Electronic Commerce

MBA IT-410

DIRECTORATE OF DISTANCE EDUCATION

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Meerut (National Capital Region Delhi)

Contents

SYLLABUS

Electronic Commerce

Course Code: MBA IT-410		
Course Credit: 3	Lecture: 03	Tutorial-1
Course Type:	Discipline Elective	
Lectures delivered:	40	

End Semester Examination System

Maximum Marks Allotted	Minimum Pass Marks	Time Allowed
70	28	3 Hours

Continuous Comprehensive Assessment (CCA) Pattern

Tests	Assignment/ Tutorial/ Presentation/class test	Attendance	Total
15	5	10	30

Course Objective: The aim of the course is to introduce students to:

- To introduce students about the need and factors affecting electronics commerce
- To equip students to assess business to business and consumer to consumer business model
- To help students understand various e-commerce applications

UNIT	Course Content	Hours
I	Origin, need and factors affecting electronic commerce, Features of electronics commerce, Electronic commerce Framework, Internet as an electronic Commerce enabler, Electronic Commerce Business Models (Value Proposition, Revenue Model, Market Opportunity, Competitive Environment, Competitive Advantage, Market Strategy, Organizational Development, Management Team)	8
II	Business to consumer (B2C) Business modesl, Types of B2C, Business to Business (B2B) Business models, Types of B2B, Consumer to Consumer (C2C) Business Models, Types of C2C, Peer to Peer Business Models, M-commerce Business Models, Electronic Payment Systems (Cash, Check, Credit card, Stored Value, Accumulating Balance), Working of Online Credit card, Transaction Security	8
III	Online Retailing, Online retail Industry Dynamic, Online Mercantile model for customer perspective, Managemnet Challenges in online retailing, Online market research, Online marketing communications, Online advertising, Online branding, Online customer relationships, Online Pricing Strategies	8
IV	Online Banking, Online banking implementation, Changing dynamics in banking industry, Management issues in online banking, Introduction to Mobile Commerce Challenges emerging in Mobile Commerce, Application areas of Mobile Commerce	6

UNIT 1

INTRODUCTION TO ELECTRONIC COMMERCE

Structure

1.0 LEARNING OBJECTIVES

After reading this chapter students will be able to:

- Know the nature and concept of e-commerce
- Discuss the origin, need and factors of e-commerce

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- Learn to analyze the resources and drivers of e-commerce
- Differentiate between e-commerce and e-business
- Identify the advantages, disadvantages and limitations of e-commerce
- Understand the reasons for transacting e-commerce on-line
- Discuss Internet as an electronic commerce enabler
- Understand the electronic commerce business models

1.1 INTRODUCTION

Today, we can see electronic-commerce is becoming a part of study of almost all the courses in management and commerce. It is an integral part of any book or manuscript that is written on retailing, and it claims a significant share in this text also.

The reason behind this lies in the fact that e-commerce technology is different and more powerful than any of the other technologies we have seen in the past century. While these other technologies transformed economic life in the 20th century, the evolving Internet and other ITs will shape the 21st century in many ways. The foremost of these is the rise of a sizeable class of Internet-habituated consumers, and then is the creation of an ecosystem essential for e-tailing's growth. In India's case, both these factors are poised to fall into place rapidly.

E-commerce is a revolution which has changed the way in which businesses buy and sell products and services. It is associated with buying and selling of information, products and services over computer communication networks. In fact, it has transformed the way in which the organisations operate. E-commerce enables paperless exchange of information using Electronic Data Interchange (EDI), Electronic Mail, Electronic Bulletin Boards (EBB), Electronic Fund Transfer (EFT), and other network-based technologies. It not only automates manual processes and paper transactions, but also helps organisations in moving to a fully electronic environment and change the way they operate.

What is E-Commerce

The term "Commerce" is defined as trading of goods, services, information, or anything else of value between two entities.

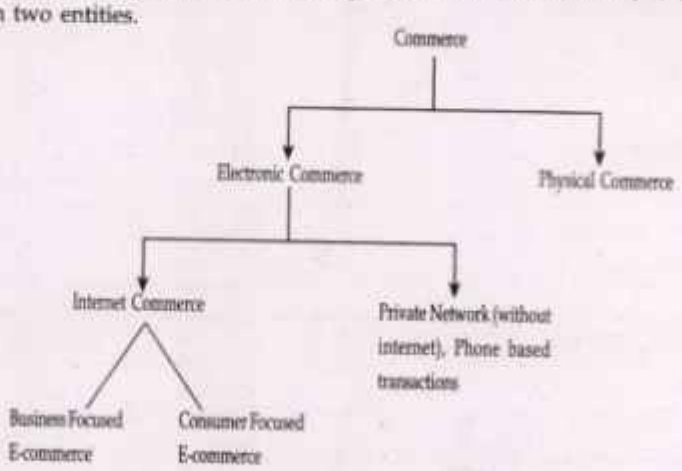

Fig. 1. Types of Commerce

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This definition is straight forward and easy to understand. If "e" for "electronic" is added to- this definition, the definition of e-commerce could be derived as, "trading of goods, services, information, or anything else of value between two entities over the Internet." The various types of commerce have been defined below in the Fig. 1.

Traditionally, business has been conducted in physical buildings, now often it is referred to as brick-and-mortar market places. When the market place is electronic, business transactions occur across a telecommunications network where buyers, sellers and others involved in business transactions such as employees that process transactions-rarely see or know each other and may be physically located anywhere in the world. This process of buying and selling of products and services across a telecommunication network is often called electronic commerce) and the electronic marketplace is sometimes called e-marketplace.

In other words, E-commerce refers to any form of business transaction in which the buyers and sellers interact electronically using tele-communication networks rather than through physical contact or exchange. It is a new way of conducting, managing, and executing business transactions using computer and telecommunication networks. It requires the integration of Net with telecommunications, audio/video technologies, computing hardware and software, and business models. It could mean selling in cyberspace, electronic shopping, electronic data interchange, and even home banking.

1.2 NEED OF ELECTRONIC COMMERCE

Electronic commerce, commonly known as e-commerce, is the buying and selling of product or service over electronic systems such as the Internet and other computer networks. Electronic commerce draws on such technologies as electronic funds transfer, supply chain management, Internet marketing, online transaction processing, Electronic Data Interchange (EDI), inventory management systems, and automated data collection systems.

The need for e-commerce emerged from the felt need to make better use of IT resources in order to improve customer interaction, business processes. E-commerce and e-business are not solely the Internet, websites or dot com companies. It is about a new business concept that incorporates all previous business management and economic concepts.

As such, e-business and e-commerce impact on many areas of business and disciplines of business management studies:

1. Marketing

Issues of online advertising, marketing strategies, consumer's behavior and cultures. One of the areas in which it impacts particularly is direct marketing. In the past this was mainly door-to-door, home parties and mail order using catalogues or leaflets.

This moved to telemarketing and TV selling with the advances in telephone and television technology and finally developed into e-marketing spawning „e-CRM data mining and the like by creating new channels for direct sales and promotion.

2. Computer Sciences

Development of different network and computing technologies and languages to support

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e-commerce and e-business, for example linking front and back office legacy systems with the web based technology

3. Finance and Accounting

On-line banking; issues of transaction costs; accounting and auditing implications where intangible assets and human capital must be tangibly valued in an increasingly knowledge based economy.

4. Economics

The impact of e-commerce on local and global economies, understanding the concept of a digital and knowledge-based economy and how this fits into economic theory.

5. Production and Operations Management:

The impact of on-line processing has led to reduced cycle times. It takes seconds to deliver digitized products and services electronically; similarly the time for processing orders can be reduced by more than 90 per cent from days to minutes.

Production systems are integrated with finance marketing and other functional systems as well as with business partners and customers.

6. Production and Operations Management:

Moving from mass production to demand driven, mass customization customer pull rather than the manufacturer push of the past. Web based Enterprise Resource Planning systems (ERP) can also be used to forward orders directly to designers and/or production floor within seconds, thus cutting production cycle times by up to 50 per cent, especially when manufacturing plants, engineers and designers are located in different countries.

In sub-assembler companies, where a product is assembled from a number of different components sourced from a number of manufacturers, communication, collaboration and coordination are critical so electronic bidding can yield cheaper components and having flexible and adaptable procurement systems allows fast changes at a minimum cost so inventories can be minimized and money saved.

7. Management Information Systems

Analysis, design and implementation of E-business systems within an organization; issues of integration of front-end and back-end systems.

8. Human Resource Management:

Issues of on-line recruiting, home working and „intra- pruners working on a project by project basis replacing permanent employees.

9. Business Law and Ethics:

The different legal and ethical issues that have arisen as a result of a global virtual market. Issues are copyright laws, privacy of customer information, and legality of electronic contracts

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1.3 ORIGIN AND EVOLUTION OF E-COMMERCE

The concept began evolving during the late 1970s and early 1980s, when companies started using electronic messaging technologies electronic data interchange (EDI) and electronic mail by business interactions.

Later, electronic messaging was also used to streamline business processes by reducing paperwork and increasing automation. Business exchanges traditionally conducted with the paper, such as cheques, purchase orders, and shipping documents, being conducted electronically. Use of electronic data interchange to send/receive business documents (such as purchase orders) in a standardized electronic form to/from their suppliers started gaining popularity, combined with just-in-time (JIT) manufacturing, EDI suppliers to deliver raw materials and components directly to shop floor, resulting in saving in inventory, warehousing, and handling costs. Electronic mail does much the same for unstructured organizational boundaries.

Electronic funds transfer (EFT) between banks over secure private network system like SWIFT changed financial markets. A number of EFT variants are available today, including the debit card. By the beginning of 1990s, electronic messaging technologies became an integral part of work flow on collaborative computing. The collaborative computing (also called Group Ware) focused primarily on taking existing non-electronic methods and grafting them onto an electronic platform for improved business process efficiency.

Mid 1980s witnessed the emergence of a completely different type of commerce technology of on-line services that provided a new form of social interaction such as newsgroups. Virtual communities started emerging, each focusing on different subject for interaction, with the declining cost of Internet access, global interactions became more frequent.

Perhaps, the most significant boost to e-commerce came from the advent of the World Wide Web in the 1990s. This was an easy-to-use environment for information publishing and dissemination. The use of World Wide Web for publishing business information has changed the entire concept of Internet. Now cyber space is perceived as a market place, thanks to World Wide Web (WWW). Thus, evolution of e-commerce along with innovation of IT has been divided into various phases which are termed as:

- Electronic Data Processing (EDP) era in 1955-1974
- Management Information System (MIS) era in 1975-1994
- Internet and E-business era in 1995-2020 and more.

The Web has made e-commerce an economical method of doing business and enabled more diverse business activities on-line. Winston states "to put the state of Internet in perspective, one can say that the current state of Internet in many ways is like the wild west of the nineteenth century lawless, untamed, uncivilized but full of potential".

Defining E-Commerce

Electronic Commerce (EC) can be defined in several ways:

- E-commerce means the ability to conduct business electronically, or over the Internet.
- E-commerce means managing business transactions using networking and electronic means.

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- E-commerce is a platform for selling products and services via Internet.
- E-commerce refers generally to all forms of commercial transactions involving both organizations and individuals, that are based upon the electronic processing and transmission of data, including text, sound, and visual images.

It also refers to the effects that the electronic exchange of commercial information may have on the institutions and processes that support and govern commercial activities. These include organizational management, commercial negotiations and contracts, legal and regulatory frameworks, financial statement agreements and taxation, among many others.

Fig. 2. Defining E-Commerce

E-commerce is part of an evolving approach to business that could eventually involve the application of information and communication technologies to the product and distribution of goods and services on a global scale.

Some elements of E-commerce are 'non-transactional-geared to the provision of Introduction to E-commerce 15 information about products and services, the delivery of information based (intangible) products to customers and the support of supply chains. The complete process, however, is transactional-geared directly to processes of trade in goods and services.

Electronic commerce encompasses a broad range of activities. It includes electronic trading of physical goods and services and of electronic material. The ambit of e-commerce includes advertising and promotion of goods and services, facilitation of contacts between traders, pre-and post sales support or payment of taxes. The whole commercial cycle staring from ordering, invoicing, transporting, delivery and payment can be done electronically. E-commerce is transforming the way in which companies do business.

1.4 FACTORS AFFECTINNG ELECTRONIC COMMERCE

There are many external environmental factors that can affect e-business. It is common for managers to assess each of these factors closely. The aim is always to take better decisions for the firm's progress. Some common factors are political, economic, social and technological (known as PEST analysis).

1. Political Factors

It includes the role of government legislation, initiatives and funding to support the use and development of e-commerce and information technology. Several aspects of government policy can affect e-commerce business. All firms must follow the law. Managers must find how upcoming legislations can affect their activities. The government's role in developing countries is an important one as it facilitates the essential requirements for the development of E-commerce such as providi ng robust secure on-line payment options, ensuring a solid ICT infrastructure, providing educational programs and building up awareness using different means such as media and education institutions.

2. Economic Factors

It includes the general wealth and commercial health of the nation and the elements that contribute to it. Economic efficiency results in the reduction of communications costs, low cost technological infrastructure, speedier and more economic electronic transactions with suppliers, lower global in formation sharing and advertising costs, and cheaper customer service alternatives. Economic integration is eittier external or internal.

External integration refers to the electronic networking of corporations, suppliers, customers/ clients, and independent contractors into one community communicating in a virtual environment (with the Internet as medium). Internal integration, on the other hand, is the networking of the various departments with in a corporation, and of business operations and processes. This allows critical business information to be stored in a digital form that can be retrieved instantly and transmitted electronically. Internal integration is best exemplified by corporate intranets. Among the companies with efficient corporate intranets are Procter and Gamble, IBM, Nestle and Intel.

3. Social Factors

An understated factor that has promoted the use of e-commerce is the migration of people living in rural areas to urban settlements. Throughout the world, people are migrating to urban cities in order to get better education, health, jobs and business opportunities. They work relentlessly in order to have better earning and meet ends. Such people try to give much of their time to work and there are, thus, left with very little time to spend on shopping. In an attempt to save their time, they resort to online shops and place orders ranging from common grocery items to home appliances. Many firms are offering their product by keeping in view the specific needs of such customers.

The development of ICTs has made matters simpler and people can save their time by shopping from online stores. Moss in has predicted before time that good infrastructure of ICT in cities will helps their residents in doing online shopping. Firms also use this infrastructure to their advantage. On the other hand, people and SMEs working in the cities enjoy access to internet and better roads facilities.

On the contrary, rural areas of countries are usually less developed due to lack of good roads and telecommunication infrastructure] and they have less access to computers and internet. This halts the growth of entrepreneur SMEs in rural areas. Due to urbanization, industries usually form clusters in urban areas and cities. They are concentrated in a particular area to obtained

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geological benefits from it or proximity to buyers and suppliers. These clusters are important for economic activities in a particular region as buyers take advantage of low transportation cost for being closer to firms. Therefore, urbanization is an unsung factor increasing the use of e-commerce.

Economic Factors

Many studies have concluded that e-commerce is particularly less popular in developing countries. People in developed countries are more inclined to shop through online means. A major region is the economic progress and higher per capita income. According to Information Economy Report 2015, the top 10 countries with highest B2C revenue are those who enjoy higher GDP and GNI. In the same report, it is highlighted that largest internet retail companies in US, Europe, Asia and Latin America for 2012-13 are based in US, UK, Germany, China, Brazil and France. This shows that an active economy will provide more business opportunities to its nationals. Also, economic and financial factors decide whether venture capitalists have enough resources to start online business.

Contrary to this, poor economy and lack of financial resources in developing countries have adversely affected spread of e-commerce. Lack of ability to generate constant streams of funds from their own resources or stockholder is a big reason in failure of e-business firms. Furthermore, there exists a substantial difference in the business models for e-commerce between developing and developed countries. All these factors lead us to assume that level of income in a country will encourage its buyers and firms to venture into online business.

The economic efficiencies offered by e-commerce have been one of the primary driving forces in its growth. These economic efficiencies include:

(a) Low infrastructure cost,

(b) Reduced transactions cost, and

(c) Low cost of sharing information, advertising, and business interactions.

The economics may be internal as well as external. Application of e-commerce for integrating internal business processes has the potential of growing internal economies. The external economies may flow from networking information system of suppliers, customers and other business associates in order to facilitate business interactions and promote cooperation.

Technological Factors

The convergence of Information Technology and Communication technology has opened a new range of opportunities in the development and delivery of new products and services. Multimedia technologies and quicker transmission of information in different forms and formats without any loss of quality has opened new avenues for improving both the content and delivery of goods and services.

These technological developments have transformed the business scenario, particularly, in industries such as communication, publishing, entertainment, etc., bringing them closer to each other and converging them into a form in which their separate identities are difficult to recognize. It may be pointed out that these are not only the industries that have been influenced. Almost all the industries have experienced the change, though in some industries the change is not profound as in others.

The Technological factors included infrastructure of ICT, Mobile Phone and Virtual Social Network. Data of Infrastructure of ICT and Use of Virtual Social Network was obtained from Global Information Technology Report for Year 2014. This report is published by World Economic Forum, and it ranks countries on the basis of Network Readiness Index which is an aggregated score of four sub-indices.

For Infrastructure of ICT, Readiness sub-index was used. This sub-index is based on three pillars which are infrastructure, affordability and skills. Similarly, use of Virtual Social Network under the pillar of individual usage of ICT was used as a measure of social media usage. The measure of mobile phone usage was adopted from the Mobile cellular subscriptions (per 100 people). Data of this variable was obtained from World Bank site.

Marketing and Customer Interaction Factor

E-commerce infrastructure can also be used to provide marketing channels, to cater to niche markets and to improve post sales customer service by creating new channels of customer interaction and support. Companies can provide the target customers with product and service information in greater detail. The increasing competition is making it imperative to employ technologies for low cost customer prospecting, establishing and maintaining closer relationship with customer and improved brand loyalty. Thus, need for low cost methods of customers interaction is an important factor fuelling growth of e-commerce.

1.5 FEATURES OF ELECTRONICS COMMERCE

E-commerce is characterized by a wide range of business operations and transactions, including:

1. Ubiquity

E-commerce is widespread, that is, it is available everywhere always. It sets free market from being restricted to a physical space and makes it possible to shop from computer (such as desktop, laptop). The result is called a market space.

For consumers, ubiquity cuts transaction costs for exploring products in a market. Consumers can acquire any information whenever and wherever they want, regardless of their location. It is no longer necessary that buyer spend time and money for traveling to a market. In all, it saves the cognitive energy needed to transect in a market space.

2. Global Reach

E-commerce technologies enable a business to easily reach across geographic boundaries around the earth far more conveniently and effectively as compared to traditional commerce. Globally, companies are acquiring greater profits and business results by expanding their business with e-commerce solutions. As a result, the potential market size for e-commerce merchants is approximately equal to size of online population.

3. Universal Standards

Universal Standards are standards shared by all the nations around world. These are technical standards of Internet for conducting e-commerce. It gives all the ability to connect at the same

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"level" and it provides network externalities that will benefit everyone. Universal technical standards lower entry costs and minimal search costs.

4. Interactivity

E-commerce technologies permits two-way communication between customer and sellers which makes it interactive. It proves as significant feature of e-commerce technology over the commercial traditional technologies of the 20th century.

5. Information Density

Information density means total amount and quality of information available over Internet to all market buyers and sellers. Internet vastly increases information density. Information density offers better quality information to consumer and merchants. E-commerce technologies increase accuracy and timeliness of information. For example, flipkart.com store has variety of products with prices.

6. Richness

Richness refers to the complexity and content of a message. Richness means all commercial activity and experience, conducted through a variety of messages. For example, text, pictures, videos, sound, links, SMS (Short Message Services) etc.

7 Personalisation

E-commerce technology offers personalisation. Personalisation means designing marketing messages according to particular individuals by customising it as per customer personal details like name, interests, and past purchases record. Products or services can be modified or altered according to the user's choice or past buying record.

1.6 E-BUSINESS

E-business can be defined as the use of Internet technologies to Internetwork and empower business processes, e-commerce, enterprise communication and collaboration within a company and with its customers, suppliers and other business stakeholders.

These days businesses are using electronic medium to distribute information and provide customer support. These activities are not termed as "commerce" activities but "business" activities. Thus, e-business includes e-commerce along with other applications such as:

- Re-engineer internal business processes.
- Implement e-commerce system with their customers and suppliers.
- Promote enterprise collaboration among business teams and work groups.

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1.7 RESOURCES REQUIRED FOR SUCCESSFUL IMPLEMENTATION OF E-COMMERCE.

The following resources should be available for success implementation of e-commerce:

(i) A product or service to be purchased / sold.

(ii) A place to sell the product or service. In e-commerce, a website displays the product/ service and serves as the place.

(iii) A means of getting people to visit the Website i.e., Hardware, Network infrastructure and system software.

(iv) A means of accepting orders-normally an on-line form of some sort.

(v) A way to accept money-normally a merchant account handling credit card payments. This piece requires a secure ordering page and a connection to a bank. Alternatively the company may use more traditional billing techniques, either on-line or through the mail.

(vi) A fulfillment capacity to deliver products to customers. In the case of software and information, however, fulfillment can occur over the Web through a download mechanism.

(vii) A way to accept returns.

(viii) A way to handle warranty claims, if required.

(ix) A way to provide customer service often through e-mail, on-line form, etc.

1.8 ADVANTAGES OF E-COMMERCE

Internet is a large system of interconnected computer networks that spans the globe. The benefits of conducting business on the Internet are summarized below:

1. **Facilitates the globalisation of business:** E-commerce facilitates the globalisation of business by providing some economical access to distant markets and by supporting new opportunities for firms to increase economies of scale and scope by distributing their production and distribution assets internationally. All the advantages of e-commerce for business entities can be summarized in one Statement: e-commerce can increase sales and decrease cost. Advertising done well on the Web can get even a small firm's promotional message to potential customers in every country in the World. E-commerce can be used to reach narrow market segments that are widely scattered geographically. An e-business can receive orders from just about any country in the world. World Wide Web (www) is an ideal mechanism for proviiding relevant information to the public globally.

   It allows the organizations an opportunity publicizing their products and services at minimal cost. By information on routinely asked questions on the home for putting pages, organisations can substantially reduce costs by reducing the number of customer service representatives. Also customers can place orders through the Internet once security issues are worked out. The www holds the potential to increase the market share and helps in expanding into new markets by virtue of its global reach. Moreover, easy access to information through the Internet gives the opportunity to compare the costs and characteristics of products and services.

2. **Provides increased purchasing opportunities for the buyer:** Just as e-commerce increases sales opportunities for the seller, it increases purchasing opportunities for the buyer. Businesses can use e-commerce in their purchasing processes to identify new

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suppliers. Negotiating price and delivery terms is easier in e-commerce, because the Web can provide competitive bid information very efficiently. E-commerce increases the speed and accuracy with which businesses can exchange information, which reduces costs on both sides of the transactions.

Moreover, e-commerce provides buyers with a wider range of choices than traditional commerce, because they can consider many different products and services from a wider variety of sellers. This wide variety is available to evaluate 24 hours a day, every day. Some products can even be delivered via the Internet, which reduces the time buyers must wait to begin enjoying their purchases.

3. **Lower staffing costs:** As in e-commerce the selling and tendering process is on-line, the amount of interaction with staff is minimized. A well-designed e-commerce site allows the issues to resolve without the need for intervention by staff.
4. **Reduced response times:** In traditional commerce, sales and tenders often take a long time from the "just looking" to the buying stage. In e-commerce, the interaction with the system takes place in almost real time and therefore, allows the customer or bidder to respond more quickly and reduces the lag time between discussion and purchase.
5. **Low-cost advertising medium:** Companies may use Internet to:
   (a) Advertise and create awareness for their products.
   (b) Promote and offer special deals that generate demand for their products.
   (c) Provide detailed information about their products.
   (d) Inform and influence the customer's choice.
   (e) Build brand loyalty by offering immediate and convenient service after the sale.
6. **Low barriers to entry:** Home pages give equal footing to small organizations with large international firms. Small and large firms have alike opportunity to be on WWW and conduct business on the Internet.
7. **Perceived image enhancer:** Mere presence on WWW enhances the image of the organization and they are perceived as laggards in employing state-of-the-art technologies.
8. **Market-based expansion:** An e-commerce can open its critical information systems to entirely new group of users, which may include employees, customers, suppliers, and business partners, who did not have timely access to them.
9. **Increased profits:** With e-commerce, companies reach more and different customers and gain exposure in new markets not covered by existing physical channels. Since the Internet is both a sales and a distribution channel, companies can sometimes influence their existing customer relationship to offer new products and services.
10. **Increased customer service and loyalty:** E-commerce enables a company to be open for business whenever a customer needs it. This results in increased customer service and loyalty.

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1.9 LIMITATIONS OF E-COMMERCE

The drawbacks of conducting business on the Internet are summarized below:

1. **Security:** When an organization uses the Internet to engage in e-commerce, it exposes itself to security risk. A security threat is defined as "a circumstance, condition or event with the potential to cause economic hardship to data, denial of service and / or fraud, waste and abuse." These security risks can be grouped into three general categories:

   - Client/server risks
   - Data transfer and transaction risk and Virus risk.

   While conducting business on the Internet, there is always a security risk of the possibility of the organization's data or their customers' data being intercepted by an eaves dropper as the data traverses Internet channels.

2. **High start-up costs:** The various components of costs involved with e-commerce are :

   (a) Connection: Connection costs to the Internet (i.e., direct link or connection provider).

   (b) Hardware/software: This includes cost of sophisticated computer, modem, routers, etc.

   (c) Set up: This includes employee work hours involved in the processes of setting up the systems.

   (d) Maintenance: This includes costs involved in training of employees and maintenance of Web-pages.

3. **Legal issues:** Legal issues are significant impediment to conducting business on the Internet. It is almost uncertain to ascertain the legal issues that will start to pop up as business on Internet progresses Legal issues may also arise if customer-sensitive data fall into the hands of strangers. Though encryption is one viable alternative, however, it is also fraught with legal issues, too. Firstly, encryption is considered as a government contraband and secondly, encrypted data the are not allowed to cross national boundaries.

4. **Training and maintenance:** Organisations require trained qualified staff to initiate, update and maintain the Internet facilities and Web pages. Some of the issues involved with training and maintenance can be handled by out sourcing certain functions and services. This would alleviate the need for the organizations to have adequate Internet server configuration backup and 24 hour support environment.

5. **Lack of skilled personnel:** Another drawback of the Internet for e-commerce is the difficulty in finding skilled WWW developers, content providers and knowledgeable professionals to manage and maintain customer on-line. Moreover, the turnover of skilled personnel is very high. Therefore, the issue of finding and retaining personnel is very critical.

6. **Uncertainty and lack of information:** Most of the companies see the Internet as a marketing tool and as a media for advertisement. For a company which has never used any electronic means of communication with its customers, the Internet is an unknown mode. Measures of how effective it is as the conduct of commerce are under-

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mined and sometimes uncertain. The possibility to reach the company's target market through the Internet is unknown.

7. **Loss of contact with customers:** As a result of the impersonal nature of the Internet, the shopping experience can be one where the customer does not feel they have received sufficient personal attention.
8. **Some business processes may never lend themselves to e-commerce:** Many items such as perishable food and high-cost items such as jewellery and antiques may be impossible to adequately inspect from a remote location, regardless of technologies that are devised in the future.
9. **Cultural and legal impediments to e-commerce:** Some customers are still somewhat fearful of sending their credit card numbers over the Internet. Moreover, many customers are simply resistant to change and are uncomfortable viewing merchandise on a computer screen rather than in person. The legal environment in which e-commerce is conducted is full of unclear and conflicting laws.
10. **Costs and benefits of e-commerce are hard to identify:** Businesses often calculate the return on investment numbers before committing to any new technology. This has been difficult to do for investments in e-commerce, because the costs and benefits have been hard to identify. Costs, which are a function of technology, can change considerably during even short-lived e-commerce implementation projects, because the underlying technologies are changing so rapidly.
11. **Political structures of the world have not kept up with internet technology:** Doing business internationally presents a number of challenges such as currency conversions, tariffs, import and export restrictions, local business customs, and the laws of each country in which the trading partner resides can each make international e-commerce difficult.

1.10 THE MYTHS OF E-COMMERCE

The overall growth of e-business has been dramatic and will continue to be fueled by business-to-business activity. E-business offers the opportunity for business to establish new competitive standards by expanding distribution channels, integrating external and internal processes, and offering a cost-effective method of providing products and services. The Internet provides on-line businesses with the ability to reach a global audience and to operate with a minimal infrastructure, reducing overhead, and economies providing greater of scale, while providing customers and businesses with a broad selection, increased pricing power, and unparalleled commerce. There is still a lot of confusion regarding what e-commerce can do and what it cannot do. The following are some of the myths which need to addressed.

1. **Anything can be sold successfully on the internet:** Generally, there is a feeling that anything and everything can be sold on the Internet but this is not true. The customers may not feel comfortable in buying certain products-such as clothing, and jewellery, etc-without touching, feeling, or otherwise experiencing them. Bulky products like furniture have relatively high transportation costs and this may increase its price substantially. This high transportation cost may also make the sales returns as non-feasible. Moreover, there are many services which require face-to-face interaction; e.g.,

health care and education. Though theoretically these services can be and are being sold on Internet, but Internet cannot make face-to-face interaction productive for a large section of the population.

