, and visits are reduced. Lowest cost of ownership can be obtained by using the product databases and by tracking the vendor performance via a large number of metrics. Because of the e-commerce model the buyers get the benefit of managing BOM in a reduced amount of time and their problems of inefficient shopping and ineffective communication between suppliers are reduced. This change creates a flexible, better informed individual gives essential component of the entire manufacturing process to the procurement department. It means that e-commerce is speeding up the process of purchasing. E-commerce will not replace purchasing.

3) E-commerce is a zero sum game

Use of e-commerce increases effectiveness and efficiency in the supply chain management. At the same time reduces transactions, inventory costs and reduces use of standardized parts. Savings are little, only one to two percent but they reduce the complicated processes of businesses with the use of auction sites. These auction sites reduce the prizes of products because of the competition but find new customers and offer economy. These sites also offer benefits such as supplier standards international currency exchange, transport charges, financing, credit, insurance, delivery times, and other related details of the supply chain. Besides trading these B2B market places include cataloging, collaborative supply chain planning, forecasting, engineering change management, and a lot which improves communication between buyer and seller. The prize can not be the only criteria for the customer. Modern selling organizations will adopt e-commerce and electronic marketplaces to lower their costs and strengthen customer relationships. You may face problems but still e-commerce will not be zero sum game for those making use of it.

4) E-Business Represents Interesting Opportunities, But For the Distant Future”(“E-Commerce will go away. It’s a passing fad.”)

A need of frictionless economy with considerably lowered costs of interaction and association are making the need of best specialization and network based value delivery. This trend is apparent in several industries like automotive manufacturing, electronics manufacturing, the computer software industry, etc. Many traditional

barriers and best procedures are collapsing due to decreased cost of information sharing and the ubiquity of the Internet. Companies are again focusing on central capability and outsource areas of their business which lack clear and uphold able competitive differentiation.

Information asymmetry supports competitive advantage and it is for the small period. Companies are getting higher returns due to high cost of searching for alternative suppliers, comparing pricing, effectively testing supplier capabilities, etc. But these things are changing rapidly. Customers do not require physical nearness for carrying out perform supplier screening or high-level carefulness. Easy to gather measures of business capability are obtained by factors such as material positions, price transparency, and performance. Customers need more information transparency and for this they choose global providers. Both customers and suppliers can obtain a lot of information for obtaining the features such as modernism, delivery capability, sound pricing and value-added services.

Several factors suggest that e-business is working fine and is a reality today.

- United States is well versed with the infrastructure to conduct e-business and is in rapid

Several factors suggest that e-business is well underway and very much a reality today:

- Infrastructure to conduct e-business is largely in place within the United States and is in rapid usable mode globally. The internet is mass medium.
- Regulating force is necessary for most part.
- Business applications are being developed and used to help companies use ebusiness to obtain realizable benefits.
- Competition is growing with the e-business adaptation and is a key for competitive differentiation.
- Pioneers and pragmatists have understood that e-business and globalization are tightly combined and supporting in nature. Early adoption stage is over now. Barriers to e-business adoption are decreasing due to investment in the tools,

technology and business infrastructure; at the same time the satisfaction due to competitive threats continue to rise. Changes in the technology bring intense impact on businesses similar to the converging forces had during industrial economy.

Combination of different technologies is having a deep impact on businesses just like other converging forces had in industrial economy. The need for e-business is fulfilled with the beginning of industrial economy and basic changes in economic assumptions. The bottom line impact has considerable potential and is understood by many companies today. We are following the e-business path which can be reversed. Companies are getting opportunity as well as threat with the use of ecommerce. Companies prefer e-business. Small amount of time is left for joining e-business.

5) E-commerce is only about exchanges

E-commerce is about business processes as well. E-commerce is a win/win for all participants. It is about technology integration.

With the use of internet buyers and sellers contact each other for exchanging goods and services. Resultant trading is made electronically and shipped traditionally. There are three main layers of e-commerce which show the power of internet. The exchange features are order matching, settlement and fulfillment. Net markets can be viewed as trading posts in which ownership of the products are changed. The B2B e-commerce undergoes several internal business processes to be presented in the trade. Internet has the power using which it can be extended globally with the use of B2B integration so that it can be viewed end to end in the whole commerce chain. A virtual super cooperation is built by the best companies with the integration of best suppliers, partners and customers. A significant and competitive environment is created for all the participants and it also creates barriers for the new comer's entry.