2. **E-businesses are very profitable:** It is very difficult to recall a single e-business that has actually made a profit (yet!). Even the longest established, such as Amazon.com have not made any profit, although many e-businesses have grabbed a large share of their particular markets. The reason for this is that they are so capital intensive-they require a great deal of financial investment (not just up front but continuing investment), and take many years to set up a reliable customer base which is large enough to ensure expansion.

3. **Any individual can set up an e-business from his/her home and take on the large companies on equal footing:** This may have been true in the initial days of the World Wide Web, but the large companies quickly caught on to the fact that the Internet was good for business; rapidly moved in and took over. But nowadays, to be a successful Internet company, one needs to have a fundamentally original idea. Though in theory, size is not important for on-line forms. But in practice, size continues to be critical to on-line firms. Customers prefer to buy from large sized firms. Size does matters. Size, in most cases, means brand power, trust, and consumer confidence. But the Internet has not changed the way to earn creditability. Creditability can only be earned through actual performance. Internet has provided the same platform to both small and big businesses for exchanging information only.

4. **Setting up a web site is easy:** This is both true and false. An e-business can always be set up which should run without any human intervention. But actually all systems develop teething troubles. Internet server required to host the site may breakdown and this would need repairing. Generally, an on-line business needs a team of maintenance people to keep it up and running. An e-business may prompt others to set up a similar business, which may be better than the original e-business. Customers find it so easy to move their custom from one e-business to another. One has to keep alert all the time to ensure that his/her business is better than anyone else on the market. Putting up a Web site may be easy but to make it effective, scalable, and successful may not be that easy. Building a Web infrastructure can be a serious matter. Higher costs are accumulated in follow-up investments including :

   - Redesign
   - Additional hardware support
   - Expanded warehouse needs
   - Integrated inventory control
   - Increased customer call center capacity.

5. **E-commerce is cheap as compared to purchase of a mainframe or with a full blown enterprise resource planning implementation:** But for a number of reasons, a full scale on-line commerce effort is never a low-cost proposition. Business-oriented commerce server software, such as microsoft site server commerce edition, may start as low as Rs. 5000. But companies spend an average of Rs. 7,50,000 just for the base line technology, according to Gartner Group survey of 100 commerce sites. Then there are marketing costs and other non-IT infrastructure investments.

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6. **Everyone is doing it:** This is true and just about every company has a Web site. But brochure ware is not commerce. With a few notable exceptions, most old-line manufactures have yet to move into E-commerce-and may not for a quite a while as they may need the retirement of an entire generation of purchasing and sales staff members. E-commerce is not an overnight thing. There are some massive penetration barriers that will not fall for decades. Many companies may not find e-commerce as strategic-Web site can become the foundation for a successful e-business only if it is created with target audience in mind.
7. **Internet gives small companies instant access to global markets:** Access to global markets is different from leveraging global markets. Large companies have a huge advantage in overseas markets if they leverage their brands on-line. Internet provides a low barrier to doing e-commerce, but a very high barrier to becoming one of the leading choices. Web also makes it easier to do business with the largest suppliers and customers. So e-commerce is actually causing some companies to reduce their number of suppliers and buy from the larger reputed companies in order to get bigger discounts and better services.
8. **E-commerce removes middlemen:** They provide an instant global sales channel to all producers of goods and services. In theory, Web provides a way to producers to sell directly to consumers without utilizing the services of distributors, resellers, and other middlemen. But because of the actions of producers, distributors and the rise of many new intermediaries on the Web, have given rise to a new class of intermediaries. E-commerce players are using the Web to enhance their existing distribution channels, not circumvent them. Successful e-commerce players make most of their sales to resellers and not to customers.
9. **E-commerce does not need mass marketing:** But mass marketing is also a necessity for e-commerce players. Customization and personalization may be fine for customer retention but not s good for customer acquisition. Customer acquisition still requires mass marketing.
10. **You can always find the best price on-line:** Smart buyers now that the best prices are in stores. They cruise on-line to find out what things cost and they use this information to bargain the price with the local retailers.
11. **Internet is a revolutionary advertising forum:** There are ore exciting ad media than those three inches strips that blink at while individuals search for prices of things. Web advertising has not replaced all other forms of advertising.
12. **Making money on the web is easy:** It takes time and investment up front. A study group indicated that Web retailers invested 65% of their revenues in marketing and advertising, compared to their off-line counterparts, who invested just 4%..
13. **Privacy is not an important issue on the web:** Many sites offer visitors "freebies" in exchange for information. Privacy issues are a highly debatable Web topic. Businesses should post a privacy statement on their Websites, explaining to customers how they intend to use the information they collect.

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14. **The most important part of any e-commerce effort is The entrepreneurs who technology:** The entrepreneurs who are proving to be the most successful in e-commerce are those who know how their industries work inside and out and then build an e-commerce site around that knowledge.
15. **On the web, customer service is not as important as it is in a traditional retail store:** Sites that are slow to load, difficult to navigate, or confusing to customers will not be revisited. Common Web site complaints are:
    - Not taking credit cards
    - Not looking professional
    - Having no posted return policy
    - Not having an easy to find and use checkout.
16. **E-commerce will cause brick-and-mortar retail stores to disappear:** Some products simply lend themselves better to typical storefront formats. To remain competitive, a company should offer both deliveries by mail or pickup from a store location.

1.11 KEY SUCCESS FACTORS IN E-COMMERCE

Several factors have a role in the success of any e-commerce venture. They may include:

1. **Providing value to customers:** This can be achieved by offering a product or product-line that attracts potential customers at a competitive price, as in non-electronic commerce.
2. **Providing service and performance:** These goals may be achieved by offering a responsive, user-friendly purchasing experience.
3. **Providing an attractive website:** The tasteful use of colour, graphics, animation, photographs, fonts, and white-space percentage may aid success in this respect.
4. **Providing an incentive for customers to buy and to return:** Sales promotions to this end can involve coupons, special offers, and discounts. Cross-linked Websites and advertising affiliate programs can also help.
5. **Providing personal attention:** Personalized Web sites, purchase suggestions, and personalized special offers may go some of the way to substituting for the face-to-face human interactions found at a traditional point of sale.
6. **Providing a sense of community:** Chat room, discussion boards, soliciting customers input, loyalty schemes, and affinity programs can help in this respect.
7. **Providing reliability and security:** Parallel servers, hardware redundancy, fail-safe technology, information encryption, and firewalls can enhance this requirement.
8. **Owning the customer's total experience:** E-tailers foster this by treating any contacts with a customer as part of a total experience, an experience thus becomes synonymous with the brand.
9. **Steamlining business processes:** The various processes involved in a business can be steamlined possibly through re-engineering and information technologies.

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10. **Letting customers help themselves:** Provision of a self-serve site, easy to use without assistance, can help in this respect.
11. **Helping customers do their job consuming:** E-tailers can provide such help through ample comparative information and good search facilities. Provision of component information and safety-and -health comments may assist e-tailers to define the customers' job.
12. **Constructing a commercially sound business model:** This is the most important factor leading to the success of any e-commerce venture. Many of the dot.coms have gone bust because they did not give due importance to this aspect.
13. **Engineering an electronic value chain:** An electronic value chain is one that focuses on "limited" number of core competencies the opposite of one - stop shop. (Electronic stores can either appear specialist or generalist if properly programmed).
14. **Accepting technology changes:** Operating on or near the cutting edge of technology and staying there as technology changes. (But the fundamentals of commerce remain indifferent to technology).
15. **Continual updation:** Setting up an organisation of sufficient alterness and agility to respond quickly to any changes in the economic, social, and physical environment.

1.12 PROBLEMS OF E-COMMERCE

Even if an e-commerce goods and service provider rigorously follows the various "key factors" to devise an exemplary e-commerce strategy, problems can still arise. Sources of such problems include the following :

1. **Failure to understand customers:** It is very difficult for e-commerce goods and service provider to understand the customers behaviour in terms of when they buy and how they buy. Even a product with a sound value proposition can fail if producers and retailers do not understand customer habits, expectations, and motivations. E-commerce could potentially mitigate this potential problem with proactive and focused marketing research, just as traditional retailers may do.
2. **Failure to consider the competitive situation:** Many e-tailers may have the capability to construct a viable business model, but lack the will to compete with reputed e-tailers such as Amazon.com.
3. **Inability to predict environmental reaction:** Environmental reactions include What will competitors do? Will they introduce competitive brands or competitive Web sites? Will they supplement their service offerings? Will they try to sabotage a competitor's site? Will price wars break out? What will the government do? into competitors, Research industries and markets mitigate some of these consequences just as in non-electronic commerce.
4. **Overestimation of resource competence:** It is very difficult to estimate the staff, software, and processes required to handle the proposed strategy. Many e-tailers have failed to develop employee and management skills. These issues may call for thorough resource planning and employee training.
5. **Failure to coordinate:** In case the existing reporting and control relationships are not

sufficient, one can move towards a flat, accountable, and flexible organisational structure, which may or may aid coordination.

6. **Failure to obtain senior management commitment:** This often results in a failure to gain sufficient corporate resources to accomplish a task. It may help to get top management involved right from the start of the project.
7. **Failure to obtain employee commitment:** If the planners do not explain their strategy well to employees, or fail to give the whole picture of the project to their employees, the training and setting up incentives for employees to embrace the strategy may assist.
8. **Underestimation of time requirements:** Setting up an e-commerce venture can take considerable time and money, and failure to understand the timing and sequencing of tasks can lead to significant cost overruns. Basic project planning, critical path, critical chain, or PERT analysis may mitigate such failings. Profitability may have to wait for the achievement of market share.
9. **Failure to follow a plan:** Poor follow-through after the initial planning, and sufficient tracking of progress against a plan can result in problems. This problem can be mitigated with standard tools such as bench marking, milestones, variance tracking, penalties for negative variances, rewards for positive variances, etc.

1.13 INTERNET AS AN ELECTRONIC COMMERCE ENABLER

E-commerce enabler is a company that provides end-to-end solution for brands to do e-commerce business. Those services include official store management, digital marketing, creative services, customer service management, supply chain management & fulfillment. In a simple way, e-commerce enabler helps brands to success their online selling through e-commerce platforms & other online channels. Start from digital strategy & execution, platform optimization, order processing & fulfillment, also delivering products through 3PL partners are common required for an enabler. Enabler engages closely with the marketplace and other eCommerce platforms, but it is not a marketplace. The global brands like Microsoft, Samsung, Reckitt Benckiser enjoy the functions of an enabler and marks a distinctive growth in the market of Southeast Asia.

As the world is growing digital, everything is moving fast with new technologies evolving. Therefore, depending just on the eCommerce platform for your business will push you behind from others.

The inventory, pricing, customer support, vouchers require maintenance and regular check around the clock. It even gets more complex when eCommerce manages several websites and marketplace shop-in-shop.

Brief History: Growth of Internet

Internet is the most well-known and important component of the Information superhighway network infrastructure. Internet began around 1965, when US Department of Defence financed the design of a computer. The forerunner of the Internet, ARPANET in 1970's was used by a small number of researchers for the US Department of Defence. Therefore, history of Internet can be traced to a military research network where ARPANET was sponsored by the Advanced Research Project Agency (ARPA). Basically it was based on simple packet switching protocol.

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The arpanet had many objectives, which are still relevant today, these are:

- The network would follow the growth path and modularity,
- The network would not break down if one or more computers or connections in the network fail.
- The network would continue to function if changes occur at hardware or software platforms.
- The network should be able to reroute the data and manage traffic automatically around non-functioning parts of the network.
- The network should be able to link not only work station but also networks of computing.

New uses for the Internet

E-mail was born in 1972 when a researcher wrote a program that could send and receive message over the network. This new method of communicating became widely used very quickly. Many of these new participants used networking technology to transfer files and access computers remotely on these networks. Mailing list was also generated, so that any message could be forwarded to the user who had subscribed to the list. In 1979, a group of students and performers started with User's News Network known as Usenet.

Usenet allows anyone who connects to the network to read and post articles on various subjects. Usenet survives on the Internet today with thousands of different topics known as newsgroups. Between 1979 & 1989 the network applications were improved, generated and tested by an increasing number of users.

As personal computers explosion in 1980 helped more people to become comfortable with computers, more affordable and powerful feature helped the people to build their own networks.

In the 1980s, Internet's use spread among universities and in 1990s its usage was among people and organizations World-Wide. The Internet has proved every forecast; it is operating with a transmission speed of several gigabytes per second.

During 1992-1993, the Information highway propelled. By this time, the Internet involvement was greatly in commercialization and privatization, and a step towards removing Government subsidies to regional network and dismantling the barriers imposed by usage policies. The network extended far beyond the research community and today it supports commercial transactions and also provides extensive connections for commercial organization.

There has been rapid technological change, competition and decreasing prices of hardware, which motivated the world of network infrastructure, New Technological advancement such as VLSI, PCs Workstations, LANS robust protocols, routers and user friendly software found an enormous market place that motivated individual initiative to experiment with networking.

At the same time, network technology offered increasingly cheap bandwidth and, thus, massive bottom up infrastructure sprouted. Winston states "that the current state of Internet is like the wild west lawless, untamed, uncivilized but full of potential."

NSFNET backbone beginning in 1995 sparked a massive restructuring aimed at shaping the Internet into a faster and more productive tool for business Internet followed a voluntary policy called Acceptable Usage Policy (AUP) that allowed only non-profit educational and Government agencies to use Internet. The new policies allowed many commercial uses of Internet. To serve the new customers, a new industry emerged called Internet Service Provider (ISP). In the history

of computing, consumer usage is the most popular application on the Net. ISP is a business that supplies Internet connectivity services to individuals, businesses and other organizations.

Limits to Growth

At the end of 1990s, Internet use has become global. However, the extent of access varies widely. Despite its complex problems, the Internet has proven to adapt at evolution. The factors that could impede the growth of Internet include the possibility of an ultimate traffic jam creating a requirement to stop and redesign the sub-system of Internet. Undoubtedly traffic will grow exponentially as we experience more and more multimedia integration with conventional traffic types (Although IP version 6 is expected to resolve the addressing problem).

Although, US Government has declared the Internet a duty-free zone, but one can anticipate that the US Government and its state and foreign counterparts will ultimately try to tax traffic and transactions on the Internet. This may have a icing effect on the growth of the commercial applications on the Internet. Moreover, charging on dial-up access to the Internet is also considered to be a positive factor to limit the growth of Internet. It is a common practice for Website to collect information from clients surfing the Website through the use of cookies. Thus, privacy continues to be a thorny problem on the Internet as cookies aggravate the problem of protecting privacy. ISPs have also not adopted standard privacy policies.

Vent Cerf predicted that in 50 years there will be universal connectivity with people and devices that will use 128 bits of IP Version 6 address space. He predicted that users will enjoy giga bit data rate while traffic will move over to 10-100 Gbps backbones and that the Internet will enjoy a bandwidth of 38THz. To accommodate growth in traffic, the capacity of the NSF NET backbone has already increased three times, making the current capacity approximately 840 times larger than the original one.

Nature and Dynamics of the Internet

Internet was originally developed as a tool for scientists to send and receive messages. This is the way many of us use the Internet today at negligible cost. From the business perspective companies are now managing their business with the help of Internet. Moreover e-commerce evolved due to the rise of the Internet and its dynamic nature. Nature of Internet possess following characteristics, these are:

- **User-friendly and commercially popular technology:** Today Internet is the faster growing, most user-friendly and commercially popular technology.
- **All time available:** Make the information available on-line, anywhere to anyone, 24 hours a day, 7 days a week.
- **Improves efficiency of operation:** The sharing and integration of information helps in decision making and efficiency of operation for everyone.
- **Complex network:** Internet is huge set of networks connected Together, i.e., more than 100 separate Internet networks meet to exchange data at the Network Access Point (NAP).
- **Dynamic in nature:** The Internet is changing. New applications and access technologies keep changing. The new version of Internet is Internet 2. There are many different organizations currently working on the next generation of the Internet.

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- **Internet covers globe:** Internet is accessed by people across the globe.
- **Wider application accessibility:** The Internet offers access to data, graphics, sound, software and text through a variety of services and tools for communication and data exchange.

Structure of Internet

The Internet is hierarchical in structure. At the top there are very large (ISP) Internet Service Providers such as VSNL, DSL. These national ISPs connect together and exchange data at Network Access Point (NAP).

As you know from history of Internet, in the early 1990, Internet was primarily run by National Science Foundation (NSF-US). The four main NAP were established by NSF in US to connect national level ISPs. Since Internet work was growing exponentially, NSF stopped funding the Internet. The companies involved in running NAP began charging for connections the national ISPs. Therefore presently, many international commercial companies are running various NAPs in various countries.

In the hierarchy of Internet, local ISP rely on regional ISPs and regional ISPs on national ISPs to transmit their messages in other countries (see Fig. 3). The local ISPs are responsible for providing connectivity to the individuals. Due to exponential growth of ISPs, another form of NAP emerged-Metropolitan Area Exchange (MAE). MAEs are responsible to link regional ISPs, whose networks are connected in major cities. As they (MAE) act as NAP and work at metropolitan level, thus they are considered to be smaller version of NAP In order to provide backup connection, in case one Internet connection fails, regional and local ISPs usually have several connections into national and other regional ISPs. This way Internet work maintains its efficiency because they are not dependent on one higher level ISP.

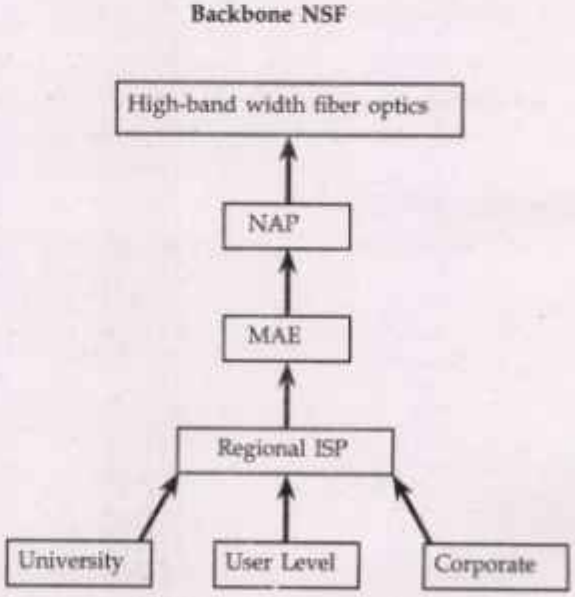

Fig. 3: Basic Internet Architecture

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World Wide Web (WWW)

World Wide Web (WWW refers to a software that runs on computers that are connected to the Internet. It allows it user to retrieve the information that it organizes and stores in multimedia form, Webpage is a document on WWW that can include text, pictures, audio and video.

WWW or just Web is most popular method of accessing the Internet services and its information located on different servers, it resides on the top of the Internet. Web is an integrator of Internet applications with multimedia. Web is popular because of the use of hypertext concept. In 1990 Tim Berner Lee a programmer wrote a program called a hypertext editor. The principal Web tools is the browser, a program that uses the HTTP to retrieve information (or surfing) from a Website containing Web pages from http servers World-Wide. Hypertext provides a new way of storage and retrieval of information on the Internet, with this author can structure the information. An effectively designed hypertext facilitates the user to locate the desired information as fast as possible, as Internet is an ocean of information. This is possible due to series of links present in hypertext document. A link connects a document to another document that may be anywhere on the Internet, basically to provide more information about linked item. The linked item is simply clicked with the mouse to make the connection possible. The first page is called a Home Page which contains a sequence of linked pages. The key concepts in the working of Web are summarized below:

- Hypertext refers to a text that is linked together in a complex, non sequential associations in which user can browse through related topics.
- HTTP (Hyper Text Transfer Protocol): The protocol used to carry requests from a browser to a web server and to retrieve pages from Web servers back to the requesting browser.
- Universal Resource Locator is a string of characters that points to specific piece of information anywhere on the Web
- URL consists of (i) Web protocol; (ii) the name of the Web server; (iii) the directory on the server and (iv)file within the directory
- Example: http:// www. mayur paper backs.com/book/authors.htm

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  Protocol Domain Name directory name File
- Hyper Text Markup Language (HTML): HTML is a tag-based notation language used to create and format documents that can be interpreted and rendered by an Internet Browser. It allows the creator of the Web page to specify how text will be displayed and how to link to other Web pages, files and Internet Services.
- XML Extensible Markup Language (XML): XML is a language proposed by W3C that allows Web developers and designers to create customized ways that offer greater flexibility in organizing and presenting information (than in older HTML version)
- Web client: Web client is a user PC attached to Internet that is capable of making HTTP requests and displaying HTML pages.
- Web browser: Web browser is a software that lets a user view Web pages and access files and software related to those documents It also has added feature, such as e-mail, news group.

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Internet Service Provider (ISP)

Internet Service Provider (ISP) is an organization that maintains one or more gateway computers and provides Internet access facility to other users by allowing them to connect their computers to its own gateway computer(s) by using a modem. ISP provides a variety of services, some of which are:

- Links consumers and business to the Internet (e.g. BSNL, MTNL, VSNL, Airtel, Tata Indicom, etc).
- Monitors and maintains customers' Web sites.
- Network management and system integration.
- Backbone access services for other ISPs, e.g. PSI and UUNET.
- Payment systems for On-line purchases.

These days ISPs offer unlimited access for as low as Rs 500 per month. ISPs also offer many free services which may include the following:

- Hotlists which inform the user what is popular and what is not.
- Comics that focus on entertainment events.
- Software archives that list the latest free software available.
- Weather services providing free weather forecasts anywhere in the world.
- Magazines and broadcasting stations that constantly update the news.
- Searches that help in locating items and subjects on the Internet.
- Dictionaries that include thesauruses and 'fact' books on all subjects.
- Govt. services that publicize what is available from them.

Stability And Reliability Of The Web

Web is a network of computers across the globe, interconnected together on the Internet and using the concept of hyper text to link Internet sites and information on the Internet. Hypertext transport protocol (HTTP) is a protocol that allows transfer of many documents on the World Wide Web. This is the familiar http// seen at the beginning of many URLS.

No one single agency or company owns the Internet. Each company on the Internet owns its own network. The links between these companies and Internet are owned by ISP's.

Internet society is the organization that coordinates Internet functions. It does not operate any of the millions of networks that make up the Internet; rather it works with ISPs by providing information to prospective users. The association's Internet Architecture Board consists of various work groups that focus on TCP/IP and other protocols. The various committees of the Internet society also handle technical issues and day-to-day operational aspects of the Internet.

Web resides everywhere and no-where at the same time. It cannot cease functioning by itself. Since it is based on the Internet, its stability is as good as that of the Internet. The reliability of the Web primarily depends on the quality of service provider's equipment. The reliability of the Web is affected by the number of phone lines, bandwidth or the intermediate computers.

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1.14 ELECTRONIC COMMERCE BUSINESS MODELS

Value Proposition

The term "value proposition" is thought to have first appeared in a McKinsey & Co. industry research paper in 1988, defining it as. "as "a clear, simple statement of the benefits, both tangible and intangible, that the company will provide, along with the approximate price it will charge each customer segment for those benefits.

A value proposition refers to the value a company promises to deliver to customers should they choose to buy their product. A value proposition is part of a company's overall marketing strategy. The value proposition provides a declaration of intent or a statement that introduces a company's brand to consumers by telling them what the company stands for, how it operates, and why it deserves their business.

A value proposition can be presented as a business or marketing statement that a company uses to summarize why a consumer should buy a product or use a service. This statement, if worded compellingly, convinces a potential consumer that one particular product or service the company offers will add more value or better solve a problem for them than other similar offerings will.

A value proposition stands as a promise by a company to a customer or market segment. The proposition is an easy-to-understand reason why a customer should buy a product or service from that particular business. A value proposition should clearly explain how a product fills a need, communicate the specifics of its added benefit, and state the reason why it's better than similar products on the market. The ideal value proposition is to-the-point and appeals to a customer's strongest decision-making drivers.

Components of a Value Proposition

Value proposition communicates the number one reason why a product or service is best suited for a customer segment. Therefore, it should always be displayed prominently on a company's website and in other consumer touch points. It also must be intuitive, so that a customer can read or hear the value proposition and understand the delivered value without needing further explanation.

Value propositions that stand out tend to make use of a particular structure. A successful value proposition typically has a strong, clear headline that communicates the delivered benefit to the consumer. The headline should be a single memorable sentence, phrase, or even a tagline. It frequently incorporates catchy slogans that become part of successful advertising campaigns.3

Often a subheadline will be provided underneath the main headline, expanding on the explanation of the delivered value and giving a specific example of why the product or service is superior to others the consumer has in mind. The subheading can be a short paragraph and is typically between two and three sentences long. The subheading is a way to highlight the key features or benefits of the products and often benefits from the inclusion of bullet points or another means of highlighting standout details.

This kind of structure allows consumers to scan the value proposition quickly and pick up on product features. Added visuals increase the ease of communication between business and

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consumer. In order to craft a strong value proposition, companies will often conduct market research to determine which messages resonate the best with their customers.

Special Considerations

Value propositions can follow different formats as long as they are unique to the company and to the consumers the company services. All effective value propositions are easy to understand and demonstrate specific results for a customer using a product or service. They differentiate a product or service from any competition, avoid overused marketing buzzwords, and communicate value within a short amount of time.

For a value proposition to effectively turn a prospect into a paying customer, it should clearly identify who the customers are, what their main problems are, and how the company's product or service is the ideal solution to help them solve their problem.3

Purpose of a Value Proposition

A value proposition is meant to convince stakeholders, investors, or customers that a company or its products/services are worthwhile. If the value proposition is weak or unconvincing it may be difficult to attract investment and consumer demand.

An employee value proposition (EVP) applies to the job market. Here, a company that is hiring will try to frame itself as a good place to work, offering not only monetary compensation but also a range of benefits, perks, and a productive environment. In return, the job candidate will need to convince the hiring company that they have the appropriate skills, experience, demeanor, and ambition to succeed.

1.15 REVENUE MODEL

A revenue model is a part of the business model that explains different mechanisms of income generation and its sources. A business starts with an idea of how to generate value for a customer. So, if it's a person looking for a table, we can produce a table, market it, ship it, receive payment for it – and, that's our business model. The total amount of money earned, in other words revenue, is the coal that keeps our train running. Depending on the business model's complexity, revenue will cover manufacturing, distribution, marketing, and other costs, until we get profit.

But profit doesn't keep the business alive, revenue does. Besides a simple transactional logic, there are many ways we can generate revenue, cover our own expenses, distribute products, and so on. That's even truer for software companies.

Web distribution and the nature of software creates various possibilities to monetize code. Think of licensed/freemium apps, service subscriptions, and others. All of these represent a certain mechanism that specifies how business generates revenue. The structure of it is called a revenue model.

For those exploring the basics of business strategy planning, we'll elaborate on the definition of the revenue model, and the correlation between business models and revenue streams. We'll also analyze different types of revenue models and look at some examples to scrutinize the pros and cons of each approach. Finally, we'll reflect on how to choose or develop a model for your business.

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Revenue model basics

To avoid any misinterpretations, let's quickly define the main terms that relate to forming a business strategy. A business model (BM) is a broad term outlining everything concerning the main aspects of the business, all of which are contained in the answers to the following questions.

- What value will we create?
- How will we deliver it?
- How will we bring in revenue?
- How will we earn profit?

There are numerous forms of business models that can't be classified in a single list because each part is highly individual to the industry, type of product/service, audience, or profitability. Business models are often depicted strategically on a business model canvas. This is a compound representation of all the key elements of a BM.

So, in a nutshell, the BM describes how a business will work from the standpoint of value generation. To describe how the company generates income, revenue models are used.

1.16 TYPES OF BUSINESS MODELS

In the previous Chapter we discussed the different types of Internet business models on the basis of nature of buyer and seller – B2B, C2C, B2C, C2B etc. These various business models can be classified in two ways:

(i) **Pure business models:** That operate only On-line e.g. eBay, Amazon.com. They have only an On-line presence and use the capabilities of Internet to create a new business.

(ii) **Brick and clicks models:** That operate both On-line and in a physical space. These businesses combine a physical presence with an On-line presence. These business models use the Internet to supplement their existing businesses.

The Bricks-and-Clicks-Business Model

Bricks-and-clicks business models operate both On-line and in a physical space. This is the business model that has successfully integrated its online cyber-world existence with its offline real-world existence. For example, an online appliance store that allows customers to schedule repair visits at its website would be an example of bricks-and-clicks application. These businesses combine a physical presence with an On-line presence. They use the Internet to supplement their existing businesses. This can be accomplished in one of the following ways:

- By partnership, or
- By ownership, or
- By treating the Internet as one channel to reach the consumers and then integrating it with existing channels.

The bricks-and-clicks business model is particularly useful in the retail industry. The advantages of bricks-and-clicks model in retail industry are:

(i) Some products cannot be sold exclusively on Internet. At times consumers desire to try on a product, or touch, or feel a product before buying. The examples of such products

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include fruits and vegetables, dresses, or furniture etc. In bricks-and-clicks business models, consumers may visit the physical space to experience the product and order it there. In these cases, consumers may use the Internet to locate the stores and keep track of their orders. Moreover, such businesses may use the Internet to inform the customers regarding the availability of products based on the basis of buying pattern of consumers through e-mail.

(ii) In pure business models, delivering of product, at times, becomes a very cumbersome process. This is because the consumers may not be available all the times at home to receive the delivery of products ordered. In all such cases, the pure business models may enter into a partnership with physical stores for delivering the products whereby consumers can place orders On-line, where as the items ordered may be picked up by consumers from these physical stores.

(iii) Many a times, the pure business models offer the option to consumers to return the goods ordered by them On-line incase they do not like the products. In such cases, it may be difficult and expensive to manage the sales returns particularly when the goods are bulky. In all such cases, the pure business models may enter into a partnership with physical local stores whereby consumers may return all such products to these local stores and in turn these local stores may sell all these returned items to other consumers in the store.

(iv) Bricks-and-clicks business models combine a physical presence with On-line presence. The physical presence provides the power of face to-face selling whereby salesmen can help the consumers by answering product-related queries, providing feedback about the suitability of a product, and suggesting alternative products which can serve the purpose of consumers. This may help the On-line retailers to establish better relations with their consumers.

Table 1: Differences between Bricks and Mortar and E-commerce

Features	Bricks and Mortar	E-commerce
Location	It requires marketplace. Generally, it is preferred to set up stores where there is little competition for customers, and the location is convenient for the customers and also for the owners. For example, store might choose a mall location to gain access to all the traffic that flows through.	An on-line business requires marketspace, it is important that the Website is highly visible and easily found. Placement of links to the web site is an important determinant of traffic for an e commerce store. For example, an e-commerce store could choose to locate itself in a virtual mall, such as Yahoo shopping to gain access to all the traffic that flows through the mall.

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Size	Type of items, size of items, and the number of customers influence the size of the store. Stores expecting heavy traffic need to choose a location with adequate parking and entrances and walkways large enough to accommodate such traffic.	Size of e-commerce store is also influenced by products and customers. E-stores expecting heavy traffic need enough bandwidth, processing power, and data storage capacity to provide the proper service to their customers. Performance of e-commerce stores is affected by the bandwidth capacity.
Presentation	Great attention is paid to the store layout and customer service. Stores with elaborate arrangement and customer service may be able to charge a premium. Customer service often defines a customer's experience and is a leading driver of customer retention.	A well-planned user interface which is easy to navigate, and pleasing to the store's customers is crucial to successful Web selling. Customer service needs are most often addressed over the Web with internet applications such as e-mail, chat, or discussion groups. A Web Site which is organised effectively and comprehensively can be an excellent method for distributing static information to consumers.
Payment Mode	Cash, bank cheques, traveller cheques, credit card, debit card, i.e. physical funds.	As such, an electronic medium prohibits the use of cash and encourages transactions that do not require physical funds but instead involve data transfer E-businesses are forced to pay higher credit card fees.
Security	The security required is the physical security of cash, inventory, and customer data. Security technologies include covert cameras, alarms and security tags, and security guards.	Significant technological experience is required to secure an e-commerce site. The scale of crimes that can be committed against an online store are far larger. Security technologies include passwords, encryption, screening routers, proxy servers.

Notes

Pricing	Mostly fixed pricing	Mostly dynamic and customized pricing
Product	Standard product	Customized product
Catalogue	Physical catalogue (inflexible)	Digital catalogue
Target	One to many selling	Many to many selling
Supply/demand driven	Supply (seller) driven	Demand (buyer) driven
Organisation	Hierarchical organisation	Networked organisation
Expansion	Tend to expand horizontally	Tend to expand vertically
Fulfilment	The customer typically has very little information about order status except a range of dates within which the order is likely to arrive.	Web customers often demand increased information about their purchases, such as order status and delivery tracking. E-businesses have to co-ordinate the activities of many different parties to ensure proper delivery.

Supply Chain Management (SCM)

SCM is the process of strategically managing flows of goods, services and knowledge, along with relationships within and among organisations, to achieve or support enterprise objectives.

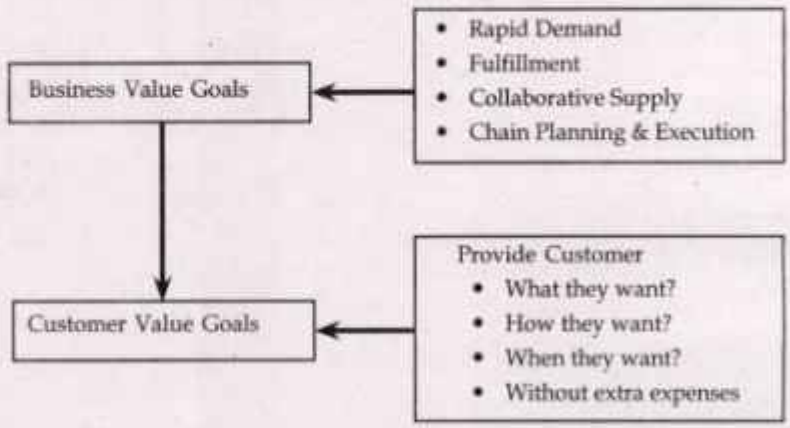

Fig. 4: Objectives of Supply Chain Management

Supply Chain Management (SCM) is the process of planning, implementing, and controlling the operation of the supply cahin with the purpose to satisfy customer requirement as efficiently as possible. It is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Supply chains exist in both service and manufacturing organisations, although the complexity of the chain may vary

greatly from industry to industry and firm to firm. The objectives of SCM are explained below with the help of Fig. 4.

Thus, SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. SCM involves coordinating and integrating these flows both within and among companies. The ultimate goal of any SCM is to reduce inventory (with the assumption that products are available when needed). SCM flows can be divided into three main flows:

1. **The product flow:** It includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs.
2. **The information flow:** It involves transmitting orders and updating the status of delivery.
3. **The financial flow:** It consists of credit terms, payment schedules, and consignment and title ownership agreements.

Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption. In essence, it integrates supply and demand management within and across companies. Supply chain management is a cross-functional approach to managing the movement of raw materials into an organisation and movement of finished goods out of the organisation toward the end-consumer.

Traditionally, marketing, distribution, planning, manufacturing and the purchasing organisations along the supply chain operated independently. These organisations have their own objectives and these are often conflicting. Marketing's objective of high customer service and maximum sales conflict with manufacturing and distribution goals. Many manufacturing operations are designed to maximise throughput and lower costs with little consideration for the impact on inventory levels and distribution capabilities.

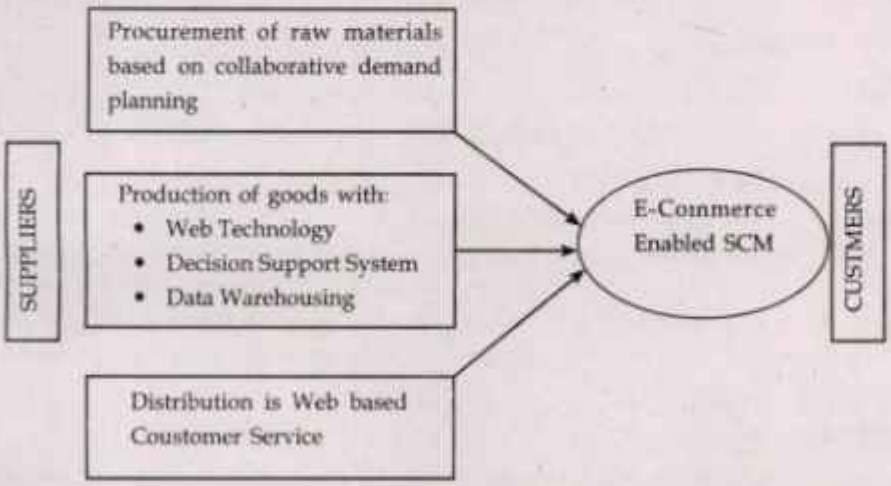

Fig. 5: E-Commerce Enabled SCM

Purchasing contracts are often negotiated with very little information beyond historical buying patterns. The result of these factors is that there is not a single, integrated plan for the organisation-there were as many plans as businesses. Clearly, there is a need for a mechanism through which these different functions can be integrated together. Supply chain management is a strategy through which such an integration can be achieved.

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The following are the five basic components of SCM:

1. **Plan:** This is the strategy portion of SCM. A strategy is needed for managing all the resources that go toward meeting customer demand for product or service. A big piece of planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs and delivers high quality, and value to customers.
2. **Source:** Suppliers are selected to deliver the products and services which are required to create the product. A set of pricing, delivery and payment processes is developed with the suppliers and metrics for monitoring and improving the relationships is created. Processes for managing the inventory of goods and services received from suppliers (including shipments receiving, verifying, and transferring to manufacturing facilities and authorising supplier payments) is put together.
3. **Make:** This is the manufacturing step. Activities necessary for production, testing, packaging and preparation for delivery are scheduled. As the most metric-intensive portion of the supply chain, quality levels, production output and worker productivity is being measured.
4. **Delivery:** This is the logistics step. The receipt of orders from customers is co-ordinated, network of warehouses is developed, carriers are picked to get products to customers, and an invoicing system is set up to receive payments.
5. **Return:** This is the problem part of the supply chain. A network is created for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

SCM is the management of the entire value aided chain from supplier to manufacture right through to the retailer and the final customer.

SCM has three primary goals:

- Reduce Inventory,
- Increase transaction speed by exchanging data in real time,
- Increase sales by implementing customer requirement more efficiently.

Supply Chain Management is all about fulfilling customer needs and it covers all aspects of a business. From the stage of raw material to the end user, each and every aspect of the cycle is covered by the management system-be it sourcing, product design, production planning, order processing, inventory management, transportation and warehousing, and customer service. This complex sequence of steps used to be very difficult to manage efficiently and in the days when organization have to fight hard to maintain their bottom-line, optimizing these steps has become a necessity.

EXAMPLE:

While you enter a store to buy a certain material, the sequence of steps that has brought the material can be observed: on the material, you will find a price tag with all the details of its date of manufacture, date of expiry, lot number, etc.

The shop that you have entered has carefully placed it on the shelf after procuring it from a distributor and noting all these details for billing. The store also maintains an inventory of this material and hundreds of similar materials that are available in the store and along with this a minimum stock level and a reorder level.

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All other products in the store, have been sourced from a distributer who sourced it from the manufacturer. The manufacturer had procured the raw materials required for the production from one or many of his suppliers. In this chain, a third-party transport and warehousing infrastructure was utilized to ship the material from the manufacturer to the distributor and from the distributor to that store.

Once purchase is complete, the point-of-sale terminal this information which in the store updates results at various places-the stock level comes down and revenue increases. The information of decrease in stock level should reach the distributor who has to replenish the stock before it becomes zero and the distributor is also to be paid his due amount. This chain is again pushed backwards to the lowest level of the supplier who has to supply the raw material in time. So, there is a constant flow of money and material between these establishments in order to satisfy the needs of the customer.

The Supply Chain Management manages the flow between different stages to maximize productivity and minimize overstocking. In this value aided chain, different companies involved, and the system used by these companies should be able to talk to each other and understand each other's requirement. A SCM system is a combination of many applications-demand, inventory and transportation planning-covering the stages of the supply chain.

As of now, product variety has increased and also demand for customized products. This has increased demand uncertainity, and thus making it difficult to forecast demand, which has shorten life cycle of products-this has made supply chain management an integral part of today's business.

1.17 CATEGORIES OF E-COMMERCE

E-commerce can be classified into four major categories according to the type of buyers and seller in the transaction. This has been shown in Fig 6.

		BUYER	
		BUSINESS	COUSTOM-ER
SELLER	BUSINESS	B2B	B2C
	CONSUMER	C2B	C2C

Fig. 6: Classification of E-commerce by Type of Buyer & Seller

1. **Business-to-consumer (Internet):** B2C is selling of goods and Services to a customer and the transaction takes place through Internet. E-commerce may be termed as a tool that provides a way to sell goods using Web-based technologies. In this model, sellers sell products and services directly to customers. e.g. Amazon.com. B2C e-business models include virtual malls, which are Web sites that host many on-line transactions. B2C e-commerce refers to the buying and selling of goods via the Web retailers to Web customers. This really is the same thing as B2B e-commerce with one major difference.

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With B2B implementations, the parties are "Trusted Business Partners" who have an established business relationship.

However, with B2C e-commerce, the retailer is often selling to unknown, untrusted strangers. Therefore, extra effort must be made to capture customer and payment information. Further, this data is typically verified before orders are fulfilled. In this respect, B2C is a tougher solution to provide than B2B.

2. **Business-to-business (Intranet and extranet):** B2B is a commercial transaction between two or more businesses. Although B2C is the most familiar form of e-business, transactions between and within businesses account for a large share of commercial activity. Business activities within a company are increasingly transacted on-line via the company Intranet. An Intranet uses Internet technology to allow employees to view and use internal Web sites that are not accessible to the outside world. B2B E-commerce primarily refers to supply chain technology, which is by far the largest and most successful e-commerce technology employed today.

3. **Consumer-to-business:** The C2B model, also called "reverse auction" or "demand collection model," enables buyers to name their own prices, often binding, for a specific good or service generating demand. The Web site collects the "demand bids" and then offers the bids to the participating sellers. Examples of this model are : Reverse Auction.com (travel, autos, consumer electronics) and priceline.com (travel, telephone, mortgages).

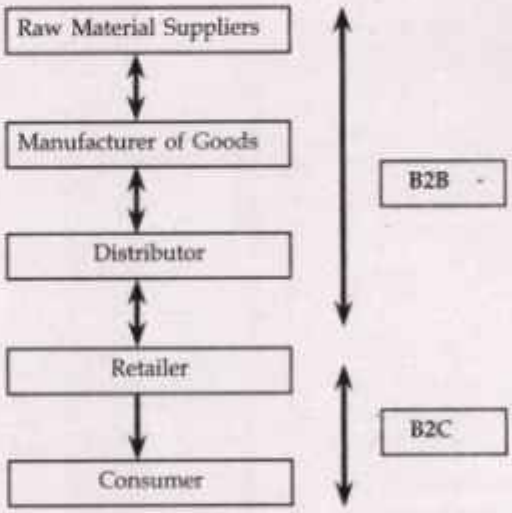

Fig. 7: Relation Between B2B and B2C Models

4. **Consumer-to-consumer:** With C2C e-business model, consumers sell directly to other consumers via on-line classified ads and auctions, or by selling personal services and expertise on-line. C2C E-commerce allows unknown, untrusted parties to sell goods and services to one another. Consumer-to-consumer model facilitates plain and simple commerce between consumers. In this model, revenue streams are typically matching buyers with sellers and vice versa.

The most famous C2C company is e-bay, the world's largest personal on-line trading community, which-for a small fee-allows consumers to offer their goods directly to

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other consumers in auction format To accommodate this activity, several technologies have emerged. Firstly, e-bay allows all sellers and buyers to rate one another. In this manner, future prospective purchaser may see that a particular seller has sold to more than 5000 customers-all of whom rate the seller as excellent. In another example, a prospective purchaser may see a seller who has previously sold only 5 times and all 5 have rated the seller poorly. This type of information is helpful. Another technology that has emerged to support C2C activities is that of payment intermediary. A good example of payment intermediary is Pay Pal. Instead of purchasing items directly from an unknown, untrusted seller, the buyer can instead send the money to Pay Pal. From there, Pay Pal notifies the seller that they will hold the money for them until the goods have been shipped and accepted by the buyer.

Table 2: Comparison Between B2C and B2B Feature B2C B2B

Feature	B2C	B2B
1. Type of Relationship	Consumer-to-Business Consumer uses PC browser to order products via the merchants Website.	Business-to-Business A Representative of a business uses company's Web browser to order products or to inquire via another business (e.g., suppliers) Website.
2. Level of Procurement	Get finished product.	Get raw material or unfinished product.
3. Level of Trust	May not be trusted partners.	Trusted partners.
4. Flow of Information	a. Placing orders b. Executing payments c. Fulfilling orders d. Browsing of merchant's catalog e. Sending feedback or e-mail messages	a. Online procurement b. Tracking order status c. Executing payments d. Managing promotions, returns, catalog information e. Fulfilling orders
5. Nature of control	Undirectional relationship defined by the merchant	Mutual agreement among businesses
6. Level or nature of need-based segmentation	Not very focussed, e.g., a B2C website can sell various types of gift items	More focused than B2C e.g., An automobile company buys only motor parts not aircraft parts.
7. Sales complexity	Not very complex	Complex supply chain
8. Types of Network	Internet based	Intranet or Extranet (based on Internet)

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Table 3: Summary of E-business Transaction Models Model

Model	Description	Examples
B2C	Sells products or services directly to consumer.	amazon.com, autobytel.com, ediets.com, pets.com
B2B	Sells products or services to other businesses or brings multiple buyers and sellers together in a central market place	metalsite.com, verticalnet.com, shop2gether.com
C2C	Consumers sell directly to other consumers	ebay.com, inforocket.com
C2B	Consumers fix price on their own, which businesses accept or decline	priceline.com

1.18 COMPETITIVE ENVIRONMENT

A competitive environment is a system where different businesses compete with each other by using various marketing channels, promotional strategies, pricing methods, etc. This system has regulations within it that companies should follow.

How Does a Competitive Environment Affect Businesses?

Your competitors can directly affect your business and the decisions you make. Let's imagine two online clothing stores that pose a threat to each other in terms of business development and profit. One of them decides to conduct a flash sale before Christmas and provide their customers with 40% off sitewide. The other store will also need to come up with a great offer to attract leads and customers, raise sales, sell unpopular products and, as a result, gain revenue.

Similarly, if one coffee company brings out a new product to the market, their competitor will need to consider growth hacking. Thus, competition can be beneficial as it motivates companies to get better and improve their products.

A competitive environment also has a positive effect on customers. Businesses often offer high-quality goods at an affordable price to win the attention of consumers. Besides, companies have to bring out their products through innovations. However, competition can sometimes complicate the existence of a business. Let's take two companies within one location, for example. If one of them sets low prices and discounts, it will be difficult for the second company to compete.

Now that you know how a competitive environment influences your business and customers, it's time to proceed to the types of competition that define the relations between and among sellers and customers.

Types of Competitive Environment

It's essential to understand what types of competitive environments there are to assess the

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economic environment in business. You should know how companies and markets function so that you can analyze industry and market news, policy changes, and legislation in the future. Let's distinguish the main types of competitive environments and review each of them in detail.

Pure competition. In a perfectly competitive environment, many small companies produce similar products, and many consumers buy them. These manufacturers are small, and thus they can't influence the price, defined by supply and product demand. For example, when a farmer brings dairy products to the local market, this person can't change the market price and agrees with the going one.

Monopolistic competition. In this environment, many manufacturers produce different products, although they might serve the same purpose. Customers can distinguish the products because of the differences in quality, features, etc. Businesses actively use advertising to promote their products and convince consumers that they are not like other products and have better quality. Companies in monopolistic competition are price makers, which means that they can influence the product price. However, to justify the price increase of their products, they should offer something exclusive to be unlike other businesses, for example, improve the quality of their goods.

Oligopoly. In this market model, there's a small number of businesses, usually two or more. It's considered stable as companies don't compete but collude to obtain high market returns. Firms set and keep prices high together or under the leadership of one particular company. In an oligopoly, profit margins are higher than in a more competitive environment. However, the main problem of this market structure is that businesses often face a prisoner's dilemma, an incentive to cheat and act in their interests at the expense of other companies.

Monopoly. There's one company that produces a unique product. This manufacturer doesn't face any competition, and the product doesn't have any substitutes. Also, a monopolist decides on the product's price and sets barriers for new companies to enter the market.

Perfect competition, monopolistic competition, oligopoly, and monopoly are the four main market structures you should be aware of when entering the market. Now it's time to move to the competitive environment analysis.

Competitive Environment Analysis

To develop a great marketing strategy, you need to understand your competitors and their tactics. At this point, you need a competitive analysis framework to reach your business opponents. Let's discuss several most popular frameworks.

- SWOT Analysis. You can assess the external and internal factors that influence your company. This framework helps you identify competitive advantages, compare your opponents' strong and weak sides on different marketing channels, and define your further marketing steps.
- Strategic Group Analysis. This framework characterizes the strategies of all strong competitors in various strategic dimensions. It allows you to identify your competitors' positions in the competitive environment and the factors that bring your business a profit. It also enables you to identify the key aspects of success and assess your position among competitors.

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- Porter's Five Forces. The basis of this framework lies in exploring the competitive market forces in the industry and helping define the industry's strengths and weaknesses. It involves five elements: new entrants, buyers, suppliers, substitutes, and competitive rivalry. These five influence the level of competition in your industry.
- Growth-Share Matrix. By using this framework, you can decide which products are worth investing in according to their competitiveness and attractiveness within the market. It's particularly useful for large companies since it helps them define their product portfolios and decide which products are worth continuing to invest in and which are no longer worth it.
- Perceptual Mapping. This framework allows you to see the position of your product against the alternatives of your competitors. It enables you to understand how your customers perceive your product compared to competitors' and whether your positioning strategy matches your target audience. It can also help you find the gaps you need to resolve.

To fully understand different market structures, let's walk you through some examples.

Examples of Competitive Environment

Every business plan of even a small firm contains a section about competitive environment analysis. As you already know from the information above, it includes all the external factors that influence your business and the product or service you offer.

Let's take electronics, for example. Samsung is a company founded in South Korea that specializes in electronic and smart appliance technology. Their competitors include Apple, Sony, Huawei, Intel, and many more, which is why Samsung's team tries to create a product that is better than competitors' alternatives using innovations that can attract prospects.

Changes in technology or the way customers buy products can influence the types of competitive environments. For example, Amazon changed products' distribution and customer expectations. Introduced innovations influenced the number of consumer goods companies and opened markets for small firms that previously had no opportunity to compete with more prominent companies.

Your business can find itself in different types of competitive environments. That's why it's critical to understand the difference between them and be ready to assess industry and market news, policy changes, and legislation.

Comepetitive Advantage

Competitive advantage refers to factors that allow a company to produce goods or services better or more cheaply than its rivals. These factors allow the productive entity to generate more sales or superior margins compared to its market rivals. Competitive advantages are attributed to a variety of factors including cost structure, branding, the quality of product offerings, the distribution network, intellectual property, and customer service.

Competitive advantages generate greater value for a firm and its shareholders because of certain strengths or conditions. The more sustainable the competitive advantage, the more difficult it is for competitors to neutralize the advantage. The two main types of competitive advantages

are comparative advantage and differential advantage.

Competitive Advantage vs. Comparative Advantage

A firm's ability to produce a good or service more efficiently than its competitors, which leads to greater profit margins, creates a comparative advantage. Rational consumers will choose the cheaper of any two perfect substitutes offered. For example, a car owner will buy gasoline from a gas station that is 5 cents cheaper than other stations in the area. For imperfect substitutes, like Pepsi versus Coke, higher margins for the lowest-cost producers can eventually bring superior returns.

Economies of scale, efficient internal systems, and geographic location can also create a comparative advantage. Comparative advantage does not imply a better product or service, though. It only shows the firm can offer a product or service of the same value at a lower price.

For example, a firm that manufactures a product in China may have lower labor costs than a company that manufactures in the U.S., so it can offer an equal product at a lower price. In the context of international trade economics, opportunity cost determines comparative advantages.

Amazon (AMZN) is an example of a company focused on building and maintaining a comparative advantage. The e-commerce platform has a level of scale and efficiency that is difficult for retail competitors to replicate, allowing it to rise to prominence largely through price competition.

1.19 MARKET STRATEGY

E-commerce marketing strategies are worth the time and investment. Whether your online retail company is just starting up or has reached the point of maintaining a well-established customer base, it's important to stay up to date with the most current ecommerce marketing trends and techniques for your business. Therefore, it is crucial to invest in an effective website structure and ecommerce marketing strategy.

1. Produce original content

The first step in setting up an ecommerce website is creating the content for it. Creating high-quality and original content will set you up for success because it will resonate with your customers in a way that makes them want to interact with you, purchase from you, and maintain a following.

Be creative, Be original

Promoting original content is a great way to make a statement, strike a compelling idea, and make a mark on the user's mind. There is a fine line between content that engages users and content that deters them.

Why not take an extra step, put in a little effort, and create something that will be genuinely compelling? It's an ecommerce marketing strategy with lasting effect. One or two well-written pages can drive revenue for years to come.

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What should you write?

First, add informative content to your primary site pages – your homepage, about, policies (warranties, shipping, etc.) at the bare minimum.

Then it's important to populate your online store's product content. Start with individual products, prioritizing by your best sellers or highest earners, and write unique descriptions. Don't just drop in the manufacturer's boilerplate language. Explain what it is, why it's better, and its key features.

Look also to category pages. These also pose great SEO opportunity (more on that below). Here's where you can explain a type of product (e.g., men's athletic shoes) and provide paths to other products, to help the user find what they're looking for. FAQs are often handy on category pages to answer questions related to the segment (e.g., "how to choose men's athletic shoes").

Now, it's time to get proactive.

Spawning from your ecommerce company's authority (e.g., shoes), publish blog posts that will attract new audiences while informing and engaging existing fans.

Add rich content to your website, too – in ecommerce, product demo or explainer videos are a supreme fit.

If you're coming up short of ideas, ask your customers. Use a user feedback tool offering pop-up chat interactions to ask, for example...

- What are you looking for?
- What do you want to learn more about?
- What questions do you have?
- What brought you here today?

Your goal is to zero in on content topics that your audience cares about – because they tell you so. More on content beyond core "money pages" below as we talk content marketing.

2. Optimize your ecommerce website's layout

After launching or redesigning your ecommerce site, it's important to test your website's layout, language, and placement of conversion elements. When customers visit your website, you want to make sure it's easy and simple to check out, that they feel naturally inclined to purchase your products, and that it's abundantly clear how to do so.

You should test the language displayed on your landing and product pages, the language in your conversion elements, and even the strategic placement of icons and elements. You can use various usability testing methods for this.

One really nifty tool is Mouseflow's heatmap software that reveals valuable patterns in customer behavior on your website. One of their most popular heatmaps, the movement heatmap, reveals the most attractive parts of your website – based on visitor movement data to your website.

3. Content marketing

Proper ecommerce content marketing can attract more positive attention, interaction, and sustainable conversions in a way no other marketing method can. By creating and promoting original content, you are ensuring that your audience is receiving new information that matters to them on a continual basis.

Notes

Content for your website, like mentioned above, includes home page, category pages, product pages, and the like. Content marketing on the other hand is content specifically geared to attract customers and is promoted to get their attention.

Brainstorm with your team to create a list of the different types of content you wish to create. This can be blog posts, videos, and newsletters. Also, make sure you are utilizing your marketing budget by consulting with experts, outsourcing work when necessary. Invest in high-quality software, subscriptions, employees, and training for your team.

4. Social media marketing

Social media ecommerce marketing is a very powerful tool. It allows you to communicate with your industry, customers, and market in a personal, public way. You can utilize social media to generate engagement and interaction, boost traffic to your website, and develop a larger base of customers.

Utilizing different social media platforms for different purposes also creates a rich presence for your company that diversifies your abilities and efforts. This will ultimately help you cater to your customers' needs in a way that grows your business over time.

Maintaining a solid tone and personality of your company through social media is very important because consistency is what will create trust within your audience. In order to develop and maintain brand recognition and authority, make sure your outreach efforts are unified by ensuring your team is on the same page with your company's communication style.

Just as important as being present and engaged on social is monitoring this channel's performance. To do so, you'll want to use your web analytics tool to...

Monitor the performance of the social referral journey on-site with a funnel optimization tool. Review user session recordings to understand why customers abandoned the journey, what compelled them to convert, and what caught their interest along the way.

Bonus tip: look at the full on-site journeys of your converted customers and consider how to adjust your pre-defined funnel to better meet these needs. You may have forgotten to consider a customer's affinity for visiting your reviews page, and can identify this as a key conversion-journey touchpoint.

- Analyze the behavior of the distinct social segment via heatmaps. How deep do they scroll? What sections get the most interest? where are they compelled to click? Use this to inform campaign and strategy tweaks.
- Ask the audience for user feedback via pop-up chat tools at key moments in their journey, such as when they stay on a page for long enough or have exit intent.
- Run through your forms with a fine-toothed comb via form analysis tool. You may find that social audiences are more or less inclined to give up information, and can adjust your form fields to suit them.

5. Email marketing

- One of the most effective forms of reaching out to your customer base is through email marketing. Although you have to be very careful about the content within your emails and who is included in your outreach, the reason email marketing has been around for so long is because it works.

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- In order to reach your audience most effectively, provide useful content within your emails. Make them as personal as you can, offer valuable promotions, and use it as an opportunity to socialize.
- Open up about what your business is doing, any events you are attending, new features or products, and be transparent about your company. You want to relate to your customers on a level that gauges their interest and keeps them engaging with your emails.
- As always, make sure you are monitoring the analytics of your email marketing efforts, and any ecommerce marketing strategy elements, for that matter. Remember to follow email design best practices to serve up a satisfying message and experience.

6. Search engine optimization (SEO) for ecommerce

One of the most important and manual methods of improving an ecommerce website is making sure it's optimized for search engines. With today's Search Engine Optimization (SEO) standards, it's now more important than ever to make sure your website is constantly updated with rich and relevant content, promotes a good user experience (UX), and is optimized to be as error-free as possible.