After the purchasing decision is made execution of orders is done which is nothing but exchange but it does not mean that it is the sum total of e-commerce. B2B e-commerce consists of purchasing decisions and approval processes within the enterprise. Actual work of the extended enterprise is done to make any purchasing

decision. For making best and favorable decisions the information regarding the conditions of inventory, work in progress, planning, and forecasting is required. For the integration of the enterprises across certain markets in certain markets enterprise should collaborate and share the information which would give rise to B2B collaborative e-commerce.

The actual order exchange is the main visible function in B2B e-commerce. It comprises of execution of the order after the purchasing decision is made. The important features of an exchange are order matching, settlement, and fulfillment.

Order Matching

There are two major forms of order matching depending on the liquidity of the exchange – 1) static 2) dynamic pricing.

Static Pricing

Static pricing is also known as catalog ordering. Suppliers can prefix the prices or can negotiate prices between suppliers and buyers. Most of the purchasing in the printed circuit board industry is done with the help of static pricing.

Dynamic pricing

As orders can be matched instantly dynamic pricing is generally used for true commodity products. In dynamic pricing the exchange matches the order in real time as the goods are brought first in the market and prices are then adjusted automatically.

Settlement

Today, instant settlement is the accepted method for both the parties instead of third party exchanges like Purchasing-Cards, escrow payment through banks, and B2B payment networks because of the average order size which varies between \$50,000 and \$250,000 for most exchanges.

Fulfillment

Buyers and sellers are having fulfillment step which is complicated, costly but a saving step. Buyers may have orders to fulfill the needs of his customer. Shipping and delivery can be simple but these two processes may have many aspects of supply chain management.

In future there may be low cost services for order matching and settlement. The business will not remain simple exchange of orders. The myth “E-commerce is only about order exchange” describes current industry status rather than the nature of e-commerce as it is emerging. Most businesses have studied e-commerce solutions and consider exchange the important process.

Challenges to the laws in cyberspace

In cyberspace age crimes are committed on the internet; the examples are fraud and child pornography. To locate these crimes there are various problems like judicial jurisdiction and e-commerce taxation. New crimes are committed using internet as an object along with the classical crimes such as spreading computer viruses etc. These new crimes are even more difficult to handle. To handle cyber crimes criminal law is being developed by courts and the government. Courts understand the current law and the government defines new laws and crimes when required. When the current law can not be applied to the crime new law is created.

Criminal law in the cyberspace

There are three main ways for defining the criminal laws in the country. They are - defining the judicial jurisdiction, defining the crime itself and defining the defenses to the crime. In the cyberspace crimes like fraud and child pornography are carried out on the internet. There are challenges of e-commerce taxation and judicial jurisdiction in applying crimes in a particular country. Along with the classical crimes, other types of crimes are committed where internet is the victim of crime in which computer virus are spread on the internet. These new crimes are also creating problems in the application of the criminal law. This approach has been supported positively and normatively by the scholars. The approach is to create new legislation to handle new internet and computer crimes.

Criminal law is used to handle these challenges. According to U.S. Department of justice for pre internet crimes committed on the internet, current criminal laws are applied along with the interpretation of court and legislature. The approach is to create new legislation to handle new internet and computer crimes. The Computer Fraud and Abuse Act (1986) is an example of such legislation. There is a growth of Criminal law which handles cyber crime. The methods of adjustments include court

and legislatures. Court understands and adapts current law to cyber crimes where as whenever required legislature creates new laws and crimes. It is important how legislature handles difficult challenges and new crimes. When the existing law cannot handle the circumstances, new law is created. While dealing with e-commerce taxation challenges we have to compare different challenges and should find their nature and difficulty. When the basic challenge is to be solved new legislation will handle it.

Judicial Jurisdiction in Cyberspace

Judicial jurisdiction among the countries is divided by international law in two leading principals -1) the territorial principal – this gives judicial jurisdiction to the country when the matter has juridical connection 2) the personal principal which has connection with the issues of the parties and which gives jurisdiction to the country. Apart from these two principals the effect theory is developed for controlling the persons which affect its territory or people.

In American law similar principals are applied for dividing the jurisdiction amongst different states of the country. A state is having authority on matter or the parties if it has minimum contacts. These principles when applied in the cyber space are having many difficulties as it is difficult to make the connection between cyberspace activity and any one jurisdiction. These challenges are similar to the international tax regime in taxing cross border e-commerce income. The judgment about the every cyberspace case will be different in every court. Courts should maintain stable and common judgment for the cyberspace cases. It is observed that the courts are giving satisfying judgment about the cyberspace jurisdictional challenges which are common and stable for all the courts. Criminal law handles these challenges. For example, when the pre-internet crime is committed, according to the usual practice, current criminal laws are applied to these crimes and then the relevant changes are done to these laws if needed.