The content within your website should be rich, reliable, and provide information to the public that is useful and relevant to what they're looking for. For example, if you have an ecommerce store selling camping supplies, it's wise to provide detailed product information and possibly even host sections of your website that offer generous amounts of content that elaborates on the topics of camping, supplies, or related subjects.

Using keywords within your content in a genuine way will also flag your website as a matching result in search engines when users are looking for something specific. Search engine optimization is one of the lowest-cost, highest ROI ecommerce marketing strategies you can deploy.

7. Pay-per-click advertising (PPC for ecommerce)

There are three basic elements to any pay-per-click marketing campaign: the ad, the offer, and the landing page. All three must be in good harmony and synchronization if you want to maintain the interest of the lead. The landing page must be a continuation of your ad, delivering what was promised as the reward of clicking on the ad, in order to take the visitor through your convesion funnel.

It must also be customized for keywords to appear somewhere near the top of search engine results. Likely, these keywords will play into the rest of your ecommerce marketing strategies, too.

Keep the landing page free of distractions and unnecessary bells and whistles. Also, keep in mind that your landing page is the most appropriate place to boast your product benefits to the customer.

8. Optimize for mobile

It is absolutely crucial to make sure your website is responsive to any user layout. Mobile users are starting to dominate the sea of internet use, especially in ecommerce, and it's important to accommodate their needs to provide a good user experience (UX) for everyone.

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9. Target wearable and VR

Targeting wearable and Virtual Reality (VR) technology is a trending technique that grabs users in a new and exciting way. People are still getting used to this technology, and are not yet overwhelmed by or habituated to advertisements.

Your target audience for these mediums will be very refined, as these users are the part of the population that carries the latest technology at the palm of their hands at all times, keeps up to date with trends, and doesn't mind dropping some extra cash for items they desire.

Although creating campaigns that are designed for these technologies can be expensive, the right approach can be worth the initial investment because a filtered audience is more likely to convert.

This isn't one fo those ecommerce marketing strategies that will work for every business, either. Be sure wearable and VR tech are familiar to your audience before making the investment. Enter another opportunity to gauge customer reception by using a survey tool.

10. Humanize and personalize

Consumers have become the power player in the ecommerce industry. Which means your business needs to stand out in a unique way. Because of this, it's more important than ever to customize your user experience (UX) to cater to the needs of your audience. This is just as much a crucial part of your ecommerce marketing strategies as it is a total brand strategy.

11. Retargeting

Customers who have already shown an interest in your website are more likely to make a later purchase. Retargeting is a technique that tracks customers who have visited your website and displays ads to them while they're browsing the internet with the intent of getting them back on your website. When these visitors enter your website again, they are far more likely to make a purchase.

To effectively manage a retargeting campaign, make sure your ads are as specific as possible. Was the customer looking at a specific product? Make sure the ads displayed to them are ads of that specific product and link to the page of the product. Just like with Search Engine Optimization (SEO) and Pay Per Click (PPC) marketing, it's important to display the information the user is looking for the instant they click on your ad.

If they click on an ad for hiking boots and are redirected to the home page of your camping website, they aren't going to be thrilled. But, if they are directed to the exact hiking boots they

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were considering, or even had added to their cart, before leaving your website, they will be much more likely to continue with a purchase.

Although retargeting is getting more difficult due to the demise of third-party tracking cookies, there's still opportunity to be chased.

1.20 ORGANISATIONAL DEVELOPMENT

E-Commerce is a growing and dynamic field. It is of special concern for the IT students. As e-commerce continues to develop, organizations have adopted its technological advancements in order to keep a strategic advantage in the business environment.E-Commerce for Organizational Development and Competitive Advantage provides insight on the challenges related to the management aspects of e-commerce and its influence over organizational development. With the growing applications of electronic commerce technologies, this reference source is vital for educators, researchers, and managers interested in the advantages of this field.

1.21 MANAGEMENT TEAM

An effective team is just as critical to a successful online business as are your website, products and technology. It should form a key part of your Strategy & Planning. The ecommerce team must be committed, energised and incentivised as the supply for ecommerce type skills is still relatively limited compared to the required demand.

A great ecommerce team never settles; the team needs to have a desire to drive to the next level, know what that level is, and break through their goals, achieving more through the right incentives and bonus packages. In the case of most online start-ups or high growth businesses, the function of building and maintaining the ecommerce site or platform will usually be outsourced to a licensed, hosted or full service provider; saving both time and money. This is the case with the IRP.

The IRP removes the headache associated with creating a technical solution and allows for a focus on business growth and planning. If the solution also requires stock control and till / EPOS bolt-ons, this will cut down on system integration and overlap, saving you time and money.

Outsourcing an ecommerce platform significantly reduces the overall cost of the IT project. Research shows that in-house development costs 7.6% of total revenue whereas the figure is 3.5% if the IT functions are outsourced. The key benefits of the IRP to your team are:

- No requirement to recruit & train in-house software development & database teams.
- No overheads for installation, setup, configuration, maintenance and backups of the servers.
- No overheads for hosting and ongoing development and upgrades of the website / system.
- No overheads for SSL Certificates and DNS Configuration.

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- No overheads for the creation and maintenance of a PCI Level 1 security compliant system.
- The IRP removes barriers to growth and reduces your team size.

Roles and Functions

A key benefit of the IRP is that it allows you to maintain a focus on your business, without worrying about producing the technology for success. This is core to creating a team with energy and getting results.

The next step is to create the team that can help grow your business in the most efficient and effective way. A start-up or growing online business must include the following roles and functions to maximise the ecommerce opportunity:

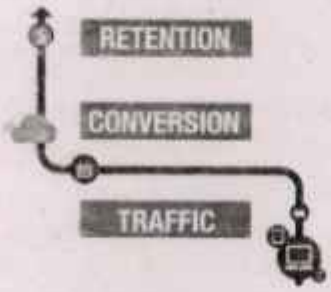
The Ecommerce Manager is vital in online retailing. They should take overall responsibility for the online revenue generated for the IRP and the costs associated, with a key focus on the CPA% of traffic channels.

The Ecommerce Manager should act as the connection point for the whole ecommerce team and have a deep knowledge of all aspects of online markets and how online revenue is generated.

The Ecommerce Manager's key functions are: setting and delivering the ecommerce strategy, maximising as many areas of the IRP as possible and focusing on traffic generation, conversion and customer retention.

Organising your ecommerce operations around the central strategy

The functional areas of an ecommerce team can be closely based around the Traffic, Conversion & Retention methodology introduced in Ecommerce Fundamentals. They include the following (note that, depending on the organisational size, the Ecommerce Manager should ideally be involved with all functions and help set the overall online strategy and plans of action – it is important to establish core responsibilities and goals for each area):



- Traffic – Ecommerce Manager, Sales & Marketing, Design.
- Conversion – Ecommerce Manager, Sales & Marketing, Design, Product & Content Admin.
- Retention – Ecommerce Manager, Sales & Marketing, Order Processing & Fulfilment, Customer Services, Product & Content Admin.

Depending on organisational size the ecommerce, marketing and related functions may be brought under a wider Director of Ecommerce role or the company's owner / CEO.

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The role of an Ecommerce Manager

- Identifying, appointing and confirming an Ecommerce Manager is one of the most important steps an online business can make.
- Ideally this role is separate from the owner(s) of the business and is not directly involved with your shop / retail outlets or any other function or department.
- See our separate article The Role of an IRP Ecommerce Manager for an overview of the Ecommerce Manager's role and an example job description.
- There is a trend to develop key functions and skills in house. Agencies and Service Partners may be necessary and indeed critical at times during the growth of your online business, but they will come at a cost.
- In the quest for profitability, long-term internal investment and / or training in vertical specialisms such as design and search marketing will provide you with more control and opportunity.
- There is also a growing emphasis on content and content marketing. One area that is clearly seeking greater investment and activity is content marketing and its creation. This may involve up-skilling of existing staff as well as new roles.
- It throws up some interesting new challenges around the increasingly blurred content-related areas of SEO, PR and Social Media. This includes everything from product descriptions to on-site help and buyer guides, imagery, v-commerce, blogs, Facebook, Twitter and Instagram.

SUMMARY

- E-commerce is using the Internet as the foundation for many different types of business processes related to commerce : purchasing, on-line payment, order fulfillment, supply chain management and customer support, among others.
- E-commerce is a revolution which has changed the way in which businesses buy and sell products and services. It is associated with buying and selling of information, products and services over computer communication networks. In fact, it has transformed the way in which the organisations operate.
- E-commerce enables paperless exchange of information using Electronic Data Interchange (EDI), Electronic Mail, Electronic Bulletin Boards (EBB), Electronic Fund Transfer (EFT), and other network-based technologies. It not only automates manual processes and paper transactions, but also helps organisations in moving to a fully electronic environment and change the way they operate.
- Electronic commerce, commonly known as e-commerce, is the buying and selling of product or service over electronic systems such as the Internet and other computer networks.
- Electronic commerce draws on such technologies as electronic funds transfer, supply chain management, Internet marketing, online transaction processing, Electronic Data

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Interchange (EDI), inventory management systems, and automated data collection systems.

- There are many external environmental factors that can affect e-business. It is common for managers to assess each of these factors closely. The aim is always to take better decisions for the firm's progress. Some common factors are political, economic, social and technological (known as PEST analysis).
- E-business can be defined as the use of Internet technologies to Internetwork and empower business processes, e-commerce, enterprise communication and collaboration within a company and with its customers, suppliers and other business stakeholders.
- E-commerce enabler is a company that provides end-to-end solution for brands to do e-commerce business. Those services include official store management, digital marketing, creative services, customer service management, supply chain management & fulfillment. In a simple way, e-commerce enabler helps brands to success their online selling through e-commerce platforms & other online channels.
- A revenue model is a part of the business model that explains different mechanisms of income generation and its sources. A business starts with an idea of how to generate value for a customer.
- So, if it's a person looking for a table, we can produce a table, market it, ship it, receive payment for it — and, that's our business model. The total amount of money earned, in other words revenue, is the coal that keeps our train running. Depending on the business model's complexity, revenue will cover manufacturing, distribution, marketing, and other costs, until we get profit.

KEY WORDS

- **E-commerce:** E-commerce refers generally to all forms of commercial transactions involving both organizations and individuals, that are based upon the electronic processing and transmission of data, including text, sound, and visual images.
- **Business-to-consumer (Internet):** B2C is selling of goods and Services to a customer and the transaction takes place through Internet.
- **Customer Interaction:** A customer interaction is a communication between a customer and a company.
- **Financial flow:** It consists of credit terms, payment schedules, and consignment and title ownership agreements.

Review Questions

1. What do you understand by the term E-commerce? How does it differs from e-business?
2. What are the different drivers of E-commerce?

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5. Briefly explain the needs and factors of e-commerce.
6. What are the advantages of transacting business on-line? Explain briefly.
7. What are the limitations of transacting business on-line? Explain briefly.
8. What are the concerns business has to understand, while going on-line?
9. What are the key success factors that enhance the growth of e-commerce?
10. Describe three factors that would cause a company to continue doing business in traditional ways and avoid electronic commerce.
11. Describe business-to-consumer e-business model. What are the advantages of B2C model? What are the challenges that e-businesses face in implementing B2C initiate?
12. Briefly explain consumer-to-consumer e-business model.
13. Differentiate between B2B and B2C e-commerce

FURTHER READINGS

1. P.T. Joseph, S.J., E-Commerce: An Indian Perspective (5th ed.), Prentice-Hall of India, 2015.
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4. Michael Wooldridge, An Introduction to Multi Agent Systems (2nded.), John Wiley & Sons, 2009.

UNIT 2

BUSINESS MODELS: B2C, B2B AND C2C

Structure

2.0 LEARNING OBJECTIVES

After reading this chapter students will be able to:

- Understand the various business models
- Explain business to consumer business model

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- Study the Business to business model
- Explain the consumer to consumer business models
- Know the types of B2B business models
- Discuss the types of C2C business models
- Describe electronic payment systems.

2.1 INTRODUCTION

E-commerce comprises of two components Internet and Web. Launching a business on Internet requires understanding of these two components targeted audience, hardware and software required, tight products and services to offer, etc. A careful Planning is required to satisfy the customer at optimum cost with maximum revenue gestation. This chapter primarily focuses on all the issues starting from planning to successful launching On-line business in various steps.

2.2 BUSINESS TO CONSUMER (B2C)

The term business-to-consumer (B2C) refers to the process of selling products and services directly between a business and consumers who are the end-users of its products or services. Most companies that sell directly to consumers can be referred to as B2C companies.

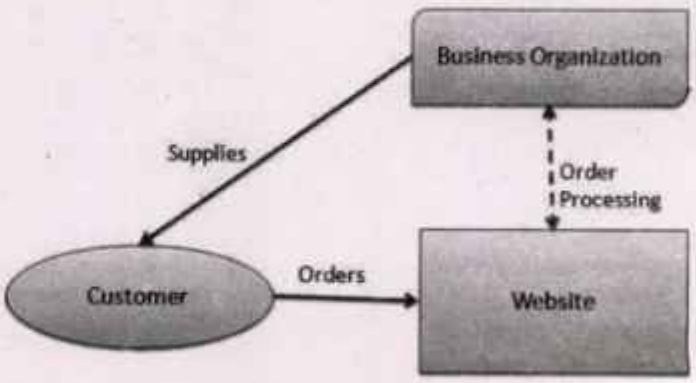

Fig. 1: B2C Business Model

B2C became immensely popular during the dotcom boom of the late 1990s when it was mainly used to refer to online retailers who sold products and services to consumers through the internet.

B2C business-to-consumer ecommerce, also called retail ecommerce, is a business model that involves sales between online businesses and consumers. B2C ecommerce is one of four major ecommerce business models, the other three being B2B (business-to-business), C2B (consumer-to-business), and C2C (consumer-to-consumer).

A popular example of a B2C ecommerce platform is Amazon. Ecommerce sales happen almost entirely over the internet, apart from the shipping and delivery processes, so they give sellers and buyers the comfort and freedom to make transactions at any time and from any place.

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This increased ease of both buying and selling online, as compared to traditional sales, has made B2C ecommerce one of the fastest growing sectors in the global economy and it's estimated to make around 6.3 trillion USD in global sales by 2024.

Business-to-consumer (B2C) is among the most popular and widely known sales models. Michael Aldrich first utilized the idea of B2C in 1979, who used television as the primary medium to reach out to consumers.

B2C traditionally referred to mail shopping, eating out at restaurants, pay-per-view movies, and infomercials. However, the rise of the internet created a whole new B2C business channel in the form of e-commerce or selling goods and services over the internet.

Although many B2C companies fell victim to the subsequent dotcom bust as investor interest in the sector dwindled and venture capital funding dried up, B2C leaders such as Amazon and Priceline survived the shakeout and have since seen tremendous success.

Any business that relies on B2C sales must maintain good relations with their customers to ensure they return. Unlike business-to-business (B2B), whose marketing campaigns are geared to demonstrate the value of a product or service, companies that rely on B2C usually elicit an emotional response to their marketing in their customers.

B2C Storefronts vs. Internet Retailers

Traditionally, many manufacturers sold their products to retailers with physical locations. Retailers made profits on the markup they added to the price paid to the manufacturer. But that changed once the internet came. New businesses arose that promised to sell directly to the consumer, thus cutting out the middle person—the retailer—and lowering prices. During the bust of the dotcom boom in the 1990s, businesses fought to secure a web presence. Many retailers were forced to shut their doors and went out of business.

Decades after the dotcom revolution, B2C companies with a web presence continue to dominate over their traditional brick-and-mortar competitors. Companies such as Amazon, Priceline, and eBay are survivors of the early dotcom boom. They have gone on to expand upon their early success to become industry disruptors.

2.3 TYPES OF B2C

There are five popular types of B2C ecommerce businesses:

Direct sellers

Direct sellers are what most people think of when they they hear B2C ecommerce. These are the online retail stores that either sell products from their own brand or sell a variety of brands. For instance, Zara's online store sells products that specifically come under Zara's brand. Other stores like Walmart and Costco sell products from all sorts of brands, but they're still direct sellers.

Online intermediaries

Online intermediaries are mediators who use their websites to bring businesses and potential customers together. Online intermediaries do not own any product, service, or brand, and their

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only job is to form a path between those who sell and those who buy. For example, Etsy allows individuals and small businesses to sell their artistic products and services on the Etsy website under their own individual brands. Customers can then visit the site and make purchases directly from the sellers.

Advertisement-based

Advertisement-based ecommerce sites also do not own any products or services. Instead, they sell advertisements for products and services that other businesses own. Over time, as these sites grow more popular, they start to be referred to as influential websites that promote other businesses. The Huffington Post and the Guardian are examples of this type of ecommerce model, where both sites post ads for products and services sold by other businesses.

Community-based

In the community-based ecommerce model, businesses target online forums that are related to the products and services they sell, and market their products there. For example, Facebook hosts groups and communities related to specific interests, so businesses can find an appropriate one in which to pitch what they offer.

Fee-based

Fee-based ecommerce sites charge customers to use their websites, because their products or services can be directly accessed there. Examples include subscription-based entertainment service sites like Netflix, Amazon Prime, and Hulu, or sites that offer articles and stories, like Medium.

How can B2C ecommerce benefit you over a traditional store?

Reach more customers

With a traditional store, you can expect that most of your customers either live in your area or have some reason to visit it. While you might have customers who don't visit in person, they probably won't make up the majority of your business. So your primary audience is limited to people with access to your store.

The "ecommerce" part of B2C ecommerce can overcome this problem. By putting your business on the internet, you're making your store available to everyone who's online, regardless of where they live. This not only includes potential customers who live in your area, but also customers across the country and even global customers if you choose to expand internationally. With ecommerce, your primary audience becomes everyone who can access your online store and is looking for the products you sell.

Reduce your overhead costs

Every business incurs some form of overhead costs. With traditional B2C commerce, running the physical store alone can entail expensive overhead costs like rent, employee salaries, property taxes, maintenance, utility bills (like water, phones, and electricity), and insurance. But the business also has other overhead costs that aren't related to the physical store, like inventory purchases

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and the warehouse space to store them. So the physical store adds even more overhead to the already expensive process of running a business.

By switching to ecommerce, you can significantly reduce your total overhead costs, since you will be able to run your store entirely online and won't require a physical store.

Create detailed customer profiles

If you run a traditional store, you may have a few trusted or favorite customers who place regular orders with you. With these customers, you usually already know what they're looking for. So you can help them shop for their usual items quickly, or you can convince them to try new products or services that they might be interested in, or you could even reserve highly desirable products just for them. While these are all good options to offer, you will probably only be able to do this with customers you actually know, which means that your other customers may not get the same personalized experience.

A B2C ecommerce store can change this for you, with the help of customer or consumer profiles. Customer profiles (or customer profiling) is when businesses use an online analytical tool to gather data about each customer's individual shopping interests, shopping history, patterns, frequency, regions they buy from, age group, occupation, how they learned about your business, and any issues or complaints that they have had in the past.

Using this information, you can put together a thorough profile for each customer, which can help you offer them all a more customized shopping experience. Additionally, the information that you collect from each customer can help you pick out common factors amongst all of your customers. This can further help you identify other potential customers who share these characteristics, and target them in places you know they will see, like online ads on social media.

B2C ecommerce is essentially an online version of traditional retail stores, where instead of walking into a store to make a purchase, the customer just has to go online. Processes like placing and accepting orders and payments take place over the internet, which can make things easier for you. Besides simplifying your sales, B2C ecommerce can also help your business in ways that a traditional store can't—like making your store available to everyone who's online regardless of where they live, saving physical overhead costs, and offering all of your buyers a customized shopping experience. Learning about all of these advantages can help you understand what running a B2C ecommerce business entails and determine whether your business can really benefit from it.

B2C in the Digital World

There are typically five types of online B2C business models that most companies use online to target consumers.

1. **Direct sellers.** This is the most common model in which people buy goods from online retailers. These may include manufacturers or small businesses or simply online versions of department stores that sell products from different manufacturers.
2. **Online intermediaries.** These are liaisons or go-betweens who don't actually own products or services that put buyers and sellers together. Sites like Expedia, trivago, and Etsy fall into this category.
3. **Advertising-based B2C.** This model uses free content to get visitors to a website.

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Those visitors, in turn, come across digital or online ads. Large volumes of web traffic are used to sell advertising, which sells goods and services. One example is media sites like HuffPost, a high-traffic site that mixes advertising with its native content.

4. **Community-based.** Sites like Meta (formerly Facebook), which build online communities based on shared interests, help marketers and advertisers promote their products directly to consumers. Websites typically target ads based on users' demographics and geographical location.
5. **Fee-based.** Direct-to-consumer sites like Netflix charge a fee so consumers can access their content. The site may also offer free but limited content while charging for most of it. The New York Times and other large newspapers often use a fee-based B2C business model.

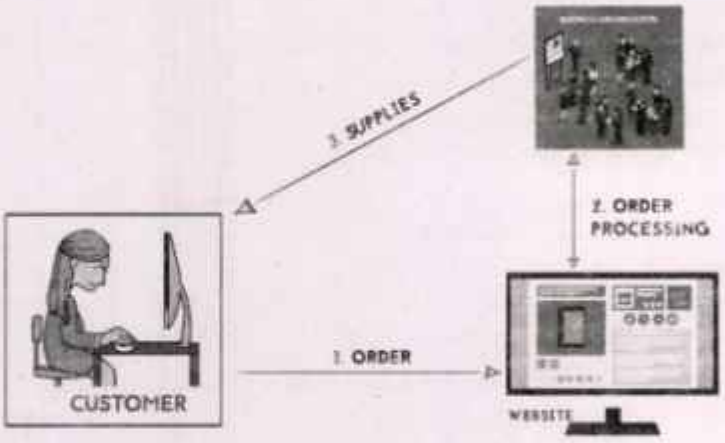

Fig. 2: B2C Model

B2C Companies and Mobile

Decades after the e-commerce boom, B2C companies are continuing to eye a growing market: mobile purchasing. With smartphone apps and traffic growing year-over-year, B2C companies have shifted attention to mobile users and capitalized on this popular technology.

Throughout the early 2010s, B2C companies were rushing to develop mobile apps, just as they were with websites decades earlier. In short, success in a B2C model is predicated on continuously evolving with consumers' appetites, opinions, trends, and desires.

Because of the nature of the purchases and relationships between businesses, sales in the B2B model may take longer than those in the B2C model.

B2C vs. Business-to-Business (B2B)

As mentioned above, the business-to-consumer model differs from the business-to-business (B2B) model. While consumers buy products for their personal use, businesses buy products to use for their companies. Large purchases, such as capital equipment, generally require approval from

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those who head up a company. This makes a business' purchasing power more complex than that of the average consumer.

Unlike the B2C business model, pricing structures tend to be different in the B2B model. With B2C, consumers often pay the same price for the same products. However, prices are not necessarily the same. Businesses tend to negotiate prices and payment terms.

After surging in popularity in the 1990s, business-to-consumer (B2C) increasingly became a term that referred to companies with consumers as their end-users. This stands in contrast to business-to-business (B2B), or companies whose primary clients are other businesses. B2C companies operate on the internet and sell products to customers online. Amazon, Meta (formerly Facebook), and Walmart are some examples of B2C companies.

2.4 BUSINESS TO BUSINESS (B2B) BUSINESS MODELS

Business-to-business (B2B) model is a conceptual structure that supports a company and explains how it is functioning, and making a profit. Every company has a business model irrespective of its size and turnover.

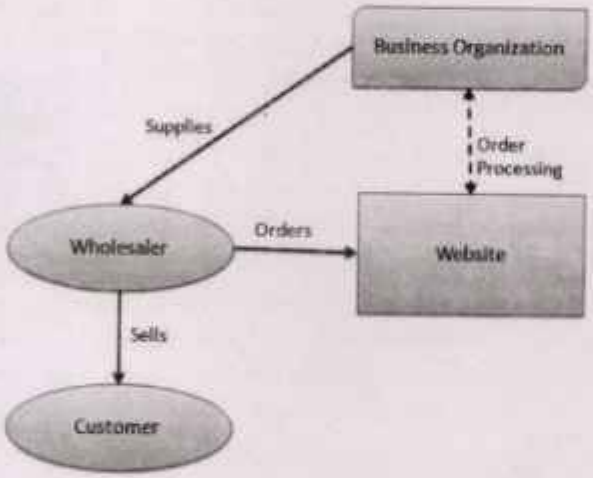

Fig. 3: Business-to-business (B2B) model

Mostly, business models consist of a few basic things, such as the design and details of the products or services, followed by methods of selling and finding the target audience for the same and concluding with how the consumers will pay and the company will benefit out of the same.

B2B is also called B-to-B, is a form of transaction between businesses, such as one involving a manufacturer and wholesaler, or a wholesaler and a retailer. Business-to-business refers to business that is conducted between companies, rather than between a company and individual consumer. Business-to-business stands in contrast to business-to-consumer (B2C) and business-to-government (B2G) transactions.

Business-to-business transactions are common in a typical supply chain, as companies purchase components and products such as other raw materials for use in the manufacturing processes. Finished products can then be sold to individuals via business-to-consumer transactions.

In the context of communication, business-to-business refers to methods by which employees from different companies can connect with one another, such as through social media. This type

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of communication between the employees of two or more companies is called B2B communication.

B2B E-Commerce

Late in 2018, Forrester said the B2B e-commerce market topped $1.134 trillion—above the $954 billion it had projected for 2018 in a forecast released in 2017. That's roughly 12% of the total $9 trillion in total US B2B sales for the year. They expect this percentage to climb to 17% by 2023. The internet provides a robust environment in which businesses can find out about products and services and lay the groundwork for future business-to-business transactions.

Company websites allow interested parties to learn about a business's products and services and initiate contact. Online product and supply exchange websites allow businesses to search for products and services and initiate procurement through e-procurement interfaces. Specialized online directories providing information about particular industries, companies and the products and services they provide also facilitate B2B transactions.

Example of Business-to-Business (B2B)

Business-to-business transactions and large corporate accounts are commonplace for firms in manufacturing. Samsung, for example, is one of Apple's largest suppliers in the production of the iPhone. Apple also holds B2B relationships with firms like Intel, Panasonic and semiconductor producer Micron Technology.

B2B transactions are also the backbone of the automobile industry. Many vehicle components are manufactured independently, and auto manufacturers purchase these parts to assemble automobiles. Tires, batteries, electronics, hoses and door locks, for example, are usually manufactured by various companies and sold directly to automobile manufacturers.

With the rise of technology, B2B models have become extremely common and we often come across phrases like B2B services and B2B sales. It mainly refers to transactions or business activities between two companies. It involves one company selling products or providing services to another company. In simpler language, a company is another company's consumer.

The model is significantly different from Business-to-customers or B2C models. If you own a company that sells products or services to another business, then it has a B2B model.

Service providers also engage in B2B transactions. Companies specializing in property management, housekeeping, and industrial cleanup, for example, often sell these services exclusively to other businesses, rather than individual consumers.

2.5 TYPES OF B2b,

Like every other business types, a B2B business can also be classified into a few categories. Each company is supported by B2B providers or suppliers as well as partners. Various types of B2B business models work in several sectors such as payroll and tax, research and development, webpage designing and SEO services, call centers, human resource and recruitment, marketing and advertising, etc. As you can see, it has a wide range of coverage.

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With the help of the internet, a B2B business can easily approach other companies out there. They can explain their products/services and the benefits of using them through online platforms. In most of these models, both parties have negotiating power to some extent.

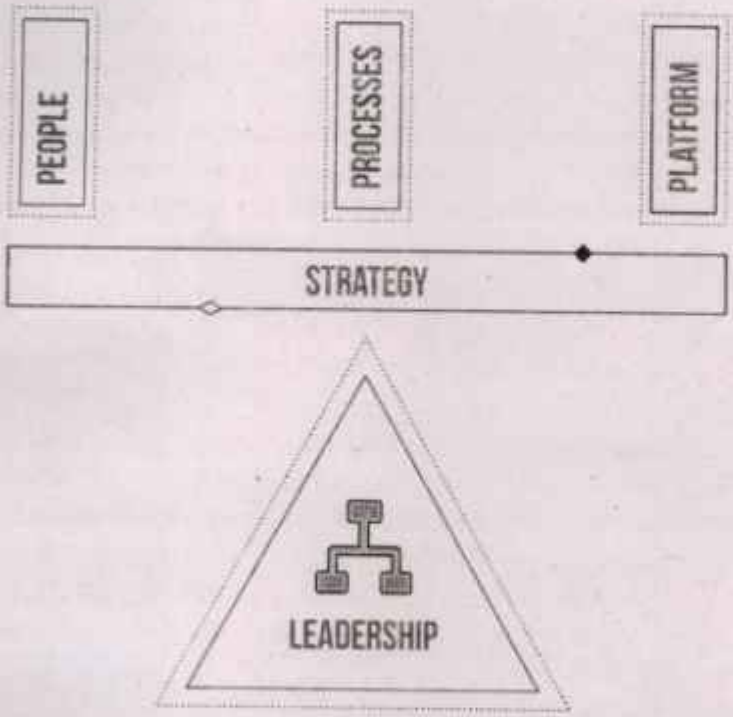
So here are a few types of B2B models.

Customer-Centric Model

This is a type of model that refers to a particular business type where the customers have equal value even after the sale has taken place. This particular approach is applied to keep the existing customers in hand to do profitable business from them again in the future.

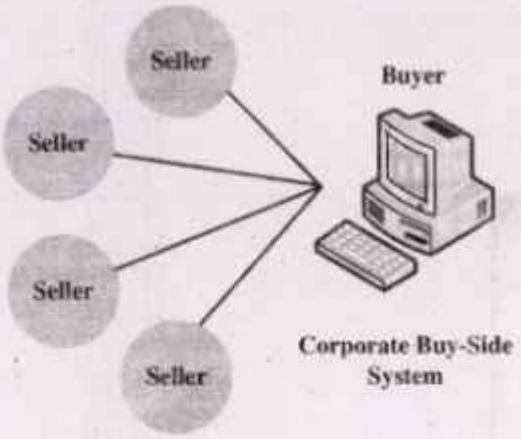
Here customers are the main priority and they have a significant influence on the business operations as well as the brands that engage with them.

The best example to cite this is Amazon and Flipkart. Both the leading eCommerce giants follow a customer-centric approach towards retaining their loyal customers. It takes years of reliable service and value offered to every customer which has gained such a level of engagement.



Buyer Centric Model

This model is mainly used among the big corporate companies as they have a higher rate of purchases.



Here the buyer sets a portal where the sellers and providers quote their ways. The sellers approach the buyer with different quotations and various bribing words to make them understand the benefits they are eligible for providing. Then in the final stage, it is the buyer's call to choose the most suited company regarding its specifications and budget.

The best example that can be cited for this type of business is Walmart. Walmart has its business all across the globe and influences a lot of suppliers based on the locations. Thus Walmart has to set up standards of supplies and the suppliers abide by it. Generally, bidding is placed among suppliers of the local region and the highest bidder gets to supply for the organization.

Intermediary Centric Model

Intermediary centric is a B2B type of model where buyers and sellers get together at a common shared platform to complete the transaction. It establishes a shared common platform to attract buyers and sellers.

At every complete transaction, intermediary would get its share of the commission. This is one of the popular B2B models, which provides a common platform for both the sellers and buyers to interact and transact with one another. This common platform is formed by intermediaries.

In return, the intermediaries get their fair share as commission from the parties that are involved. Many times the buyers miss out on the relevant products that are available in the digital market. A third marketplace is not only a great additional platform but also helps in driving out many important businesses.

For instance, eBay and OLX bring you a platform where you can connect over with potential buyers for your product or service. You agree to the terms of the commission that these third-party vendors would charge. For every transaction made or sale that happened, the intermediate earns a certain sum of money.

Now let's focus on some real-world examples so that you get a clear idea about B2B businesses.

B2B Models that Can Help in Connecting with Your Trading Partners

The direct connection B2B model

This model outlines the process in which your business is connected directly to all your trading

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partners for transferring electronic documents amongst them. The IT organization connected with your business is considered to be responsible for all sorts of business-related tasks like translation, tracking of all documents, assisting technical support, and mapping. Once the community grows under this model, the immediate priority goes onto continual monitoring of communications and managing trade partner calls to resolve their issues quickly.

Network B2B model

The inception of this model came into the picture when the direct model resulted in multiple complexities. Thereby, the companies decided to execute exclusively via a B2B Service Provider, which was known to be a Value-Added Network (VAN), before the invention of the internet. Under this model, a single connection was established to the Service Provider who used protocols like AS2, SFTP, FTPS, FTP over VPN, RosettaNet. Similarly, the trading partners connected with the Service Provider by choosing the respective connectivity protocol that was most desirable as per the company's requirements

Hybrid B2B model

The conjoined combination including the direct and network models gave birth to this particular model. In a motive to save on the Service Provider transaction fees, businesses will get in touch directly with their trading partners with whom they have the maximum volume of transactions through the medium of the internet. Doing this, the business is constantly benefitted from the Service Provider for the cause of trading with a huge number of lower-volume trading partners.

Managed B2B model

This model is a platform where the company outsources its entire B2B process requirements to an outside service provider and benefits by lowering the resource needs. This also cuts down the additional costs and complications of the process. The model works on a system that lets the Service Provider receive the business documents through a direct medium of your ERP system. It is then responsible for activities like mapping, translation, data centre operations, technical support, and document tracking. The Service Provider will deliver the ready documents to your trading partners directly or through the network.

So this was again another kind of subdivision when it comes to B2B businesses.

Advantages of B2B Business Models

Now let us explain the benefits of this type of business. There are lots of advantages when it comes to these kinds of B2B businesses.

Here are some of them. Please take a look.

B2B businesses witness more stability. Unlike B2C models, where customers can easily jump from one provider to another, business predictability is much better in B2B models. The relationship between two business houses (buyer and seller) evolve with time. B2B companies can easily plan their revenue budget accurately.

Collaboration in the distribution channels have to lead to higher customer loyalty and that is a plus point for businesses in this field. Businesses relying on other businesses for products and services are not fickle like the customers we get to witness in B2C models. Both the parties

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have mutual understanding and the buyer relies on the seller for consistency in product or service quality, dependability, value, etc.

- Moreover, the selling cycle is shorter as well.
- Overall, B2B business models help in reducing overall expenses as well. This can be primarily attributable to advanced supply-chain management, lower chances of errors and undue expenditure.
- Another pro feature of this model is that it depends on factual data for streamlining the entire process. The calculation of sales is much easier this way.
- From the buyer's point of view, they can get their products at a cheaper rate through online auctions. It is easier for them as they get so many estimates without even having to leave the office. There are so many types of B2B business models, which are highly beneficial.
- However, it is true that despite all the above-mentioned advantages, there are some cons such as smaller customer pool, etc. But with the right plan, you can even overcome the same.

B2B Ecommerce

Now when we have mentioned the benefits of the B2B business model, let us provide some further information on B2B for e-commerce.

B2B E-commerce, which has witnessed a sturdy growth graph over the past few years, has the potential to provide optimum efficiency, which is very much required for a business to flourish. The buyer can get highly benefited from the improved quality of services as well as top-notch customer services.

Secondly, with B2B for e-commerce, there is better brand awareness. Its job is to spread the word about your business and it does the same with smart planning and execution. Your target audience would have a detailed idea about your company and its goals, products, and services, long term plan, etc. It is needless to say that companies are highly benefiting from Ecommerce Revenue models as it is driving their sales volume. Entrepreneurs can enjoy meatier profits with this one.

Organizations can also evaluate their marketing campaigns, ROE, product mix, customer sales effectiveness, and inventory turns through this. Buyers can enjoy the customer-centric experience through B2B e-commerce and thus, the demand for the same never goes down.

A company's sales team will gain traction from the launch of an e-commerce platform as it will increase its visibility to customer orders, history, etc. It should also be noted that this facilitates business with multi-site capability.

Now we hope that now you know about the type of B2B models and the advantages. To know more about the same, kindly follow this blog section as we come up with new topics every once in a while.

2.6 CONSUMER TO CONSUMER (C2C) BUSINESS MODELS,

Consumer to consumer (C2C) is a business model in which third-party companies facilitate transactions for products or services between private consumers without a business participating

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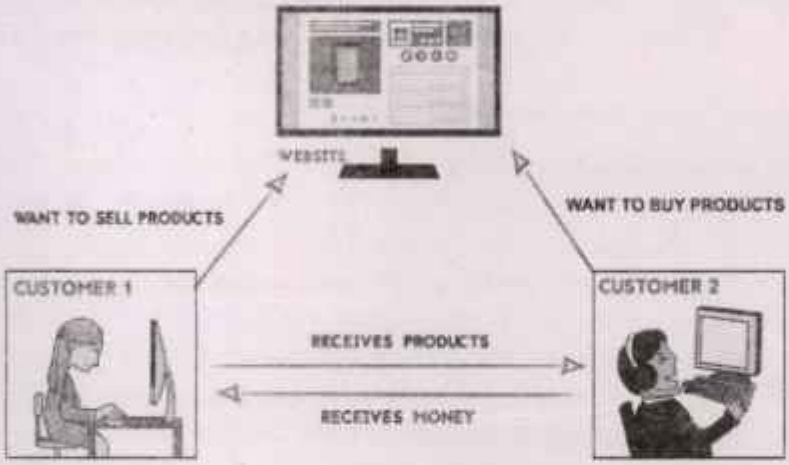
on either end of the sale. Today, most C2C business is conducted via online companies. Before the Internet, C2C transactions primarily occured in places like newspaper classifieds, live auctions, or garage sales.

The goal of a C2C is to enable these relationships, helping buyers and sellers locate each other. Customers can benefit from the competition for products and easily find products that may otherwise be difficult to locate.

Thanks to the internet, bigger intermediary companies have fostered more C2C interaction. The most prominent examples of C2C include eBay, an online auction site, and Amazon, which acts as both a B2C and a C2C marketplace. eBay has been successful since its launch in 1995, and it has always been a C2C. Anyone can sign up and begin selling or buying, giving an early voice to consumers in the e-commerce revolution.



Note: C2C is also called C2B2C because the deal is done between consumer to a consumer but through a business organization which is OLX or eBay or other sites like these. For example, consumer 1 wants to sell a car, so he/she can places his/her car on a website like OLX or eBay, while customer 2 wants to buy that car. So, customer 2 can contact customer 1 and buys the car from him/her.

C2C represents a market environment where one customer purchases goods from another customer using a third-party business or platform to facilitate the transaction. C2C companies are a type of business model that emerged with e-commerce technology and the sharing economy.

2.7 TYPES OF C2C

There are many e-commerce platforms that help individual buyers search for desired items and give sellers a place with a built-in audience of potential buyers. Most C2C platforms make money by charging sellers a small fee to list their item or a small commission on the final sale. Examples of C2C platforms include:

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- **Auction platforms:** Online auction sites let sellers list their goods at a minimum price and then allow multiple buyers to bid on the item until there's a winner. Bidding can potentially drive up the price higher than if sellers listed the item at a set price, and bidders can potentially find a good deal if there aren't many other interested bidders.
- **Exchange of goods platforms:** There's a number of online platforms that connect buyers and sellers looking to exchange physical goods—from used furniture to artwork and anything in-between. Many of these platforms exist in both website and app form and even let you search by geographic location so you can perform the transaction in person.
- **Exchange of services platforms:** You can also use online C2C sites to buy and sell services such as hiring a dog trainer, a website designer, or a handyperson, or renting someone's home for vacation.
- **Payment platforms:** C2C online payment platforms exist to list goods and services for sale and to facilitate payment for C2C sales on other platforms. These platforms may make money by charging users a small fee to transfer earnings into their own bank accounts.

Advantages of a C2C Business Model

- Eliminating a business from a sales transaction provides certain benefits to both buyers and sellers.
- Higher margins and lower prices. Eliminating the middleman (wholesalers and retailers) from the transaction lets sellers earn higher margins on their sales and buyers find lower prices.
- A larger selection of goods and services. The C2C model is ideal for those dealing in rare collectibles or second-hand items that would be difficult to find from traditional businesses.
- Convenience for both parties. The C2C model removes many of the barriers that prevent consumers from using other business models. For example, the costs associated with starting a traditional small business are too high for many sellers, and some sellers don't even want to sell as their primary source of income. For buyers, it can be a hassle to find reasonably priced goods and services at brick-and-mortar stores. C2C platforms eliminate these inconveniences and make it simple to conduct business from your own home.

Disadvantages of a C2C Business Model

- While buyers and sellers enjoy many freedoms that come with C2C sales transactions, there are some downsides to the model.
- There's less quality control. Since C2C platforms don't produce and sell goods, the platforms may not be able to regulate the quality of the products on their sites.
- Payment isn't always easy. Not all C2C platforms have built-in credit card payment systems, so payment may need to occur through cash or a separate payment platform, which might charge a transfer fee.
- There are higher rates of fraud. Without the regulations of traditional business models, C2C platforms contain more instances of scammers aiming to rip off both buyers and sellers. Buyers should be wary of sellers who ask for non-traditional payment methods

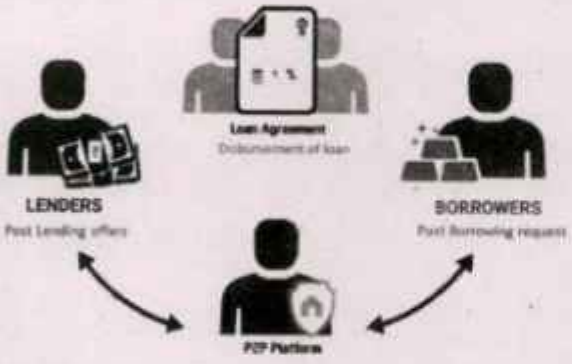
and can't give detailed information about their listing. Sellers should always receive full payment before transferring their items.

2.8 PEER TO PEER BUSINESS MODELS

If the Internet has changed the way we communicate, watch TV and listen to music, the same is so true about the way we do business. Products, services, and business models, which we could have never thought of before, have been coming out every day. And that is especially giving rise to the peer-to-peer business model, also called P2P.

The peer-to-peer (or P2P) economy is the model where two individuals buy (demand) and sell (supply) goods directly, in terms of delivering the product or service. The seller is a private independent individual who produces the merchandise or offers the service themselves.

Buyer and seller don't need a firm that owns all the means of production and labor to perform the whole production process. On the other hand, they benefit from companies that operate as intermediary firms, in order to connect both sides.



Even because, although this peer-to-peer concept aims for a direct connection between the parties, with no middleman, this is not totally practicable. This connection will always have to be mediated by some source of technology or business.

The Internet has turned this P2P economy into such a viable system, by making transactions more accessible, quicker, and safer. And the term peer-to-peer has been caught on, indeed, with Napster.

This file-sharing system, launched in 1999, would allow individuals to share music by using the internet. Napster changed the whole musical scenario by connecting people who could exchange music files, for free. The music industry has never recovered from that.

But this P2P "movement" didn't come down to that. It actually permitted that millions of users could connect, making up groups, and collaborating with each other.

This P2P economy has allowed a wide variety of business models, such as multisided platforms, marketplaces, or crowdsourcing.

Some of the most famous examples of companies based on peer-to-peer business models are:

- Uber, Lyft, Blablacar: rideshare apps, who connect drivers/car owners and riders.
- Fiverr, Freelancer, Upwork, Toptal, Guru: platforms who connect freelancers and clients,

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in different areas, such as marketing, translation, graphic design, and programming.

- eBay, Amazon, Etsy, Alibaba: sellers list their products for a small fee (or free) and buyers purchase through the platform.
- Airbnb, Tripping, HomeToGo: the apps connect people who can earn extra income by renting underutilized property to people who need accommodation.

In all of them, one side of the equation provides the service (the car, the space for rental, the merchandise) while the other side consumes it. And the company delivers the platform for making the match, will all of its structure, mechanism and regulations.

2.9 M-COMMERCE BUSINESS MODELS

Mobile Commerce, also known as m-commerce, is defined as the process of performing business transactions using handheld mobile devices which are connected through wireless networks. The business transactions may range from buying and selling goods, making mobile payments, downloading audio/video contents, playing online games, using numerous software applications or getting mobile tickets.

The mobile devices include cellular phones, handheld computers such as palmtops or laptops, pagers, smartphones and Personal Digital Assistants (PDA). The mobile users can access internet through these devices without any wired connection or a computer. Powered with the emerging technology based on Wireless Application Protocol (WAP), mcommerce employs webready micro browsers in these mobile devices to surf through the internet anytime, anywhere on earth.

WAP-enabled smartphones equipped with Bluetooth technology offer fax, e-mail and phone capabilities to the user to facilitate business transactions while in transit. Such smartphones are becoming so popular that most business houses have adopted m-commerce as the more efficient method of reaching to the customers or communicating with other business partners. The content delivery over wireless mobile devices has become much faster, safer as well as cheaper. The reservation of air/rail/bus tickets through mobile devices saves time and offers peace of mind to numerous passengers. Such services are gradually making m-commerce as the method of choice for performing digital business transactions.

For these reasons, m-commerce is sometimes referred to as next generation e-commerce.

Wireless Communication Technology

Mobile commerce is based on wireless communication technology. The wireless communication technology has emerged as the new choice of modern corporate world. The wireless networking has some distinct advantages over traditional wired networking that employs co-axial, twisted pair or fibre optic cables for physical connection between two or more computing devices. In wireless networking, the data transfer between computers are facilitated by microwaves, radio waves or infrared waves.

It eliminates the cumbersome cabling process involving bulky cables with a significant reduction in labour and material cost as well as development time. The wireless networking technology together with wireless application protocol provides the backbone of mobile commerce applications. In various vertical markets, such as retail, health care, manufacturing and warehousing, mobile commerce gained acceptance and provided increased productivity through the usage of

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mobile devices. The mobile handheld devices are used to transmit data in real time to centralized hosts through wireless networks.

The mobile commerce that employs wireless technology, offers some extra advantage over the internet based e-commerce. In e-commerce, the internet provides information anytime of the day, while in m-commerce, the information is available anytime, anywhere.

In e-commerce, the information is available as long as the user is connected with the internet, i.e. connected with the wired network. If the user is involved with some other activities, i.e. travelling or doing some offline job, which forces him/her to become disconnected from the internet, the information becomes unavailable.

M-commerce removes such uncertainties. Wireless networking allows the user to be connected with the wireless internet even if he/she is on the move. Thus, in mcommerce, it is possible to stay online anywhere on earth and anytime of the day.

The user can access information instantly even if he/she is engaged in some other activities, such as travelling or shopping, with the help of the mobile device and the wireless network or internet. This helps the employees to make spot decisions, the customers to ask questions spontaneously and business owners to perform transactions anytime regardless of their geographical positions.

Scope of Mobile-Commerce

Mobile commerce provides instant connectivity between mobile users irrespective of their geographical location and time of the day. With enormous growth of wireless and mobile technology and rapid penetration of mobile phones in developing countries worldwide, the scope of m-commerce has increased manifold. With the advent of super fast 3G access technology that ensures high speed data transfer rates of the order of 20 Mbps, m-commerce is opening up new vistas of digital media applications. 3G technology, equipped with WiMax and UMTS standards for high speed mobile broadband internet connectivity, supports mobile multimedia application delivery at far greater bandwidths.

So, it is now possible for mobile users to watch their favourite TV programmes or download and view famous movies in their mobile devices while travelling.

The scope of mobile commerce is all pervasive, and is gradually engulfing all aspects of lives of modern day citizens. Ranging from mobile banking, mobile browsing and mobile ticketing up to mobile marketing, mobile advertising and mobile computing, mobile commerce is gradually becoming an integral part of both corporate world and common people.

With the prices of mobile phone decreasing exponentially and the number of different mobile applications increasing enormously, more and more people will indulge in m-commerce applications and soon it will become the preferred choice of the digital business world.

Applications of M-Commerce

M-commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets Downloading MP3 music, playing online games or participating in live video conferencing while in transit have become a reality now. Apart from such audio/video applications, SMS-based text messaging finds wide acceptance in day-to-day business transactions. Whether to display product promos, to announce new product launches or to give attractive discounts, SMS have become an effective tool for mobile marketing.

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SMS-based advertisements have become an integral part of m-commerce. The role that SMS play in giving instant support to customers in the event of any kind of product failures or delivery delays can neither be ignored nor downplayed.

Another major application area of m-commerce is in the field of micro payments. The mobile devices are poised to replace the credit cards of the users in near future. The mobile phone will replace money in the pocket and will provide a low cost, low risk alternative for credit/ debit cards for making payments anytime, anywhere and for anything. Mobile phones, equipped with a contact less smart card (that stores credit card information) along with the SIM card, can act as a digital credit card, which can be used for making payments.

It employs NFC (Near Field Communication) technology that uses radio waves to transmit/ receive credit card information from the mobile device to the remote credit card service providers without any physical contact.

Multiple credit/debit card information can be stored in the same mobile device and payments can be made using either of these with the help of NFC technique. In SMS-based transactional payments, the mobile phone is used to send a PIN (Personal Identification Number) to a bank for authorization purpose.

After the successful verification of the PIN by the bank, the user sends a payment request through an SMS from his/her mobile to the bank. The payment is done through an account transfer by the bank and both-the payer and payee get an SMS from the bank regarding the successful completion of the payment. Thus, a completely cashless payment is made using the mobile phone within 10 to 15 seconds.

Principles of Mobile Commerce

Mobile commerce is based on wireless mobile communication system, which utilizes digital cellular technology. The cellular network consists of a number of cell sites. Each cell site consists of a stationary base station (a radio frequency transceiver), an adjacent tower antenna (for transmission and reception of signals) and a surrounding cell (a hexagonal shaped geographical area). Each cell is allotted a band of radio frequencies and provides coverage to any portable mobile device that comes within the geographical range of the cell.

Whenever a mobile device such as a mobile phone or a pager, etc., comes inside a cell, it starts communicating with the base station using one of the cell frequencies. The base station receives the signal from the mobile device and transmits using the tower antenna to a distant base station for call delivery. To distinguish signals received from different mobile devices at the same base station, different access technologies such as Frequency Division Multiple Access (FDMA), Code Division Multiple Access (COMA) or Time Division Multiple Access (TDMA) are used. Whenever a mobile user tends to move away from one cell to another adjacent cell, the cell frequency switching occurs, whereby the old cell frequency is dropped and the mobile device is automatically allotted a new frequency corresponding to the adjacent base station. The mobile device switches from previous base station frequency to current base station frequency and the communication with the new base station continues without interruption. This is known as cell handover.

There are a number of different digital cellular technologies which are used in various mobile phone networks worldwide. These are: Global System for Mobile (GSM) Communication, General Packet Radio Service (GPRS), Enhanced Data Rates for GSM Evolution (EDGE), Digital Enhanced Cordless Telecommunications (DECT), etc.

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The geographical location of a base station is fixed, i.e. stationary and the frequency band and location of each base station are registered in the database of a centralized Mobile Telecommunication Switching Office (MTSO). So, whenever a mobile device changes position from one cell site to another, its geographical location can be easily tracked from MTSO.

Utilizing this fact, mobile commerce offers a number of location-based services, such as tracking and monitoring of people/vehicles, identifying or discovering nearest ATM machines/ banks/hospitals/restaurants and local weather/traffic reports. People tracking can help in criminal investigation where the mobile phone used by a criminal can be tracked and its location is identified. The vehicle tracking is utilized in finding out the actual position of the goods to be delivered and helps in supply chain operation management. The local traffic and weather report can be generated in a local office and delivered to the mobile phone of a user on request. The local bank/ ATM/ hospital/restaurant info can also be delivered to a mobile user at a minimal cost.

6. Benefits of Mobile Commerce

The main advantage of mobile commerce is that it provides instant connectivity to the mobile user, irrespective of his/her geographical location and time of the day. The mobile user can stay connected with his/her business network and gather information even if he/she is in transit and remotely located away from the business installation. The same light weight mobile device can be used for making business transactions or making online payments round-the-clock in a costeffective way.

Highly personalized information can be delivered in the mobile device in an efficient manner to satisfy numerous needs of a large number of customers. The major benefits of mobile commerce are as follows:

Anytime Anywhere

Mobile commerce together with wireless communication technology and wireless broadband internet access, keeps the mobile user connected with the internet while travelling across the globe. The business information is available to the mobile user any time of the day and anywhere around the globe. This anytime/anywhere internet access makes business transactions more flexible and customer communications more efficient, which in turn improves the productivity of the company and increases customer satisfaction. The valuable market information, stock/ share prices, inventory position, delivery schedule, etc. are instantly available at the fingertips.

Handheld devices, such as Blackberry, etc. work on internet mode and allow users to continuously send/receive electronic mail, download news alerts, stock prices and receive weather updates. The round the clock (24 x 7) internet availability benefits many users to conduct business transactions from their homes or from any other place while on the move and at any convenient time. Thus m-commerce offers greater mobility and flexibility to mobile users in performing business transactions using their handheld mobile devices.

2.10 ELECTRONIC PAYMENT SYSTEMS

An e-payment system is a way of making transactions or paying for goods and services through electronic methods. The e-payment systems have evolved increasingly over the last decades due to the growing spread of internet-based banking and shopping. In line with technological

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developments, the dynamic growth of e-payment systems and payment processing devices occurs.

Due to online transactions' security improvement, incredible convenience, and time-saving features, the percentage of cash-involved transactions continuously decreases.

E-commerce and m-commerce are becoming more significant year after year. Customers get accustomed to fast, simple, and easy payments. They seek convenience and become impatient and easily discouraged when any extra effort is necessary. And what's more important – they perceive convenience in different manners. Some will choose digital or mobile wallets, some – credit cards, and the others will look for some niche or local payment methods.

For this reason, implementing various e-payment systems is absolutely a must-have. Either in online or offline stores.

Types of E-payment Systems

Without a doubt, the most popular e-payment systems in Europe are electronic wallets and Visa or Mastercard credit or debit cards.

Apart from them, local debit or credit cards, bank transfers, mobile apps, smart cards, AI-based payments, or bitcoin wallets tend to crop up. Keeping your eyes open to e-payment systems development is essential from the merchants' perspective. It can create limitless possibilities to reach new customers and expand your business.

Therefore, let's look at the e-payment systems customers came to like the most.

Electronic wallets

Electronic wallet is a type of electronic card which is used for transactions made online through a computer or a smartphone. Its utility is same as a credit or debit card. An E-wallet needs to be linked with the individual's bank account to make payments.

E-wallet is a type of pre-paid account in which a user can store his/her money for any future online transaction. An E-wallet is protected with a password. With the help of an E-wallet, one can make payments for groceries, online purchases, and flight tickets, among others.

E-wallet has mainly two components, software and information. The software component stores personal information and provides security and encryption of the data. The information component is a database of details provided by the user which includes their name, shipping address, payment method, amount to be paid, credit or debit card details, etc.

For setting up an E-wallet account, the user needs to install the software on his/her device, and enter the relevant information required. After shopping online, the E-wallet automatically fills in the user's information on the payment form. To activate the E-wallet, the user needs to enter his password. Once the online payment is made, the consumer is not required to fill the order form on any other website as the information gets stored in the database and is updated automatically.

In short, an e-wallet is electronic storage where customers put their credit or debit cards data which they use afterward without the need to hold a physical card at hand.

Mobile wallets or mobile apps

Digital wallet and mobile wallet terms are interchangeable for some people. Yet, it's good to know that a mobile wallet is a specific category of the e-wallet payment system. The difference

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between them comes down to the device through which the wallet is accessible. Digital wallets can be used on any device, while mobile wallets – through a mobile application. The most popular ones are PayPal, Apple Pay, and Google Pay.

Credit or debit cards

Debit and credit cards are both used to pay for goods or services without paying in cash or writing a check. The difference between the two is where the money to pay for the purchase comes from.

When you use a debit card, the funds for the amount of your purchase are taken from your checking account in almost real time. When you use a credit card, the amount will be charged to your line of credit, meaning you will pay the bill at a later date, which also gives you more time to pay.

Advantages of a debit card

- In addition to the convenience if you don't have cash readily available, debit cards have several advantages for users.
- Avoid increasing your debt. Using a debit card instead of a credit card is a good way to decrease your chances of getting into debt. This payment method should keep you within your budget and from spending all of the money in your checking account. If you ever do spend more than your checking account allows, you may be charged an Overdraft or Return Fee from your bank.
- Debit cards give you easy access to your cash. You can use your debit card to withdraw cash from ATM machines. Some retail stores will also allow you to get "cash back," charging more than your initial transaction to your checking account and giving the cash to you with your receipt.
- Pay now to avoid a bill later. Since the money from a purchase you make with your debit card is taken directly out of your checking account, you don't have to worry about a bill coming your way at the end of the month. This also means that you don't have to worry about interest accumulating on that bill. Using a debit card is a great way to control your spending, just be careful to avoid Overdraft and Return Fees!
- It can often be complicated to decide when it is best to use each card. For everyday purchases, consider using your debit card because you will see the money taken out of your checking account right away. For bigger items, such as a rental car or hotel room, you could use your credit card so that you can save up money by the time you have to pay.

Advantages of a credit card

There are several benefits of having and using a credit card.

- Credit cards give you extra time to pay for purchases. At the end of your monthly credit card cycle, you will receive a bill stating how much you owe for purchases made in the last 30 days. Depending on when you made the purchase, you have up to a few weeks to pay your credit card bill. Technically, you are only required to pay the minimum fee each month but this could lead to future debt.
- For example, if you spend $1,000 in a month but only pay your monthly minimum payment of $15 and you spend again next month, you are likely to fall into a debt trap. Each month that you don't pay off the entire bill, there will be a certain amount charged for interest by

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the credit card company. A helpful tip is to pay off as much as you can each month to earn better credit and avoid building up debt.

- Credit card use builds your credit history. Each time you purchase something with your credit card and then pay it off on time, your credit history will build up. Building good credit is important when you are taking out a loan, buying a car or house, etc. Paying off your credit card bill each month will show that you are capable of paying off debt and can help increase your credit score.
- Convenient for emergencies. Having a credit card is very useful and convenient when there is an emergency. If you suddenly need to pay for a repair in your house, you can put the charge on your credit card. In this case, you probably did not plan for this expense, so your credit card company will extend you credit until you pay the bill at the end of the month. Again, this gives you a little extra time to pay for something you weren't expecting to pay.

Benefits of having a Debit and a Credit card

Many people have a debit card and a credit card. Since each card has a different use, they utilize the unique advantages and differences between debit and credit cards. Instead of choosing between one or the other, consider getting both!