Copyright Law in Cyberspace

In digital age copyright law has a lot of difficulties. Information in the digital form is very cheap, easy virtual and global. This digitization of the information is

increasing the difficulties in the cyber law. These difficulties are discussed in the past decade.

To handle the challenges in the cyber space, court is playing a major role in developing cyber law. The case law on copyright issues is very strong. For example, in the mp3.com case the court ruled that mp3.com violated copyrights by copying records on its server and also replaying the records for its subscribers. The claim of fair use by mp3.com was rejected by the court. In the Napster case court claimed that Napster.com has violated the copyright law in its peer to peer activity. Also court rejected the claim of fair use by Napster.com. World Intellectual Property Organization (WIPO) introduced a general legal framework at the international level. Signatory countries developed these frameworks which passes new pieces of legislation according to the principals of the framework. This framework was used to handle the problems in the cyberspace. The Digital Millennium Copyright Act (1998) corresponds to American legislation. Europe implemented a special directive and other countries also introduced their own legislation following the WIPO framework. While addressing the challenges of international level in taxing e-commerce income, it is also necessary to study this mixed international and national tool to handle copyright law in cyberspace. While taxing e-commerce income we should consider national and international tools. International framework is necessary and must be designed for cross border e-commerce income. *Integrative Adaptation Model* can be used as a basis for taxing e-commerce at the international levels.

The Integrative Adaptation Model

To address e-commerce taxation challenges the Integrative Adaption Model is used. This has four levels of adaptation in the present international tax management. According to the case law first step - is to develop income classification rules and residency rules.

Second step – New source rules should be developed based on the location of the parties in the while doing transactions.

Third step – Technology should be used to create tax laws.

Fourth step – Using international treaties, international consensus should be added. Use of International treaty which includes these different layers of the model is the first stage in the practical application of the model.

The *Integrative Adaptation Model* follows the basic approach of the positive laws of the cyberspace in different fields after applying the current law to the cyber space. So at the beginning the present international tax regime is applied to the cross border e-commerce income. This application has many advantages – 1) International consensuses are maintained by the present international tax management 2) Instead of starting the international process from the beginning *Integrative Adaptation Model* makes use of this consensus and updates it. 3) It also takes care of the aspects of the management which are working properly for many years and which are quiet famous in the business and the legal communities.

Legal management is a construction which is newly growing since a long period. *Integrative Adaptation Model* helps in e-commerce taxation challenges and development knowledge by keeping it intact. Just like other fields of law the work will be done in tax field also. *Integrative Adaptation Model's* first feature is to find out what the tax field needs. Other fields of adaptations are compared and accordingly the tax field adaptations are done. This model is used to find out different challenges and the solutions for the tax find also the main hurdles in it. All the challenges of the tax field are having common features but they differ in nature and degree. Adaptations of such type change the current administration. Development of the case law is needed even if it is complete in it self in order to adopt it for new adaptations. It can be found out from the other fields that how much of e-commerce taxation is needed. Adaptations should be flexible enough so that they can be adopted in other fields also. Just like other fields adaptations of the international tax administration should be made.

Economics of E-commerce

Success of e-commerce activities can be evaluated and is called Value Inequality. Value Inequality means the resources consumed by the production, distribution and transaction processes which must be less than the value provided by the buyer. This

will not work if the newness of the technology and business models does not stick to the economic fundamentals.

Electronic commerce strategy is to apply economic principles to the new technologies and business models. Because of reduction in the fiction of the physical world actual mechanical results resemble closer to the results predicted by simple physics. In addition, reduction of fictions in the business world will make e-commerce similar to basic economic models.

Electronic commerce greatest value creation is possible with the following improvements –

- Reduction in the transaction costs
- Improvement in supply chain management
- Reduction of cost via global sourcing

Even if e-commerce growth is evident factors delaying implementation include –

- The necessity for businesses to upgrade their information technology systems
- Large honest costs and associated risks
- Security problems

Investment opportunities can be obtained through e-commerce and from the solution to the current limitations which include –

- Demands in e-commerce -1) Extranets 2) Enterprise Resource Planning and Customer Relationship Management systems 3) High security levels
- All these needs will be fulfilled by Application Service Providers E-commerce is in the developing stage but is the most popular way for the business to develop its customer base and increase productivity. All the businesses use websites and online shopping has become popular in the recent years. It is possible to sell your products throughout the world with the use of web based store with an earth link total commerce package.