Bank Transfers

- Bank transfer (or wire transfer) is a payment method that allows consumers to transfer money to a bank account around the world. The consumer is provided with a unique reference number and details of the bank account where they can make their payment.
- The consumer will then complete the transaction in any way they prefer to pay. This payment can be made by telephone, mail, or through their online banking package.
- Bank transfer is very advantageous for shoppers who do not have a credit card, or do not want to use it to complete a distance sale payment through internet, telephone, or mail. Bank transfer is also a very safe and secure payment method, as both account holders must have a proven identity and there is no possibility of a chargeback.

In general, the process for bank transfer transactions consists of three steps for you:

- Providing us with order details (Reference)
- Consumer executes the bank transfer using the information provided by you and us
- We match, report and remit the funds to you
- We maintain local bank accounts in the countries where the Bank Transfer payment method is normally used for purchases. In these cases, the consumer will be making a bank transfer to a local bank.
- In the cases where we do not have a local bank account, the consumer will be informed to make the payment to the bank account located in another country. At present Ingenico offers such international bank transfers only for some EU countries and it is possible to use the only euro as a transfer currency. In case you interested in some specific countries or currencies which currently are not presented in this documentation please reach out to your account manager.

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Bank transfers are safe and secure, fully electronic funds transfers between banks' accounts. The strongest bond to internet banking is observed in Poland, the Czech Republic, and Estonia.

Direct debit

Direct debit is a kind of payment instruction for your bank. On the grounds of this instruction, your bank transfers funds from your account to the account given. Direct debits are a convenient and time-saving way to settle recurring bills or payments.

E-cash

In layman's terms, the idea of e-cash or electronic cash derives from cryptocurrency. The information regarding currency is downloaded and stored on the computer hard drive and stays there until the payment is made.

The term was coined by David Chaum, -a pioneer in cryptography and the inventor of digital cash.

E-check

As the name implies, e-checks are the digital versions of paper ones. Their purpose remains similar – they are used to transfer funds within given accounts.

QR codes

QR stands for "Quick Response." These codes are the most popular 2D barcodes, easily readable by all types of smartphones. The code lines contain all the necessary information regarding the transaction and the merchant — everything you need to complete the transaction successfully.

Wearable/payable devices

Considering that customers appreciate the convenience, alternative payment devices' popularity proliferates. Smartwatches or wristbands enabling making payments at the grocery aren't shocking these days. Such devices are connected to the customer's bank account and work as a contactless payment tool.

Benefits of using an e-payment system

- E-payment systems vividly improve our banking experience. The Covid-19 pandemic converted even the most "cash-loyal" shoppers into electronic money users. For that reason, merchants have to adopt various e-payment solutions to meet the customers' growing expectations.
- The increasing popularity of the NFC technology and biometric security layers makes e-payments even more secure and convenient.
- Customers and merchants have become more open to "non-cash" payments, as their benefits are hard to ignore.

Among the most crucial ones are:

- Lack of geographical borders and limits. Tailored-made checkouts help merchants reach more clients from all over the world, thus increasing sales profits.

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- Faster payment processing. It's because transactions are made in seconds (with one click) without wasting customers' time.
- Convenience. Customers can pay for items on an e-commerce website 24/7. They only need an internet-connected device. As simple as that!
- Lower transaction costs and decreased technology expenses.
- Easy payment integration. Adding payments to a website isn't very challenging. Developers tend to simplify integration processes to make e-payments widely available.
- Sophisticated security layers and the most advanced fraud prevention tools. The abovementioned elements, delivered by payment gateways and payment providers, make electronic transactions safe and hassle-free for merchants and customers.
- Sounds great, so are there any drawbacks then?
- A threat of fraud is the biggest spoon of tar in a barrel of honey. In line with a dynamic increase in online purchases, fraud attacks are on the rise.

However, the risk should be under control if you follow the security rules (both from the merchant and customer sides). Sensitive data breaches and the risk of identity theft pose a severe threat as well. Again, a secure payment platform mitigates the jeopardy.

Therefore merchants should ensure they cooperate with a reliable payment processor. Customers, in turn, should pay attention to where they leave their financial data. For some, the lack of anonymity might be perceived as a problem.

Yet, letting your data be stored in the database of the payment system seems to be a reasonable price for such extreme convenience as paying from your couch. Internet access is a must. Though, nowadays, a 24/7 internet connection is an essential thing.

2.11 WORKING OF ONLINE CREDIT CARD

A credit card is a physical card that can be used to make purchases, pay bills or depending on the card, withdraw cash. The simplest way to think of a credit card is as a type of short term loan. When you open a credit card account, your credit card company gives you a set credit limit. This is essentially an amount of money the credit card company allows you to use to make purchases or pay bills.

Here are some important steps:

1. Making the purchase

The customer finds a product that he or she likes and decides to make the purchase. The customer can use a credit card to pay for the item in the store, through an online payment gateway, by phone, or by mail.

2. Entering the transaction

The credit card is swiped or dipped using a secure credit card reader, or the card and transaction information is manually entered using a virtual terminal. For eCommerce transactions, the cardholder keys in the payment details on a hosted payment form on the website.

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3. Transmitting the data

The credit card data is encrypted and transmitted for approval as the terminal, POS system, or secure payment gateway is connected to the processing network.

4. Authorizing the transaction

Once the data is transmitted, the credit card issuer can approve or decline the transaction. This is based on the validity of the card, the amount of the transaction, as well as the cardholder's available funds.

5. Responding to processor and merchant

If the transaction is approved, the processor and the merchant receive an authorization response.

6. Completing the transaction

The merchant completes the transaction by issuing a receipt to the customer. For eCommerce orders, the merchant then prepares to ship the items to the customer.

7. Submitting a batch closure

The merchant completes the credit card payment process with a batch closure. This closes out the transactions that have been processed on that day. The processor's acquiring bank then collects the funds from the credit card issuers.

8. Depositing the funds

The processor's acquiring bank then deposits the funds into the merchant's business account. This typically takes up to 48 hours. In addition to the steps outlined above, click here for information about how payment gateways work.

2.12 TRANSACTION SECURITY

Transaction Security is a framework that intercepts real-time Salesforce events and applies appropriate actions and notifications based on security policies you create. Transaction Security monitors events according to the policies that you set up.

Transaction security ensures that users that attempt to run a transaction are entitled to do so. You might come across the alternative terms of attach-time security or transaction-attach security to describe transaction security. Transaction security is the most fundamental form of security checking that is required to secure a CICS region and its application; you should always enable transaction security. Without transaction security, any user who has access to CICS can run any transaction without even needing to sign on.

The security section of the documentation assumes that transaction security is enabled."

Transaction security checking applies to all user transactions and CICS transactions in Category 2. (Category 1 and Category 3 transactions are not checked.) You cannot turn transaction security on or off for an individual transaction.

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The XTRAN system initialization parameter controls transaction security. CICS issues an authorization request for every transaction, regardless of how it was started. The user ID that is used for authorization is the user ID that is associated with the request. For details of user IDs, see How it works: identification in CICS.

CICS and RACF process the authorization request using profiles for each transaction in RACF resource classes. You define these profiles either in the default RACF resource classes for CICS (TCICSTRN or GCICSTRN), or in your own classes. The CICS transactions, except sample transactions in Category 2, are generated in the designated groups when you initialize the CICS system definition data set (CSD) or during installation. You identify your transactions to RACF using the transaction names that you have assigned to them. See How RACF implements CICS security classes for more information about the RACF resource classes.

The currently active transaction profile is used for authorization checking. To understand this, see Refreshing profiles for SETROPTS RACLIST processing.

To set up transaction security:

- Set the XTRAN system initialization parameter. Always have XTRAN on.
- Set up RACF profiles to specify which user is authorized to run a transaction.

2.13 WHICH BUSINESS MODEL IS MORE SUCCESSFUL?

We have discussed the two business models-Pure business model and bricks and-clicks Business model. Both these models have their distinctive advantages and disadvantages. It is very difficult to pin point the model which is more successful. But it has been established that bricks-and-clicks business models have out performed the pure business models on the following aspects:

(i) **Acquisition cost of customers:** Businesses have to incur costs to acquire customers e.g. advertisement cost. The acquisition cost of customers in pure business models is more as compared to bricks and-clicks business models. This is due to the reason that pure business models may continue incurring cost to acquire customers, which may go waste if it is not noticed by customers.

(ii) **Conversion Rate of Visitors:** The conversion rate of visitors into actual customers is more in bricks-and-clicks business models as compared to pure business models.

(iii) **Customer Maintenance Cost:** Businesses have to incur cost to maintain their customers. The customer maintenance cost in pure business models is more as compared to bricks-and-clicks business models because customers tend to have less loyalty towards On-line stores which they have not basically seen.

As on today, the bricks-and-clicks business models tend to do better than pure business models because of the fact that bricks-and-clicks business models benefit from established brand name, existing information systems, and marketing arrangement with suppliers.

Launching a Business On the Internet

Launching a business on the Internet is really a complex task which requires a systematic approach. For launching a business on the Internet, the most important task is to build an e-commerce site. Building a successful e- commerce site requires a thorough understanding of business, technology and social issues.

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Site development process refers to all the activities used to create Website in an organisation and the processes of their accomplishment. A Website may be developed following different approaches. The life cycle approach is the oldest and most widely used approach of Website development. A Site Development Life Cycle (SDLC) is a logical process used to plan, execute and control site development projects. Website development life cycle approach is a methodology for understanding the business objectives and designing an appropriate solution.

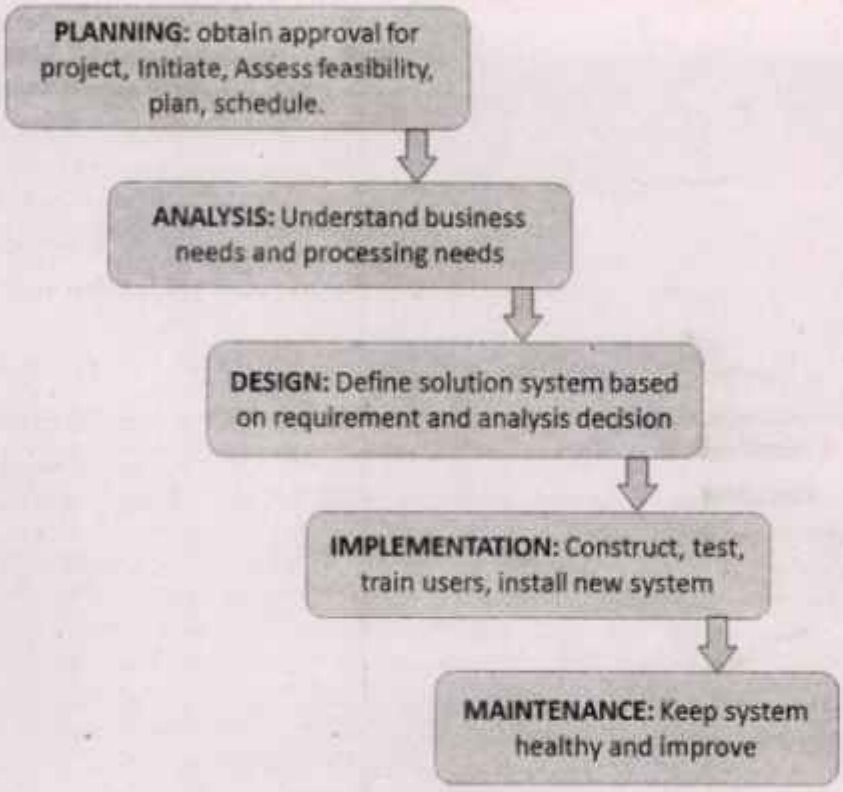

Fig 4: The Various phases in life cycle Approach

The major phases involved in the Website development are referred to as Website Development life Cycle. The life cycle is divided into phases because each one has specific activities and deliverables produced from those activities.

Before moving ahead to the next phase, it should be ensured that all the activities and deliverable of the current phase are completed. It is a phased approach to analysis and design to ensure that sites are best developed.

Each phase of the development process must have well defined objectives, and at the end of each phase, progress towards meeting the objectives must be evaluated. The development process should not continue until the objectives of all prior phases have been met. The life cycle approach demands a systematic, sequential approach to site development that begins at the planning level and progresses through technology infrastructure, design, marketing, fulfilment, maintenance and enhancement, and feedback phases.

Although, adopting a life cycle approach to develop a Website does not guarantee success, but this approach is far better than having no plan at all. Life cycle approach also helps in creating

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documents to communicate the objectives of the site, important milestones, and the utilisation of resources to senior management. The various phases involved in e-commerce Website life cycle are shown in Fig. 4.

2.14 THE BUSINESS PLANNING AND STRATEGIZING PHASE

The first phase of life cycle approach is—Business Planning and strategizing phase. Planning is deciding in advance- What is to be done? Why it is to be done? When is to be done? And By whom it is to be done? In other words, plan is an intention or a proposed means of achieving something.

Types of Plans

To have a successful Online Web venture, the following plans should be developed:

- **Business plan:** The business plan is developed to set the goals or objectives of the business as well as to estimate the start-up and ongoing operating costs.
- **Website design plan:** The Website Design plan is developed to make the Web not only customers-friendly, but also to incorporate the objectives of the business plan.
- **Marketing plan:** The marketing plan is developed to define the target customer and how to best reach and serve them. The marketing plan is a key component of business's strategy for success. It summarizes the "who, what, where, when and how much" questions of company marketing and sales activities for the planning year. To develop the proper marketing plan, the business owner must understand what separates his products from that of his competitors. And more importantly, what do these differences mean to the target buyers. Positions is the perceived value of these differences, and the goal should be to effectively communicate the importance of your uniqueness to those most interested in your offerings. In some cases, there may be little or no difference between your products and others, or the differences may be very difficult to communicate (e.g., Coke and Pepsi). The challenge in that case is to create some differences through your positions, and then use that identity to influence buyers.
- **Financial plan:** The financial plan is developed for finding funding, if needed, and how it will be spent. One business reality is that money is needed to earn more money. Resources are required to buy equipment, supplies, procure or manufacture products, packaging and marketing. Financial plan should include finance required to buy all the assets required in the business, to maintain inventory levels, and to support the business in case the business does not produce the desired results.
- **Management plan:** The management plan is developed to form daily operational schedule. It indicates which team member will carry out which duties.
- The first stage is to develop the concept for the new business as clearly as possible. This can take months, but irrespective of time required to develop the concept for the new business, it needs to be thorough. Dot.com failures have increased in recent years just because of the fact that they started the e-business with half baked concepts and poorly thought out revenue models. Strategy may be defined as a plan or tactics for achieving the goals. A business plan is a road map for the development and operation of e-business. You would not think about setting off on a trip without the knowledge of distance, a plan how

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to get there, and a road map to ensure that you do not get lost. Similarly, a business plan does these things for the company, and more. A plan may be defined as blueprint of the company, an outline of business idea, as a document that describes how business will be profitable.

A business plan may be considered as a written document that identifies a company's goals, and outlines how the company intends to achieve the goals. The successful development of e-business is all about planning. The road map to any successful business venture is a good plan. Unfortunately many businesses develop their e-businesses without a clear understanding of why they should have a e-business in the first place. These mistakes are costly to rectify once the e-business has launched.

Business planning is all about deriving satisfactory high-level answers to the following questions:

- How do you create value for your customers?
- Can you capture any of the value you are creating for your customer?
- Is the customer base large enough to sustain a business?
- What is your differentiation? What makes you sustainable?
- Is the business repeatable? Is this an ongoing business or an one time event?
- What is your business model? It may be sales and service, manufacturing and distribution, design and licence, or something else.
- Do you fit into any existing supply chain or value chain?
- Is the business scalable? If you are expanding, what is your path for growth?

Formulation of objectives is often a difficult, fizzy, and intuitive process. But he aim of the planning phase is to state clearly the objectives of the proposed business. Planning is a dynamic, continuous process that involves constant balancing of opportunities and resources. Planning is very crucial phase because this is the stage when decisions are made that affect the other phases of the life cycle.

In this stage, business analyses why it wants to launch e-business. The usual business objectives include:

- Selling of products and services.
- Purchasing of supplies and services.
- Customer service or support.
- Enhancing brand image.
- Finding business leads.
- Reducing operational cost and/or saving money with more efficient Internet tools.
- Improving communication with employees.

After identifying the goals of the e-business, the business must determine the group of Website users. The Website users are the single most important factor influencing the launch of e-business. An e-business must be launched based on what the users actually want because this influences all other factors. The most common error Website planners make is they design sites to meet their own needs, ignoring or failing to give priority to target audience. For example, more

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emphasis may be placed on initial sales, giving short to follow up customer service or dealing with suppliers. The key components in a business plan are:

Product: Choice of product indicates how well the entrepreneur understands the needs of company's potential customers. As the products are displayed on the monitor only which cannot be felt or touched by the customer, the way these products are displayed on the monitor is very crucial. For doing business on the Internet, looks of the product are very important. Choice of product also depends on the fact whether the object of the business is to stay for a long term or short term. For example, the product offered may be valentine day's cards which are sold only once in a year. This may be good for a short-term. But if the objective is to stay for a long-term, the product should be one which is used throughout the year.

Phase I of venture formation and development process is all about recognizing opportunities and shaping them into business concepts that have a chance to grow and prosper.

With high-potential, new venture concepts can be ultimately destroyed through poor business execution great execution cannot rescue a hopeless concept. Innovative new businesses with high impact potential will generally exploit the changing business environment. These new opportunities are built upon the identification of one or more of the following:

(a) New or underserved market
(b) New product or service
(c) New channels to market.

Successful new businesses become so by either filling a new or underserved market need or by filling an old one better. The new market needs tend to have their roots in shifting demographics, psychographic, or changing laws. Changes in technology generally alter the means by which markets can be served, but do not create market needs.

- **Market:** The Market size data indicates whether sufficient potential exists to pay back and whether potential market is large enough to support the product.
- **Management team:** The background and experience of each member of the management team is key to the success of the venture.
- **Competitors:** Who are the key players in the market and what they are doing? What is the objective of their Web presence? How does your company fits into this area today and in the future? And in case these is no competition, the reasons for non-existence of completion must be evaluated.
- **Potential customers:** The business plan must evaluate the needs of the customers: what part of target market has Internet access, and their typical connection speeds and equipment capabilities. Plan should also indicate whether potential customers be found On-line and if they are On-line what is it they would be willing to buy On-line.
- **Marketing:** After verifying the existing marketing effort, print and broad cast campaigns, a continuity plan may be developed to strengthen and extend the company branding. A monthly e-mail newsletter or may be an On-line coupon can be used to build client thrust and customer loyalty.
- **Scheduling and planning milestones:** An e-business plan also includes the schedule to launch the components of the plan and the order in which it is to be launched. For instance, when creating a new Website, plan must consider the availability of entrepreneur to participate in the process and time for development and user testing. New business with

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a brilliant idea will fail if the market is not ready for the products offered by them. A new product should be launched only after informing the buyers.

- **Measuring success:** An e-business plan will also include measuring the success of the plan. It must be verified on continuous basis whether the site is meeting the proposed goals and whether the business is staying ahead of the competition.
- **Project budget:** After examining the wants of the users and how to achieve this, the business must then assess whether there are sufficient funds in the project budget to achieve this. In case the sufficient funds are not available, the business may plan the user requirements but decide to stagger the launch of various parts of the Website in order to manage the budget more effectively.
- **People planning:** People are the key to the success of a Website As Web development involves such a diverse range of skills, a talented team of people working together is crucial to the success. Website development requires people with valley of specialisations who work together to produce a Web. Although people with technical talent (the Web servers administrators and implementers of HTML) are important, but Web developers and producers (who develop Web information well) are not less important.
- **Pricing:** Pricing must reflect not only the costs to produce the product or service at the expected volume, but also the value which the customers place on the products offered. Price is a way to differentiate the proposed business from others, especially in the consumer market.
- **Promoting customers loyalty:** The business plan should also include measures to cultivate measures to ensure that they continue to do business with the company. For example, writing or calling a customer or client immediately after a transaction and thanking them for their business.
- **Delivery of products:** The business plan should also consider not only how the products will be packed, shipped, delivered, but also the ways in which sales returns would be handled. The various aspects related to delivery of product such as weight, size, durability of the product, costs, etc. should be duly considered at this stage.
- **E-Commerce business model:** A business model is the method of doing business by which a company can sustain itself, i.e., generate revenue. The business model spells out how a company makes money by specifying where it is positioned in the value chain. Alternatively, a business model may be defined as a set of planned activities (sometimes referred to as business processes) designed to result in a profit in a marketplace.

Why a Business Plan is Required?

Business plan may be required for the following reasons:

(i) **To acquire funding:** A business plan may be required to acquire funding. An existing firm may be seeking funding for an e-commerce Initiate from a bank, the financial markets (e.g., an initial public issue), a prospective business partner, or from an internal allocation of funds. All these parties would like to study the business plus to check the feasibility of the project

(ii) **To acquire other resources:** Sometimes it is not just a bank that wants to see a business

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plan. A prospective landlord, equipment supplier, or application service provider may want to see a viable business plan before entering into a business partnership with business owners.

(iii) **Recruitment of senior management:** Anyone truly capable of – leading a start-up or existing team into a digital future will want to see a business plan that explains the business idea. Therefore, plan should be made before starting the recruitment process of senior managers.

(iv) **To make business owners a better business owners:** Committing business ideas to paper results in improvement in the ability of business owner to create and manage the business. The process of writing the plan forces the business owners to think ahead, set goals, anticipate problems, and set some measures for their success.

(v) **To make a realistic approach to the business:** By nature, business owners are optimists at the start of any project, happily seeing a smooth road ahead to their destination. Writing a business plan puts a good dose of realism into the picture. Business plan activities such as seeking out and analyzing competitors, figuring out how to reach the target markets and comparing projected revenue streams against realistic expense statements increases awareness of the bumps in that road. Identifying problems is the first step to avoid or minimize them and a business plan enables in doing that. E-business plan enables to anticipate the time and cost of Internet projects and create a strong foundation for future projects.

(vi) **To decide not to develop business:** Sometimes the most successful outcome of a business plan is a decision not to proceed. Researching and writing a plan can reveal the realities of tough competition, a small target market, or an income and expense statement indicating losses. Many owners of failed businesses would have saved considerable time, money, and sources if a proper business plan had been done.

(vii) **To keep the business owners on track:** The process of writing goals, objectives, manufacturing plans, distribution plans, and financial statements sets targets. These targets may be considered as yardsticks against which actual performance can be measured. This provides the ability to compare actual results with anticipated goals.

Infrastructure Phase

Infrastructure may be defined as: Technologies, standards, methodologies, and practices that enhance business-to-business interoperability on electronic commerce.

The infrastructure of an e-business identifies the functionalities of the hardware and software components, that is usually shared by many applications. This phase also rely on management procedures (e.g. software distribution, backup, recovery, and capacity planning) to provide reliable and efficient services to customers. Commerce servers, transaction servers, database servers, and Web servers are typical hardware and software components used by e business applications. Hardware components include standard pieces such as servers and networks as well as specialized hardware devices such as proxy servers, load balancing systems, firewalls, encryption devices and interactive voice response units.

Given the nature of the electronic business, some quantitative information about the business, the functional model of the applications, and the architecture requirements, one should be able to specify an infrastructure that meets the requirements at minimum cost. The infrastructure

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needed to support an e-business depends on the following factors:

- The business model supported by the site.
- The expectation regarding the orders/day and average and peak volume of business transactions.
- The type of customers expected to visit the site.
- The category of e-business in which the site intends to specialize (B2B, B2C, or C2C).
- The type of operating system, Web server, commerce server, database management system, payment system, and proxy servers used by the site.
- The kind of third-party systems used by the site.
- The service level agreements in terms of availability, performance, and security.
- Aggregate bandwidth at the site location.
- Redundancy available at the site (e.g., server redundancy, uninterrupted power service, RAID disks, and multiple Internet backbone procedures).

Objectives of E-commerce Infrastructure

The design of the infrastructure for electronic business and services should focus on the following factors:

- **Performance:** In a large Internet retailer store, customers may be locked out of the site due to surge in shoppers during a sales promotion and may find the following message while trying to access the site :

  "Due to enormous turnout, the checkout lines are currently full. Please try again later". To avoid losing sales and customers, electronic business sites must be fast and reliable. Performance problems may arise in many points of the Web. They may occur at the end user because of the obsolete system technology or due to the lack of the bandwidth of the link to the ISP. Inadequate server and network capacity may cause extra delays at the ISP. Excess of traffic may bring congestions and delays at backbone providers.
- And finally, performance problems can be found at the e-commerce site. The execution of a Web transaction places demands on many site resources (e.g., servers, LANs, databases) and sometimes demands information, such as banners, authorization, and certification, from other sites. All these factors together compound the performance issue in e-business applications and demand techniques and tools to analyze and understand system behaviour.
- **Availability and maintainability:** No customer would like to see this type of message while accessing an electronic store on the Web, "we are sorry, but the store is temporarily closed. We expect to be back soon." Availability is one of the service level goals of any e-business. Low availability can cost an e-business lost revenue, reduced market share, and bad publicity. High availability can be achieved through infrastructure reliability and software robustness.
- Geographically separate sites with multiple levels at each site, multiple machines at each level, load balancing mechanisms, and redundant networks is the starting point

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toward high availability. Permanent system monitoring and measurement procedures can anticipate problems and enhance availability. In e-commerce environment, the cost of maintenance and administration is very high and can vary from two to twelve times the hardware cost. The messages like "The site is under maintenance right now. Please come back later" are unacceptable for customers of electronic stores. The key concept of maintainability is the case of replacing or upgrading software and hardware components. In the Web, e-business should be able to replace and upgrade components of their infrastructure without disrupting customer services.

- **Scalability:** An e-business infrastructure is said to be scalable when it provides adequate service levels even when the work load increases above expected levels. The infrastructure of e-businesses should be designed in such a way that information services scale with demand.
- Sites grow in two ways namely, scaling up and scaling out. Scaling up is achieved by replacing servers with larger servers. Scaling out is achieved by adding more servers to the site.

Components of E-commerce Infrastructure

Server refers to a computer on a LAN running administrative software that controls the access to the network and it's resources, such as printers and disk drives. On the Internet, server is computer or program that responds to commands from a client.

A component is a modular unit of functionality, accessed through defined interfaces. The main components of an infrastructure for electronic business have strong influence on the quality of service. The main components of an e-commerce infrastructure (including both hardware and software) and their roles are:

- **Web HTTP server:** A Web server is any machine on which HTTP server program is running. It is a combination of a hardware platform, operating system, networking software, that uses HTTP to serve HTML document and associated files as and when requested by a client.
- **Application servers:** An application server is any machine on which am application server program is running. It is the software that handles all application operations between browser-based customers and company's back-end databases. In general, an application server receives client's requests, executes the business logic, and interacts with transaction servers and/or database servers.
- **Transaction and database servers:** A transaction server provides a seamless environment that integrates all the components which are required to execute transactions, such as, the database system, operating system, and communication system. Transaction servers guarantee performance, reliability, and scalability. It consists of three major functions:
  (a) An application programming interface.
  (b) A set of program development tools.
  (c) A system to monitor and control the execution of transaction programs.
- A database sever is a network node dedicated to storing and providing access to shared database. It executes and manages transaction processing applications, issuing SQL requests to the database.

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- **Mainframe and high end computing systems:** Mainframe is a Computer with a large random-access memory, processor with a good speed (GigaHz or MHz), are the components of e-business infrastructure. The remaining hardware includes high resolution monitor, a mouse, and a faster modem with more bandwidth.
- **Proxy server:** A proxy server is a special type of Web server. It is able to act as both a server and a client. A proxy acts as an agent, representing the server to the client and the client to the server. A proxy accepts requests from clients and forwards them to Web servers. Once a proxy receives responses from remote servers, it passes them to the clients. It improves the Web performance, scalability and security.
- **Internet service provider (ISP):** Internet service providers (ISPs) have an important contribution to the quality of service offered by e-business. Physically, merchants and customers connect to an ISP, which in turn connects to one or more backbone network providers.
- Depending on the ISP installed, capacity and traffic, performance problems and delays may occur at that point of the path between customers and business, contributing to an increase in response times.

Infrastructure Cost

Estimating the infrastructure cost of e-business is an important step toward a quantitative analysis of issues such as Return on investment, cost per transaction and Service level agreements. The cost of operating a e-commerce site can be substantial and includes:

- Cost of site development staff.
- Cost of infrastructure that includes hardware, software, and network services.
- Initial costs to set up an e-commerce site.

Infrastructure costs include the following:

- **Capital equipment costs:** Capital equipment costs include the costs of equipment that make up the site architecture, i.e., servers, disks, LANs, routers, switches, and firewalls.
- **Network costs:** Network costs include the costs of connecting the site to an ISP.
- **Operational costs:** Operational costs include those costs which originate from the operations needed to keep the site up and running. These include personnel, facilities, network operations, maintenance, uninterrupted power supply, heating and air conditioning, and building rent.
- **Security:** Security is an important attribute of e-commerce Mechanisms and protocols used to support security may impact system performance. The throughput of Web servers can be reduced significantly when they have to deal with secure sessions, which requires compute-intensive computations.