E-commerce applications are growing day by day. E-commerce use is also growing in various companies to speed the work and to bring perfection as well as to

automate the work. The type of e-commerce which are more popular in the business world are – 1) B2B (e.g. commodity exchange) 2) B2C (e.g.

Amazon.com) 3) online retailing using a website 4) online shopping

Various areas can be inspected for the problems of e-commerce faced by the businesses. E-commerce business can be useful as it can be used in the area like value improvement. -

Value Improvement: The main opportunities are of two types-1) the methods which help in reducing the prices of the goods purchased. 2) The methods that reduce the total cost of the material purchased. By the use of improved supply chain management, companies can reduce the cost. The buyers will have lower prices of the items purchased. Various opportunities for B to B and B to C business are as follows -

Figure 1.13: Value Improvement Prism

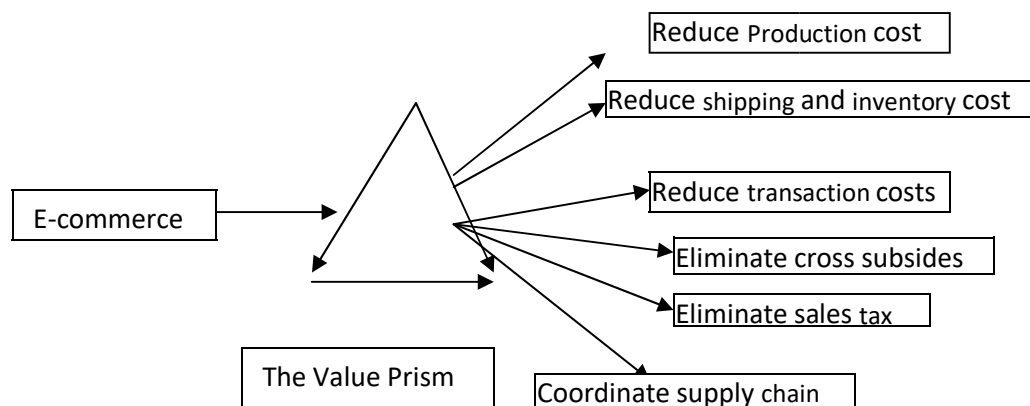


Table 1.10 lists the areas or factors for which e-commerce will be useful and also lists the improvements which should be made in the technology for the changes in the technology. New changes in the technology has made various changes in the working which should be accounted to improve the quality and speed as well as cost of manufacturing. Use of e-commerce lowers the costs through better supply chain management. This lowered cost is supplied to buyers in the form of low prices.

Buyers can have following problems – 1) upfront expenses 2) security 3) reliability / fulfillment risk 4) long relationship with vendors 5) Fear of higher prices 6) Commoditization: loss of specificity 7) Internal IT system not ready

Sellers can have following problems – 1) upfront expenses 2) security 3) Credit risk 4) Cannibalize existing relationships 5) Need to discount 6)

Commoditization: loss of margins 7) Internal IT system not ready

Table 1.10 : Potential value improvement

Requirement for Lower pricing	B to C	B to B
Reduction of production costs or profit margin	Supply chain management should be improved	Global sourcing increases profit margin and reduction in prices temporarily which last for 3 to 5 years.
Reduce transport or inventory costs	Transport of rare items can be optimized by reducing inventory costs.	
Decreasing sellers transaction costs	Very likely	Very likely in MRO
Eliminate inconsistencies of the prices (lower prices for some, raises for others)	Reduction of customer database which finds total cost of serving different customers and the benefits arising out of it who have been subsidized.	
Lower pricing can be obtained by Lowering Total cost of materials acquisition		
Eliminate sales tax	Very likely	For small business requirements of use tax it is difficult.
Better Supply chain management by reducing unneeded materials, getting materials when needed or late deliveries rush orders.	Some possibilities (less spoilage fewer special trips to store), ability to generate value net of costs in home delivery depends on dense routes	Excellent opportunities especially given growing popularity of build to order customization. Fast new product development techniques

transaction cost buyers is reduced	Purchasing is done via broadband, doing research on consumption problem and also solving purchases contextual buying opportunities	Are possible specially in MRO some contextual opportunities are Researched, problem of consumption is solved for them.
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