Design Phase

Design phase consists of all the activities that ensure that page elements, colours and graphics all work together to provide an enjoyable experience for the customers while projecting a professional

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image for the business.

Design of a Web project is the next most important and popular Web development phase. The focus of the design phase is to determine how the Website application will meet the objectives, to answer the question, "how it will do what it must do?" Design is all about communication. Web design is no different. The sale process starts from the very moment the visitor looks at the website. First impressions are very important. If the site has weak design, users create a bad impression of the business or Website. Design is the process by which a Web designer, working within the Web's specification, makes decision about how Web components will accomplish the Web's objectives. Web design is the process by which a designer or a team of designers create a concept with a Web's specification and make it appealing and unique. In this phase, the design team takes information from all elements of Web development and combines them to produce a concept that speaks the purpose of the Website. In this phase, the structure, look and feel of the Website is defined.

Design phase involves creating the functionality of the site, i.e., how the pages display the information to the user. The goal of Web design is to create a look for the Web that has the right stuff" information at the right level of detail and an arrangement of pages that efficiently guides users to needed information. There are many factors that can make the difference between a successful Website and the one visitors never return to. Complex, flashy layouts may look great but are impractical if the site's visitors cannot find what they are looking for. Similarly, a site with endless blocks of text and little interactivity would not compel anyone to stick around long enough to find out what Web has to offer.

A well designed site not only adds depth and richness to the Website but also can assist in the purchasing decision-making through good customer usability.

Design decisions include decisions about:

How to design the Website,

- Page contents.
- Contents of the Website, organisation of the Web content.
- Site navigation.
- Colour scheme, Graphic.
- Font and style.
- Artwork/photo scanning, etc.
- Security measures to be incorporated,

During this phase some questions to consider are:

- What kind of browser or platform are the anticipated visitors on?
- What are the overall look and feel" of the site?
- What is the navigation scheme?
- In what ways will the Website interact with the visitor?
- Who will develop or attain the informational content?
- Who will develop or attain the graphical content?

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A well designed site not only adds depth and richness to the Website but also can assist in the purchasing decision-making through good customer usability Sophisticated Website design allows the small business to compete on equal footing with larger better financed companies.

Considerations for Creating a Web Design to Offer Services

Website is basically a series of pages with links to other pages or sites. Website is the interface between the e-business and consumer. It enables the business to display its products and services as well as to sell On-line. It is the place where consumer actions take place. A Website may contain text, banners, graphic, audio and video. A major step to do business on the Internet is building a Website. A Website is a gateway to the Internet. Together, the Internet and the Web make e-commerce possible by allowing computer users to access product and service information and to complete purchases On-line. All publicly accessible Web Sites in existence comprise the World Wide Web. The pages of a Website can be accessed from a common root URL called the homepage: and usually reside on the same physical server. The following factors must be duly considered while creating Web design:

- **Build associative meaning:** Web should provide information which can be used by visitor. Power of hypertext can be used to link related information.
- **Maintain competitiveness:** Web designers must ensure that their designs include the lowest possible costs to the users. User costs include download time, information retrieval time, and the effort required to use and understand information.
- **Efficiently use resources:** When designing and implementing a Web, those features should be selected that meet the user's needs with the least amount of space, access time, graphics, and long-term maintenance requirements. Only those features should be incorporated in the Web that are efficient to operate, elegant to use, and easy to maintain.
- **Focus on user needs:** A Web should not be built for the personal taste of the designers, the convenience of the implementers, or the whims of the planners. Instead, the Web serves the audience for which it is designed. Therefore, the first priority of the Web should be to meet the needs of the users. The Web designer focuses on user needs by using the purpose statement and audience information to make decisions about page organisation and layout. By working with the Web analyst, the Web designer can evaluate how effectively the design meets the needs of the audience for the Web's purpose.
- **Recognize porousness:** The Web designer should recognize that a user may enter a Web from any other point of the Web. After entering a Web, a user might not be able to interpret cues that depend on Web's linking structure. For example, up, down or next labels would mean very little.
- **Create a consistent, pleasing, and efficient look and feel:** The Web design should aim to give users an impression on all its pages of a common, coherent organisation and consistent visual cues. Each page of the Web should cue users to the Web's identity and page purpose. The Web's overall appearance should help users in accomplishing their objectives through interfaces that strike a balance between simplicity and completeness and aim for an aesthetically pleasing appearance. In fact, a consistent page design is one of the best design principles to alleviate the fractured experience of users due to porousness.
- **Support interactivity:** Interactive components such as real-time chats, message boards, On-line events, and similar opportunities should be added in the site to enable visitors to

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network and communicate with others of similar interests and/or to express their opinions and comments.

- **Support user navigation:** Although navigation aids related to browser functions such as hot-list, session history, built-in directories, annotations file management and visual aids might be employed by users when navigating a Web, a Web designer can support these in a Web by supplying navigation and information links. These links provide hints to the users about how to use the information on a page (information cues) and how to get further or contextual information (navigation cues). All pages should allow customers to navigate within the site from any page to any other page.
- **User control and freedom:** A good Web design should provide control and freedom to the users in the sense that the users should be able to undo or redo those path which they might have taken by mistake. The users should be able to get back on track within the site.
- **Recovery from error:** Error messages should be displayed in simple language and indicate the source of the problem and the ways to correct it.
- **Help desk:** The Website should have a help desk where the user can go for help on activities related to the product, service, how to order, etc.
- **Customer service option:** Site should stay current with customer service options such as accepting credit cards, shopping cart capabilities, understandable return policies and other methods to stay competitive while serving faithful visitors and customers.
- **Feedback procedure:** Customers feedback should be encouraged. After analyzing their comments, the best of their suggestions should be implemented to better respond their needs.

Benefits of Well-Designed and Well-planned Site

The first thing that an e-business entrepreneur should do before creating any Web pages is to determine the goals, objectives, and overall purpose of the e-business's Website. Without clear, established, and measurable goals and objectives, the Website may not have the focus which it may need to be successful. Following are the main reasons for which businesses establish Web sites:

- Help making Sales.
- Enable in Recruiting employees.
- Providing general or industry information.
- Providing links to related pages
- Collecting information about current and potential customers.
- Advertising products and services.
- Building the e-business's image and brand.
- Providing technical support for products and services.

If an e-business Website is well-designed and well-planned, it can;

- Increase business proceeds
- Enable in developing strong customer base
- Enable in extending networking connections with other On-line entrepreneurs

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- Provide the opportunity to expand the business in areas which were never dreamed of before.

The determination of objective of the Website provides a framework for Web-design. But the most common goal of Web sites is to sell goods and services and making a marketing presence.

The Web Storefront

The Web is an abstract (imaginary) space of information. The storefront is the public face of the Website. A great looking store with advanced features tempts customers to buy. From a customer's point of view, the storefront provides a dynamic and interesting shopping experience. Storefront is a technology infrastructure that includes the Website, the supporting hardware, the server, and security and payment systems that work together to provide the business-to-consumer interface. A Website may be considered as a storefront which displays the name of the store, the products in which the store deals and the special offers offered by the store. When a Website is considered as a storefront, it is actually a virtual storefront, and the customers are cyber-customers. A Website lays more emphasis on speed, efficiency, quick response time, and availability of procedures that expedite a sale.

The Web storefront is a type of Website which is created to sell products on Internet, the true global market. A Web storefront is a store on the Internet that allows users to interact with a company in much the same way that they would in regular "brick-and-mortar" stores. Web storefronts provide the ability to actually sell products from the Web.

The storefront is the Website where people go to buy goods and services. It can be a simple On-line payment form or a sophisticated catalog site with a virtual shopping basket. Web storefronts generate demand, acquire customer information, fulfill orders, and process payment. When launching e-business, it is very difficult to predict what product may take off and become a high seller. The Web storefront allows site to take care of high volumes if sales reach those heights. Typically successful storefronts have the following characteristics:

Generate demand for either immediate sales or follow up opportunities.

- Process orders and payment.
- Provide service and support.
- Facilitate fulfilment of goods and services.
- Guarantee secure transactions.
- Have mechanisms to generate a summary of the order and also produce a printable receipt. It should have mechanisms to send a confirming e-mail to customers.

Thus, Web storefront is a technology infrastructure consisting of Website, the supportive hardware, the server, the security and payment systems that work together to provide the business-to consumer interface. The Web storefront uses a Web server to display pages to the user. An e-business/transaction server must be present to take orders. The transactions that take place behind the scenes are encryption, database connectivity, and software programs that work together to integrate the HTML-based storefront with the transaction and database software.

A Website offers following benefits over a traditional brick-and-mortar storefront:

- **Reach an unlimited market:** The Internet presents the largest consumer market in the world. A Website may be used as a catalog, information source, service provider, or a

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storefront. Web allows a business to reach millions of consumers all over the world quickly and reliably. This may result in increase in sales. Anyone, anywhere with an Internet connection can access the Website.

- **Time saving:** Website allows business to focus more on actual selling rather than on answering common question from its customers as the customers can find information regarding the products and services at their convenience from their home or office.
- **Promotes professionalism:** Placing the Web address on all advertisements, business cards, letterheads, and other media creates an impression in the mind of outside world that the business is being conducted in a professional manner. This enhances the image of the business. Web also provides the ability to spot new business opportunities and to capitalize on them. Moreover, Website also provides the power to track sales results.
- **Reduces advertising costs:** Businesses having a Website can save substantial money on newspaper ads as they can put all the details about their products, services, and specials in their own Web sites. Placing the Web address in newspaper ads generates more response from the public as they may contact the company at their convenience. Linking the Website with other advertising campaigns helps in creating brand awareness.
- **Allows companies to conduct business when it is convenient for its clients:** E-businesses are actually never closed. Website allows the customers to shop with the company 24 hours at their convenience whether it be during the day or in the middle of the night.
- **Educates customers about business:** Website provides a place where consumers can get answers to many of their questions. This also helps in cutting down the number of phone calls which businesses receive with simple inquiries. Consumers have more confidence in and prefer doing business with companies that they know something about. Website may be used to inform visitors regarding the structure of the company, community involvement of the company, the products and services offered by the company, awards, and employment opportunities. Moreover, Website can provide further support to existing customers by offering information such as troubleshooting procedures, product specification and parts list, and special help lines. This may result in reducing the number of service staff.
- **Better business relationships:** Having an Internet site speeds up the time taken to reach to customer queries, which can be done via e-mail. Moreover, Website may be used to network with other companies. This results in building better business relationships, locally and around the world.
- **Reduced cost:** Reduction in phone charges, fax charges, printing costs, and postage costs.
- **Equal opportunities:** A properly built Website allows small businesses to compete on equal footing with larger better financed companies.

Website Design Development: In-house Vs Outsourcing

The accomplishment of objectives of e-commerce depends to a large extent on the design of the Website. Website is the brain, heart and soul of any e commerce venture. One of the basic decisions taken in the planning phase of Website development life cycle is whether the Web should be designed in-house or whether the job of Web design should be assigned to an outside agency. The decision regarding Web design development in-house or outsourcing it is complicated

because of the advantages and disadvantages associated with both the scenarios.

The Advantages of In-house Development of Web Design are:

- In-house development of Web-design ensures control over the entire project.
- The frequent changes required in Web-design due to changing business environment can be incorporated easily and cheaply because the staff associated with Web design will be familiar with the details.
- In-house development of Web-design ensures that ownership of copyright in the Website is owned by the e-business.

The Drawbacks Associated with In-house Development of Web Design are:

- Web design development is a specialized job. The experience and expertise required for Web design development may not be necessarily available in-house. Specialists may include programmers, graphic artists, Web designers and managers.
- In-house development of Web-design requires selection and purchase of hardware and software tools which may be quite expensive.
- The turnover of IT professionals is very high.
- In-house Web design development generally takes more time.
- Risk of doing a poor job is always associated with in-house development of Web-design.

The Advantages of Web Design Outsourcing are:

- Outsourcing Web design work can save a start-up e-business time and cost by saving the cost of recruiting and hiring in-house Web design professionals.
- Outsourcing Web design enables an e-business to access experienced design specialists who are familiar with best practices and current technological changes. This results in production of high quality Web design.
- Web design developed by specialists generally have longer life cycle because there is far more user experience behind the design.
- Outsourcing enables an e-business to take advantage of a usability analysis before the Web design is completed.

The Drawbacks of Web Design Outsourcing are:

- Updation and maintenance of Web sites designed by outsiders is more time consuming and expensive.
- Outsourcing raises issues such as the ownership of contents of Website. Designer may keep the ownership of copyright in the Website.
- The "make or buy" decision could be taken keeping the following factors in mind:
- The required expertise is not available outside the company or is too expensive.
- The application being developed is mission critical and the organisation would like to have a complete control throughout the life cycle of its development.
- The application development is long drawn and hence, is cost-effective if developed and maintained in-house.

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- For confidentiality reasons too, the decision may be swayed in favour of in-house development.

Other Programs Integrated with Website

Web Server is a central computer system that hosts a Website and enables users to access it remotely. Every Website having e-commerce operation is integrated with cluster of programs stored on the server to present the application to Site visitor; these are:

- Catalogue builder presents the product information.
- Catalogue aggregator brings together many catalogue companies creating a new searchable database of products for buyers.
- Shopping cart is an on-line order form supported by the appropriate software. A shopping cart is used to hold goods until the customer is ready to checkout. Checkout is order and Payment Processing. It is a utility that keeps track of items selected for purchase and automates the purchasing process. It takes the products off the virtual shelves and puts them into a virtual waiting area. It allows a customer to gather items he or she is buying and hold them until the actual purchase function is executed. A customer can add or remove items at will as he or she browses through a product catalog or database.

The merchant needs a shopping cart program that allow users to collect their purchases. The shopping cart interfaces with a payment processing system such as cyber cash, calculates the cost and taxes and delivers a complete bill for customer approval.

In e-commerce programs, a shopping cart is a file in which an online customer stores information on potential purchases until customer is ready to order. It is usually represented on the screen with a drawing of a shopping cart. The virtual shopping cart provides a recognizable point of reference to users new to the e-commerce experience.

Cookies: Cookie is a block of data that a server returns and stores on a client system in response to a request from the client. Cookies are used to identify users and remember information about user. For example, when a web server receives an HTTP request from the user it does not know whether this request comes from a previous client or a new client. As in many e-commerce application, knowing users state is an important requirement. When sometimes later a user returns to the same website, the client browser sends a copy of the cookie back to the server.

Reasons For Using Cookies

Cookies are helpful

- for personalizing information.
- for improving online sales/service.
- to enable customer to login without having to enter a password on every visit.
- to keep track of customers search preferences.

Users can delete cookie files from their computers or use anti cookie software. Database server provides secured access to shared data for clients applications.

The order-processing system handles the transaction made by customer in completing the purchase order. This includes totalling the order, calculating taxes and shipping cost and delivery information. It determines the method of payment (credit card, digital cash, etc.). It also produces detailed sales and customers reports.

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Testing

One of the most critical tasks in the development of a Website is testing. The focus of the testing is for usability and to ensure that Website works correctly as intended and downloads quickly. It is essential that every piece of the project is tested before it is launched. Testing here does not refer to user testing but also to component testing or Quality Assurance. Moreover, testing is also important as the applications will always function as a multi user system with bandwidth limitations. Every element and link must be checked on every page on every platform in any browser to create a professional product. Some areas of testing include:

- Page quality check, validation (e.g., grammar and spell checking)
- Link testing (to check for link between local Web pages and remote Web pages)
- Coherence and consistency checking.
- Script testing
- Unit testing (testing of every component and layout to ensure that they behave according to specifications)
- Integration testing (checking that the entire system works as specified and does not cause adverse impacts on other Website applications, and is compatible with other systems in the computing environment).
- Stress testing (testing the whole system under heavy load conditions). Content testing (To ensure that the latest versions of the content were used).
- Cross-browser compatibility testing.

One way to do this is to publish the Website to a temporary location, called a staging server, and then to perform a variety of tests on the Website. Groups of potential users are then asked to complete the various tasks on the pilot Website. The results of the user testing may lead to modifications being made to the Website functionality or design.

Both automated testing and manual testing should be done without fail. For example, it is required to test fast loading graphics and to calculate their loading time, as they are very important for any Website.

In case start-up e-business lacks the capability to do a thorough testing process, products and services of a professional On-line Website testing company can be utilized.

2.15 THE MARKETING PHASE

Marketing is the process of planning and executing the pricing, promotion, and distributions of goods, ideas, and services to create exchanges that satisfy individual and organisational goals.

Effective marketing combined with consistent promotion are the keys to the success On-line. In the marketing phase, people are made aware of the Web presence and are attracted to access it. Marketing is the entire process from product conception to delivery. Most people use the words 'marketing and advertising' interchangeably. But in reality, advertising is only one part of the entire marketing process

The objective of the marketing phase is to get the right kind of people visit the Site in right quantity. In marketing, the goal is to entice customers to try the products and services offered,

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with the hope that their first experience will be a positive one and that they will return again and again while referring new customers. Marketing is about creating and sustaining trust-based relationship with intended and current customers.

If it does not facilitate a "sale", then it is not marketing. Two major aspects to marketing are the acquisition of new customers and the retention and expansion of relationships with existing customers. Selling products and services through On-line storefront differs from selling through bricks-and mortar storefront in the sense that in On-line storefront, the customer may view the offerings only for a few seconds. The following marketing strategies contribute to On-line success:

- **Product conception and definition:** The first step to marketing a product or service is deciding what the product is going to be. Product definition includes the following:
  (i) What the product is basically?
  (ii) What will it do/provide?
  (iii) What are the features?
  (iv) What are the benefits?
- **Understanding the customer base:** On-line success also depends to a large extent to understanding the customer base. Next and most importantly, it needs to be decided "who will have a need for the products offered". This group of people is called the target audience. They are the ones who need to be advertised to, in an effort to selling products and services. The purpose of marketing phase is to get the right kind of people visit the Website in right quantity. It is worth noting that the profile of visitors is as important as their quantity. In a brick-and-mortar store, a customer is profiled the moment he walks in. Without exchanging a single word, an estimate can be made of person's age, gender, economic status, the purpose of visit to the shop, and so on. On the Internet, profiling customers is extremely important s that is the only way of successfully serving them. Profiling customers on the Internet is quite intricate but not impossible. Profiling customers allows the e-business to meet the needs of customers in a better way.
- **Providing good site service:** Providing good site service is an important marketing strategy that contributes to On-line success. A Web should contain up-to-date and accurate information. Outdated information on the Web could result in loss of interest in the Web and the product. Web audiences tend to be specialized and tend to have peculiarity of behaviour of suddenly twisting, and are quite ready to click their mouse to another Web in case they are not provided with good site service. The services and products provided by the Web must be consistent and competitive in price. Consistency of service may be the key to offering more service than a competitor's Web. No marketing plan is complete without proper thought being given to customer service. It is much easier and cheaper to sell to an existing customer than it is to sell to a brand new customer. Without excellent customer service, repeat sales will be reduced to non-existence. The following aspects must be duly considered while creating a plan for handling the customers properly and professionally:
  (i) Frequent buyer programs.
  (ii) The actions to be taken when someone has a special situation that goes against normal company policy.
  (iii) The ways to let the customers know that their business is being appreciated.

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(iv) The ways to encourage repeat business.

Advertising: Advertising is the process of reaching the customers using a broadcast or direct mail campaign structured to influence the purchasing behaviour. Web promotion is an exercise of "getting the word out" about the existence of the Web and then ensuring that the Web regularly comes to the attention of its target audience members. Web promotion is the process of handling all the public relations issues of a Web. These include making the existence of a Web known to On-line communities through publicity, as well as forming business or other information relationships with other webs. The web's dynamic quality implies that promoting the Web is an ongoing process. A new Web has to be announced and then periodically brought to the attention of its potential users. Key promotion practices are:

- Follow in-line community activities and get forms filled.
- Innovatively connect with users to meet their needs.
- Target publicity releases for general Web audiences, potential users, and current users.

Web Promotion

A Web Can be Promoted in the Following Different Ways:

- **Search engine and links in other sites:** Search engine and links in other sites, in that order, are clearly the most effective way to bring visitors to the site. But search engines are not expected to find the Website on their own. Web position on the search engine is also important. It does not do much good if the Website is positioned near the bottom of the search engine list.
- **Embedded links to the site in other web pages:** Another good way to attract customers is to embed links to the site in other Web pages. Effort should be made to link to as many appropriate sites as possible, especially those with content that is likely to interest the customers. Offering such complementary sites is a service which potential customers always appreciate.
- **Creating awareness:** URL should be printed on everything that would be distributed to the public, such as business cards, letterheads, envelopes, brochures, advertisements and promotional materials (pens, hats, t-shirts, cups, etc.). Such promotions are effective.
- **Communication to the target audience:** Marketing can also be classified by the way the marketing messages are communicated to the target audience. Direct marketing is a form of marketing that attempts to send its messages directly to consumers, using "addressable" media, such as mail. Direct marketing differs from regular advertising in the sense that the direct-marketing does not place its messages on a third party medium and instead, the marketing of the product or service is addressed to the end consumer directly. A related form of marketing is direct response marketing. In direct marketing, the marketer contacts the potential customer directly, but in direct response marketing, the customer responds to the marketer directly. Similarly, using a press release, or announcing the new Site in news groups may also prove to be productive. Web publicity has the following goals:
- To inform the general Web public as a whole of the existence of the Web and what it has to offer.

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- To attract the interest of target audience members and let them know about how the Web meets their needs.
- To educate the current Web users of new developments on the Web.

Making the sale: An important marketing strategy is that the Web must provide easy to use purchasing function. An easy-to-use purchasing function helps in keeping buyers on track toward making a purchase. An easy-to-use purchasing function involves installation of a shopping cart and setting up automatic tax and freight calculation software. The first step in making the sale is the simplified ordering process. A simplified ordering process will enable customers to put their purchases into a shopping cart as fast as possible. If the Web provides the facility of recalling a customer's past orders, it would help the customers to avoid re-entering information. Moreover, with this facility, customers feel valuable and would provide them an incentive to return in the future.

Stock control: Inventory control is an important aspect of On-line marketing strategy. At times, customers may not be able to find the products they want. In such a case, an alternative product may be offered. For that, the Web server should need to know how these products are related. If a customer places an item in a shopping cart, a simple stock check is not enough. Many a times, customers may put something in a shopping cart and may come to site after one day to order it. It should be ensured that the product should not go out of stock in the meantime. A good marketing strategy is to use a cookie or a user name and password to track the timing of placement of items in the shopping cart by customer. If the customer does not place the order for items put in the shopping cart for more than a few hours, it should be ensured that items are still available when he returns after sometime to place the order.

Packaging: Packaging too plays a major role in the success or failure of e-businesses. Packaging should be done according to the appeal of the target audience, such as bright colours, dark colours, a hard plastic casing, or a card board box, etc. It should be ensured that packaging fits with the profile of the customers-not necessarily with the personal tastes of e-business entrepreneur.

Distribution: For products, the distribution step involves things like inventory, shipping and returns. For services, it involves delivery time, follow-up and refunds. The matters such as

- Whether a warehouse is required to be rented?
- Whether private trucks or freight carriers will be used?
- Whether services can be provided in a timely manner?
- The ways to handle returns and refunds must be considered and duly addressed before planning to sell the first item.

Collecting the cash: E-commerce sites should accept as many credit cards as possible. Some sites require off-line process to complete the sale (e.g. fax order, a call to a toll free number etc.). These off line processes do not meet customer expectations of shopping On line. Many a times, business could be lost if the customer breaks the Web connection to write down the order and then pick up the phone to buy the product. Before accepting the payment made through credit cards, the On-line entrepreneur needs bank to handle the credit card processing. If credit card data is stored, it would help in making purchasing easier for e-commerce site and for the consumer.

It can be observed from the above discussion that each step is intertwined with all the others. Customer service issues relate back to sales and distribution. Sales questions relate to advertising. But the target audience plays a major part in all the areas of the plan.

2.16 FULFILLMENT PHASE

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Fulfillment phase includes all those activities which are required to be performed after a sale is made.

Developing a sound fulfilments strategy is just as important as developing a good Website. Fulfillment representing the end of the site transaction, is a crucial part of customers' experience. E-commerce start-ups spend handsome amount on customer acquisition and brand building. But if an adequate attention is not paid to fulfillment, customers may complain of late or erroneous delivery and may go to competitors for future purchases. Therefore, neglecting fulfilment creates disastrous results. Fulfillment includes the following activities which are required to complete customer orders:

- Packing up the product.
- Delivering the orders.
- Processing customer returns.
- Answering questions regarding status about the order.
- Dispatching bills or verifying e-payment.
- Follow up to observe whether the customer is satisfied.

The key to flawless fulfilment is increase in information exchange, the integration of order management, inventory management, capacity management, customer service, and delivery.

Customer loyalty is built through expediting order processing, timely delivery, easy redressal, customer-friendly return policy, and complete customer satisfaction throughout the transaction and after it.

The various issues to be addressed during the fulfilment phase are:

Know your customers' expectations: E-commerce has made it possible to buy and sell goods in near-real-time transactions. The customer is empowered to customize a good deal of the transaction process by choosing shopping, payment and shipping options. However, customers do not expect the efficiency of the transaction to end with the sale. They expect the fulfilment process to proceed with the same visibility, efficiency, and dependability as their On-line purchasing experience. Customers may want to know exactly what warehouse their order originates from, when their order is packaged, when their preferred shipper takes the package, and, finally, when they should plan to be home to receive the expected package. The Web provides an easy interface to customers to collect and track information such as product availability, order status, and shipping status at any time.

Although customers accept the shipping speeds that are offered by e commerce companies. What they do not accept is promises broken. Therefore, shipping times should be promised to customers only if e business has certainty in its ability to do so. More important than giving its customers access to On-line tracking of shipments is giving them reason to trust the promise of e-business. If customers engage in a flawless transaction with e-business once, their confidence will increase. On the other hand, if they engage in a transaction where promises were broken, their trust may be permanently lost, and step by-step tracking may be a necessity in order to regain their business.

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Know your shipping options: While deciding about shipping options, first thing to be decided is the place from where products will come from. After that fulfilment channels that have a good reputation for on-time product delivery should be examined. If an e-business is moving On-line from brick-and-mortar identity, it should be considered whether a Web-only distribution center is appropriate or whether existing stores and distribution centers can handle the additional Web order traffic. Moreover, reputation of shipping company determines the reputation of e-business for fulfilment to a great extent. The factors to be considered while deciding the shipping options are:

Shipping is a two-way process in On-line retailing. Just as good fulfilment channels should facilitate the prompt and accurate delivery to an at-home address, the fulfilment channels must also facilitate easy product returns. If free shipping is offered to the customers, the e-business may have to pay twice for shipping the same product in case the product is returned by the customer. It should be duly considered. Shipping rates are determined by three major factors:

(i) Distance between origination and delivery points.

(ii) Weight of package.

(iii) Speed of delivery.

In order to satisfy and empower the customers, the following shipping issues may be considered in fulfilment phase, these are:

- Customers feel empowered when they choose their preferred carriers, delivery costs, and delivery times. They may trust the fulfilment process if it is facilitated by a familiar shipping service.
- Most shipping companies track package delivery internally, while some may offer electronic interfaces that allow the e-business to monitor package delivery with equal speed and access.
- Some shipping companies offer interfaces that allow customers and c-business alike to evaluate shipping options easily and accurately.
- Offering free shipping on at least some orders provides a powerful incentive to the customers. For that, e-businesses can increase the average order size to recover these shipping costs. (e.g., free shipping to customers placing On-line orders that totalled Rs. 10000 or more).
- Shipping destinations should be listed as prominently as the delivery methods to avoid customer frustration.

Inventory management: Some e-businesses such as Amazon.com. elect to handle all order fulfilment processes in-house by maintaining their own warehouse space, product inventories, order picking, packaging and shipping. The various issues to be dealt with while managing inventory are:

- Inventory storage.
- Inventory arrangement to ensure finding specific-items when they are ordered.
- Tracking the inventory movements (sales and replenishment).
- Inventory shortage i.e., when selected items are out of stock and not available for immediate delivery, or can be back ordered.

The most important part of inventory management is inventory tracking. Tracking inventory allows the e-business to inform customers whether a product is available or not, and also indicates

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when products should be reordered. It also helps in determining slow moving items; which the e-business may discontinue.

Processing sale returns: An e-business must not only state a clear sales return policy on its Website, but also have in place efficient returned item handling procedure. Efforts should be made to make returns more convenient for customers.

2.17 MAINTENANCE AND ENHANCEMENT PHASE

Maintenance refers to keeping the Website updated based on the initial plan and design. Enhancement refers to the implementing upgrades and adding new features in order to improve the efficiency, productivity and scalability.

Web Sites will need quite frequent updations to keep them very fresh. Keeping the Website up-to-date and fresh is as important as the development itself. E-commerce sites are dynamic and are never finished. They are always in the process of being built and rebuilt. By analyzing visitor statistics to the Website, it can be determined where improvement and enhancement in marketing, content, and functionality can be made. For example, new contents are added to the Website to encourage users to visit regularly. Just posting a Website and forgetting it does not serve the purpose of e-commerce. It should be updated regularly and new features must be added to it.

After fixing all the problem in the testing phase, the project can launch. However, this is not the end of the project. In many ways, it is only the beginning as the site will need to now be maintained with new content and interactions for as long as it is live. While minor additions can be added, major ones will need to be added carefully and may require a new approach to be developed during a new design cycle (back of concept and planning). Some Web sites do not need a lot of updating, those which have constant and continuous updating data (such as an On-line store or Website) will need not only sophisticated content management system, but also the support people necessary to keep it running.

Making and maintaining accurate documentation about the Website is a large part of site maintenance. Documentation gives the site's owners something to consult in the absence of site developers. It also serves as a reference guide which can be used when planning changes or additions are made. Site documentation should consist of company's basic information along with Website goals, target audience, samples, resources, and general information. It should also include design notes, samples and layout specifications made in the earlier phases.

In this phase, the site is regularly submitted to search engines due to other sites pushing it out of rank. The site's rank must be managed Some of the search engine submitters have rank managers built into them as well as <META> tag optimizers that can edit the site's Web pages.

Any changes or additions to the site must be recorded in the documentation just in case someone else must maintain the site. Up-to-date backups should also be kept in case the server crashes or some unseen hacker breaks in and ruins the site. It always pays to be prepared.

Maintenance and updating phase also provides an opportunity for the development team to reflect back on the development process and review what worked well, what did not, and why.

The long-term success of an e-commerce site depends on a dedicated team of employees whose sole job is to monitor and adapt the site to changing market conditions.

- Maintenance is required due to following reasons:

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- A new server installed by ISP may result in loss of all hypertext links and disabling of all CGI scripts.
- Changes in data files, reports, and links to backend databases.
- Making product and price changes in the catalog.
- Making changes and enhancement to the system.

2.18 FEEDBACK PHASE

No matter how carefully a Website has been planned, there will always be a room for improvement. Web design usability is a continuous process. Customers' feedback is invaluable for making improvement in the Website. There are several ways in which customer feedback can be provided. The simplest way is a customer feedback e-mail pop up box. But a better way is a page with a feedback. This has the advantage of being more structured. Moreover, this method provides the opportunity of making the Web visitors more at case, as the privacy policy can be stated clearly People are more likely to give their feedback if they know that their names will not be added to a mailing list or if they know that their names and e-mail addresses will not be sold to a mass-marketer, Other effective methods of feedback include On-line polls and On-line questionnaires.

The ideal site would respond and change according to the feedback provided by the visitors. Feedbacks provide a good way to discover the issues of the visitors. Feedbacks provide the pulse of the visitors based on which the sites could be evolved. There is software called 'State of the Art Website Activity Analysis software; which can be used to profile the visitor activity on the site. These reports can be used to ensure that the site is optimizing the visitor's experience. Another server based software called like-minds helps in creating a site that automatically understands the visitor's likes and dislikes and offers up personalized pages that contain personally relevant content and products.

Each page of the Website should have a contact link. This can go to the site administrator or to the person responsible for maintaining the content on that page. A list of feedbacks generated by the site should be kept. Feedback is very important for 'fine tuning' the Website. The saying "give the people what they want" is true even in business. If an opportunity is provided to the customers to tell what they want, they will often do just that. Feedback is also needed to confirm whether or not the message conveyed by Web is being received by visitors as intended. The easier feedback process is more likely to generate meaningful suggestions. A brief feedback form can be an easy way to get some quick answers on the effectiveness of Web design. A visitor is more likely to select a few radio buttons on a question form than they are to write a list of grievances.

Managing Customer Feedback

Customer Feedback can be Managed in the Following Manner:

- Frequently Asked Questions (FAQs) should be set up and posted in prominent location on the home page.
- Simplicity is perhaps the cornerstone of Web design usability. This implies that everything on the Web should be easy to access and obvious. The Website should be self explanatory. It should be ensured that the information can be accessed easily and quickly.

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- Website should be fast loading. The main pages of the Website should not be burdened with bloated graphics or animations that make site slow loading. Most visitors are willing to spend 8 to 10 seconds for a page to load. Frustration levels will quickly rise if every page takes a minute or more to load.
- A consistent user experience should be created. User interface should be kept as consistent as possible from page to page.
- The user should be in control at all times. Visitors to the Website should be treated as honoured guests. They should not be forced to view pop-up windows with advertisements or to listen to background music or to wait through a flash animation. The time of visitor should always be respected.
- The e-mail should always be answered.

Measuring the Success of Web

It is fairly easy to determine whether a product offered for sale is successful or not from a visitor's point of view; if a product is purchased and not returned it is a success. If the product sold leads to repeat business, it is even more successful. From a purchaser's point of view, a product is successful if it is useful.

Determining whether a Website is successful is less straight forward. The most common matrix used is synonymous with popularity: A successful site has a lot of "hits." But this is not sufficient to ascertain the success of a Web. To start with, "hit" is a very poorly defined term. Depending on the site and the tool set used, a reported hit count may or may not include graphic elements such as pictures, icons, and buttons, as well as internal technical details of the Web software such as image maps" Therefore, at the very best, a hit count can only legitimately be used to measure changes in popularity over time, but not as a comparative cross-site measure. Another flaw in using hit counts as a basic metric is its levelling effect. A hit count does not distinguish between a content rich page, a list of internal and external links or an "under construction" page. There are certainly quantitative matrix that can be used, such as, number of sessions, number of users, and average length of visit, and number of repeat users are all valuable statistics, to gather and analyze. But qualitative measures are equally important. The best measure of success is how well a site facilitates users and sponsors in accomplishing their goals. In short, the value of a site can be accessed by measuring its utility and quality.

2.19 ONE-TO-ONE ENTERPRISE

The traditional enterprise has tried to sell as many products as possible to as many customers as possible with the hope of increasing market share. In recent years, however, organizations have begun to shift their focus to a share of customer approach to a business strategy that concentrates on increasing the lifetime value of individual customers.

As a result of reduced costs and increasing power of information processing, companies now have three expanded computer capabilities not feasible for anyone just a few years ago:

- Customer databases that enable companies to single out individual customers,

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- Increased interactivity that lets customers talk back to companies, and
- Mass customization, where companies make something for individual customers based on what they have told the companies.

Using these expanded capabilities, companies can develop "Learning Relationships" with their customers. From the customer's point of view, a learning relationship works like this:

- I tell you what I want.
- You tailor your product, service or relevant information so I can now get from you something I cannot get from any other firm for any price.
- I have now spent time and effort specifying my needs. I have invested in the relationship with you. To get an equivalent product somewhere else, I must first reinvent the relationship.

Learning Relationships are at the heart of one-to-one marketing: Treating different customers differently.

Only at a one-to-one level can companies meet individual customers' needs and grow their business bigger, over the entire lifetime of each of those customers. The direction of marketing changes at its most fundamental level from a product focus to a customer focus. The one-to-one enterprise starts with electronic knowledge of a customer gleaned from ongoing individual dialogue, then finds products for customers by mass-customizing. It also cross-sells across all the firm's products and offers and builds strategic alliances with partner companies when a customer's needs fall outside the original firm's skill set.

The one-to-one enterprise depends on high impact customer interaction. One of the most significant challenges facing the enterprise is identifying means to enhancing dialogue with its customers. In order to build lasting and profitable customer relationships, companies must interact with and learn from their customers. A relationship between an enterprise and an individual customer that, through regular on repeat feedback from the customer, enables the enterprise to become smarter with respect to the customer's individual needs. When a customer and an enterprise are involved in a Learning Relationship, with every cycle of interaction and customization, the customer finds it more convenient to deal with the enterprise. The result is Customer Loyalty, because to start the relationship with another company, the customer would first have to re-teach the competitor what has already been learned by the one-to-one enterprise. One-to-One enterprise develops a customer first and then finds products for that customer.

As companies become increasingly knowledgeable about their customers, the ability to facilitate their decisions, address their needs and ensure their success expands enormously. Truly, customer-focused companies concentrate on building loyal customer relationship, generating growth by selling more products and services to their existing customers.

Customer intimacy is a key differentiator; such relationships enable companies to provide new and powerful levels of customer care. If they invest in existing relationships, they learn more about their customer: their preferences, priorities, challenges, and opportunities than any competitor can know. If they act on this knowledge, they can provide sophisticated customer solutions that no competitor can match. The enterprise is then able to treat this customer differently than other customers. However, one-to-one marketing does not mean that every single customer needs to be treated uniquely; rather, it means that each customer has a direct input into the way the enterprise behaves with respect to him or her.

How is this different from traditional marketing segmentation strategies? To the traditional

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company, customers fall into different segments by virtue of their demographics, transaction histories or psychographics. One customer may, in fact, fall into more than one segment. But in the one-to-one enterprise, feedback from a particular consumer determines how a firm treats that customer and which offers, products and services will be made available to that customer, when and through which channel.

2.19.1 Methodology for Implementing One-to-One Relations with Customers

IDIC stands for-identify customers, differentiate them, interact with them and customize. It is four-step methodology for implementing one-to-one relations with customers. These step are:

Identify customers: The first step in effective one-to-one enterprise is to know the individuals who make up your customer or consumer base. An enterprise cannot develop one-to-one relationship with the customer or consumer unless it knows who its consumers or customer are-not necessarily by actual name and address, but with at least some form of reliable "addressability".

Differentiate the customers by value and then needs: The second step in the one-to-one strategy labelled 'IDIC' is to differentiate customers. Customers are different in two ways: they have different value to the enterprise, and they need different things from the enterprise. Customer differentiation is vital pursuing learning relationships. The customers may be divided into following categories:

(a) **Most valuable customers (MVC):** Those customers with the highest actual value to the enterprise - the one who do the most business, yield the highest margins, are most willing to collaborate, and tend to be the most loyal. The objective of an enterprise with respect to its MVCs is retention.

(b) **Most growable customers (MGC):** Those customers whose strategic value exceeds the customer's actual value. These are the customers who have the most growth potential -growth that can be realized through cross-selling, through keeping the customer for a longer time, or perhaps by changing a customer's behaviour and getting them to operate in a way that costs the enterprise less money.

(c) **Below zero customers (BZCs):** Below Zero customers are those who in all likelihood will never be profitable enough to justify the cost of serving them. The enterprise should develop strategies to make them more profitable or encourage them to become one of its competitor's customers.

Need based differentiation: The customers can be differentiated based on what they need from the enterprise. Two customers may buy the same product or service for two dramatically different reasons. The customers' needs refer to why the customers buy, not what he buys.

Interact with the customers: Interaction, dialogue, and exchange of information-is the essence of any one-to-one enterprise. Enterprise would like to communicate cost effectively, driving more and more interaction into the most cost efficient channels, like using Internet, SMS, PDA, etc. Interaction enables to get insight into the customer.

Customize: Customization involves the production of a product from scratch to a customized specification. In the final process, extracting benefit for either party to a relationship will mean treating an individual customer differently based on what you know about them. A one-to one enterprise can also personalize the interaction with its customers personalize advertising, sales promotion, public relations, direct marketing, etc.

2.20 BENEFITS OF ONE-TO-ONE ENTERPRISE APPROACH

- **Improved customer loyalty:** The first benefit for the enterprise is that customer loyalty will improve. More the customer teaches the enterprise, more the enterprise will adapt its products and services to the needs of the customer, and then with every interaction, its product becomes more valuable to the customer. The product will have more economic value to the customer because it will fit the customer needs better. Moreover, it will become more expensive for the customer to substitute a competitor's product.
- **Improved unit margins:** Due to improved customer loyalty, unit margins are likely to improve as well. Competitors price their products aggressively in order to steal customers. When the switching cost increases for the customer, enterprise does not necessarily has to match every last discount encountered in the marketplace. As the product of one-to-one enterprise continues to have more value for the customer, the enterprise may even be in a position to raise its prices, to share the benefit of this increased product value.
- **Human factor:** As the relationship improves and customer satisfaction grows, there is always a probability that the customer will simply end up liking the enterprise more.
- **Improved efficiency of business:** Another benefit of building one to-one learning relationship is that it can improve the overall efficiency of a business. It can reduce costs, mostly by cutting out the wasted effort of producing products or services that no one wants. Product can be made to order, rather than built to forecast. Mass customization reduces inventory costs.

SUMMARY

- Internet is a network of computers that links many different types of computers all over the world. World Wide Web refers to a software that runs on computers that are connected to the Internet.
- B2C business-to-consumer ecommerce, also called retail ecommerce, is a business model that involves sales between online businesses and consumers. B2C ecommerce is one of four major ecommerce business models, the other three being B2B (business-to-business), C2B (consumer-to-business), and C2C (consumer-to-consumer).
- Business-to-business (B2B), also called B-to-B, is a form of transaction between businesses, such as one involving a manufacturer and wholesaler, or a wholesaler and a retailer. Business-to-business refers to business that is conducted between companies, rather than between a company and individual consumer. Business-to-business stands in contrast to business-to-consumer (B2C) and business-to-government (B2G) transactions.
- Business plan is an intention or proposed means of achieving something. A business plan is a road map for the development and operation of e-business.
- Making and maintaining accurate documentation about the Website is a large part of site maintenance. Documentation gives the site's owners something to consult in the absence of site developers. It also serves as a reference guide which can be used when planning changes or additions are made.

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- Planning is very crucial phase because this is the stage when decisions are & made that affect the other phases of the life cycle.
- An e-commerce payment system (or an electronic payment system) facilitates the acceptance of electronic payment for offline transfer, also known as a subcomponent of electronic data interchange (EDI), e-commerce payment systems have become increasingly popular due to the widespread use of the internet-based shopping and banking.
- Credit cards remain the most common forms of payment for e-commerce transactions. As of 2008, in North America almost 90% of online retail transactions were made with this payment type.
- There are varied types of electronic payment methods such as online credit card transactions, e-wallets, e-cash and wireless payment system. Credit cards constitute a popular method of online payment but can be expensive for the merchant to accept because of transaction fees primarily. Debit cards constitute an excellent alternative with similar security but usually much cheaper charges. Besides card-based payments, alternative payment methods have emerged and sometimes even claimed market leadership.

KEY WORDS

- **Credit Card:** A credit card is a transactional card that enables the holder to make purchases of goods and services or withdraw advance cash on credit. It is issued by banks and financial institutions to bring convenience of payment. Credit cards act as a micro loan tool where the individual makes purchases under the condition of paying off the same within a specific time period. There are no interest payouts if the due amount is paid within a specific time (interest-free period). A custom borrowing limit is pre-set by the issuer and this determines the maximum amount of credit a user can spend from a credit card. Credit card brings users the opportunity to save big through discounts and deals, making it a popular choice.
- **Bank payments:** This is a system that does not involve any sort of physical card. It is used by customers who have accounts enabled with Internet banking. Instead of entering card details on the purchaser's site, in this system the payment gateway allows one to specify which bank they wish to pay from. Then the user is redirected to the bank's website, where one can authenticate oneself and then approve the payment. Typically there will also be some form of two-factor authentication.
- **Enhancement:** Enhancement refers to the implementing upgrades and adding new features in order to improve the efficiency, productivity and scalability.
- **Proxy server:** A proxy server is a special type of Web server. It is able to act as both a server and a client. A proxy acts as an agent, representing the server to the client and the client to the server.
- **Website:** Website is basically a series of pages with links to other pages or sites. Website is the interface between the e-business and consumer. It enables the business to display its products and services as well as to sell On-line.

Review Questions

1. Explain the types of business models.
2. Briefly explain the B2C business model.
3. What do you mean by C2C model? Explain.
4. What are the benefits of Electronic payment systems? Describe the various types of electronic payment.
5. What is peer to peer business model?
6. Explain the life cycle approach of Website development. Why the life cycle is divided into phases?
7. What are the advantages of consumer to consumer business model? Discuss.
8. What are the various activities involved in planning phase of Web development?

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UNIT 3

ONLINE RETAILING

Structure

3.0 LEARNING OBJECTIVES

After reading this chapter students will be able to:

- Learn about online retailing and retail industry dynamics
- Understand the management challenges in online retailing
- Discuss online marketing communications and pricing strategies

3.1 INTRODUCTION

The Internet is an Interconnected network of thousands of networks and millions of computers linking businesses, educational institutions, government agencies, and individuals together. It has provided the infrastructure for a transformation in commerce, scientific research, and culture.

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The innovation of the technological key areas that have fueled e-commerce are the following:

(i) **Telecommunication companies:** Providing simple services such as phone calls to all types of customers. They are developing new technologies XDSL, fast switches for higher bandwidth communication across existing networks.

(ii) **Satellite technology:** Vendors setting up new broadband network with global reach.

(iii) **Wireless network:** Provides Internet facility at a faster pace, even on cell phones using wireless Internet protocol.

(iv) **Cable companies:** Provide two way Internet traffic on television by introducing set-top boxes which act as converters and separators for the inbound and outbound traffic.

The Internet is a computer network made up of thousands of networks worldwide. No one knows how many computers are connected to the Internet. No one is in charge of the Internet. There are organisations which develop technical aspects of this network and set standards for creating applications on it, but no governing body is in control. Fortunately, nobody owns the Internet, there is no centralized control, and nobody can turn it off. Its evolution depends on rough consensus about technical proposals, and on running code.

The Internet is by definition a meta-network, a constantly changing collection of thousands of individual networks interconnecting with a common protocol. Computers on the Internet use a client/server architecture. This means that the remote server machine provides files and services to the user's local client machine.

The Internet's architecture is described in its name, a short form of the compound word "inter-networking". All computers on the Internet communicate with one another using the Transmission Control Protocol (TCP)/Internet Protocol (IP). These protocols are designed to connect any two networks each of which may be very different in internal software, hardware, and technical design. Once two networks are interconnected, communication with TCP/IP is enabled end-to-end, so that any node on the Internet has the near magical ability to communicate with any other, no matter where they are. This openness of design has enabled the Internet architecture to grow to a global scale.

In practice, the Internet technical architecture looks a bit like a multi-dimensional river system, with small tributaries feeding medium-sized streams feeding large rivers. For example, an individual's access to the Internet is often from home over a modem to a local service provider who connects to a regional network, connected to a national network. A network consists of nodes and channels. These nodes and channels provide the basic communication infrastructure. Nodes are of two types End nodes and Intermediary nodes. End-nodes are clients and servers. From clients, users communicate to other nodes and servers are centralized service providers that offer services for the clients, e.g., Web servers and mail servers. Intermediary nodes are normally scaled-down computers which forward traffic between network segments. Intermediary nodes are called routers and bridges. Every node must have a unique IP-address by which it is identified on the network and normally a domain name is assigned to the IP-address as it is easier to remember.

The channels required for the communication between nodes can be implemented by the use of cable which may be either fiber-optic or coaxial. With the use of cable, a physical connection can be implemented between nodes. However, wireless transmissions can also be conducted through the use of satellite link, microwave links, infrared transmissions, or cellular phone

communication. At the office, a desktop computer might be connected to a local area network with a company connection to a corporate Intranet connected to several national providers. In general, small local providers connect to medium-sized regional networks which connect to large national networks, which then connect to very large bandwidth networks on the Internet backbone. Most network providers have several redundant cross-connections to other providers in order to ensure continuous availability.

The companies running the Internet backbone operate very high bandwidth networks relied on by governments, corporations, large organizations, and other network providers. Their technical infrastructure often includes global connections through underwater cables and satellite links to enable communication between countries and continents.

Each communication packet goes up the hierarchy of Internet networks as far as necessary to get to its destination network where local routing takes over to deliver it to the addressee. In the same way, each level in the hierarchy pays the next level for the bandwidth they use, and then the large backbone companies settle with each other.

Bandwidth is priced by large providers by several methods, such as at a fixed rate for constant availability of a certain number of megabits per second, or by a variety of use methods that amount to cost per gigbyte. Due to economies of scale and efficiencies eyes in management, bandwidth cost drops dramatically at the higher levels of the architecture.

To summarize, any node on the network can communicate with every other node. Firewalls may be used to protect the confidential information. The Internet Protocol suite, which must be implemented on every node on the network, enables every pair of nodes to communicate directly without the need to know much about each other, except for the IP address or the domain name.

This unit examines about online retailing and its challenges.

3.2 ONLINE RETAILING

Retailing is expected to change with the rapid development of new online sales and distribution channels that literally can be used from anywhere, anytime-from work, school, a hotel, car, or airplane. These developments should impact retailing as much as the advent of strip malls, catalogue retailing, and TV-based home shopping. Almost every retailer is re-evaluating every aspect of its operation from customer service to advertising, merchandising to store design, and logistics to order fulfilment. Furthermore, reacting to the pressure of retailers, suppliers are assessing technology based solutions to drive down costs (labour, delivery, and production) and become more efficient producers of goods.

Online channels such as online services and the Web are also impacting traditional retail business models. In the traditional model, the customer went to the store and located the product. In the online model, the retailer seeks out the customer. The success of catalog retailers demonstrates that a significant portion of consumers have embraced the reverse model: the retailer going to the consumer.

However, retailers need to consider the following issues in developing a business model:

Product/Content Issues: What kind of products are suited for online retailing?

- **Software Interface Issues:** What kind of features will constitute an effective interface? What features make it easy to find and select items for on-line purchase?

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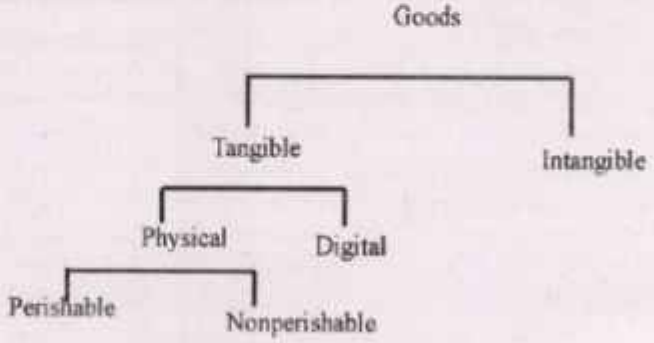
- **Process Issues:** What are the specific steps in the shopping process from a consumer's perspective? What kind of processes should companies de-velop to fulfill orders efficiently?
- Before examining the implications of changing consumer behavior and online retailing in the existing retail business, let us step back for a moment and ask the question: Why should retailers consider the online environment as a way of doing business? The answer lies in understanding the market changes that affect retailing and that will continue to affect it in the future.

E-Retailing

E-retailing essentially consists of the sale of goods and services. Sometimes we refer to this as the sale of tangible and intangible goods, We can divide tangible goods into two categories: physical goods and digital goods.

- Examples of physical goods would be a book, a television set, a video recorder, a washing machine, etc.
- Examples of digital goods are software and music, which may be downloaded from the internet. The sale of intangible goods is sometimes called E-servicing.
- Examples of services that may be sold are information such as the most recent stock prices, the most recent foreign exchange rate, or education.
- Entertainment such as -games that would be played on the internet are also examples of e-services. So are the sales of services such as telecommunication services or banking services. The sale of tangible and intangible goods are all referred to as Customer oriented e-commerce or eretailing, if they are sold directly to the consumer who is the end user. Here we discuss the sale of tangible goods.



Difference between Traditional Retailing and E-retailing

Traditional Retailing

Traditional retailing essentially involves selling to a final customer through a Physical outlet or through direct physical communication. This normally involves a fairly extensive chain starting from a manufacturer to a wholesaler and then to the retailer who through a physical outlet has direct contact with the final customer.

Examples of physical outlets that retailers currently use are:

- Malls
- generalized stores (e.g. department store)
- specialized stores
- franchise stores

It is useful to reflect that even in traditional retailing we have moved away from just using a static physical outlet within which a customer can have direct contact with the retailer. Thus, more recent forms of traditional retailing include

- direct mailing
- telemarketing
- door-to-door sales
- vending machines

Direct mailing to a customer normally involves sending a brochure or catalogue to a customer. The customer browses through this catalogue and then carries out mail ordering. In some respects, this notion of browsing through a catalogue is a forerunner of e-retailing. Direct mailing, telemarketing, door-to-door sales, or the use of vending machines includes other forms that have actually moved away from a physical fixed outlet and in a way are intermediate forms of the movement away from traditional physical retailing outlet to the virtual retailing we see on the internet.

3.3 E-RETAILING

The internet has allowed a new kind of specialization to emerge. Instead of specializing just in a special product line, they allow specialization in particular classes of customers and sellers. Thus, we see lastminute.com, which allows last minute purchases of travel tickets, gift, and entertainment to be matched against last minute sellers of the same items. Here, we see specialization not in a product line but in a class of purchasers and a class of sellers. This kind of specialization would not have been possible before we had the internet.

In addition to these specialized stores, we also get generalized e-stores where a store sells several product lines under a single management. Examples of these generalized stores include JC penny and Walmart.

We also have the electronic counterpart of malls or e-malls. E-malls essentially provide a web-hosting service for your individual store much in the way that mall provide a hosting service in the sense of a physical location for your store.

Examples of these e-malls are Yahoo! Store, GEO Shops, and CNET stores.

Benefits of E-RetailingTo the customer

Customers enjoy a number of benefits from e-retailing.

- The first of these is convenience. It is convenient for the customer as he does not have to move from shop to shop physically in order to examine goods.
- He is able to sit in front of a terminal and search the net and examine the information

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on goods. The second aspect of convenience he gets is in terms of time. Normally, the traditional shop has an opening time and a closing time and the customer can only visit the shop within these periods.

- On the net, the customer can choose at any time to visit a site to examine the goods that are available and actually carry out his purchasing at one's own convenient time.
- The third type of convenience that the customer gets is that he has access to a search engine, which will actually locate the products that he describes' and also the site where they may be available, or perhaps even locate the sites where they may be available at the best price
- The second type of benefit to customers is better information. The Internet and the World Wide web are essentially communication media that allow retailers to put on quite extensive information related to their products, which is available to the customers.
- The third type of benefit that the customer gets is competitive pricing. This is due to two factors.
- The first is lowered costs to the retailer because he does not have to maintain a physical showroom, he does not have to hire several shop assistants, and these savings can be passed on to customers in the form of reduced prices.
- Secondly, competitive pricing pressure that arises from the fact that the customer is now able to look at prices at several sites. Therefore, the pressure is always there on the retailer to maintain a competitive price for his products.

To the business

There are a number of benefits of e-retailing to the business itself.

- The first of these is global reach. The retailer now is no longer restricted tocustomers who are able to reach the store physically. They can be from anywhere around the globe. The retailer must, of course, deliver the goods of a purchase to the customer.
- The second benefit is better customer service. The use of email and the use of electronic interchange of messages between the customer and the retailer allow better communication between the customer and the retailer. These allow one to easily inquiries and deal with complaints. These also allow a much more rapid response time than was possible in the days of faxes andpostal mail.
- The third benefit is the lowered capital cost to the retailer. The retailer does not have to maintain showrooms; he can probably have lower inventories.Thus, while Amazon.com lists over a few million titles, it keeps an inventory of a few thousand best selling titles only. Therefore, the retailer has lower warehousing costs. He does not have to have many shop assistants who are physically answering questions and. Showing the customer goods.
- The fourth benefit to the retailer is mass customization. Based on requests by the customers, the retailer is now able to carry out mass customization with reduced time to market for the customized products.
- The next advantage is targeted marketing. The retailer is now able to pick on a specific targeted group of customers and direct marketing towards these customers. The retailer is also able to provide more value-added services in the way of better information, add-on

services to basic services, or add-on options to products that he is selling.

- The last advantage to the retailer consists of different new forms ofspecialized stores that he is now able to utilize.

Models of E-Retailing

There are several models for e-retailing and these include:

- Specialized e-store
- Generalized e-store
- E-mall
- Direct selling by the manufacturer
- Supplementary distribution channel
- E-broker
- E-services
- Specialized e-stores

The first class of model what we mention in e-retailing was the specialized e-store and here you can distinguish between two different kinds of specialization: the more traditional specialization along product lines and specialization by function.

When you have specialization by product line, essentially you have a store that decides to pick one particular product line, say books, flowers, CDs, clothes, and sells only this particular product line. It may also choose to position itself in a particular part of the product line, e.g. clothes; it could choose to position itself at the very expensive end of the market selling brand names Gucci and Armani.

Alternatively it could do more mass marketing by selling non – brand names at a much lower price, or it could go into discount selling.

So, you can have a specialization by product line, and then you could have specialization - positioning within that product line to cater for a particular part of the marker.

In contrast to this, a new kind of specialization is emerging on the internet, as mentioned. earlier, namely specialization by function. A good example of this is lastminute.com In lastminute. com they sell gifts, travel tickets, and other items for last minute shoppers who want to purchase these items at a very short notice.

Generally, when one purchases an item at a very short notice (e.g. travel), he often pays a premium, which is an extra amount for the convenience of booking the travel at the last minute. Now, this means that the air ticket is likely to cost much more than if he had purchased it some time before traveling and made use of different discounts or promotions.

The producers of the web site lastminute.com realized that there are groups of customers who make these purchases at the last minute and feel some degree of angst at having to pay the premium for doing this shopping at the last minute.

On the other hand, you will find that you may have sellers, e.g. airline companies, that have empty seats at the last minute which they are unable to fill. So, what lastminute.com does

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is bring together travelers who want to book at the last minute and an airline which has got spare capacity at the last minute, and allow the former to buy from the latter at the last minute. In this situation, the purchaser may get his airline ticket at a reduced price.

So, there is a win-win situation for both the purchaser and the seller. This is a unique kind of specialization. It is very difficult to do this unless one utilizes the internet to carry out this kind of specialization.

Generalized e-stores

The next category of e-retailing models that we intend to look at is generalized e-stores. Generalized e-stores sell a large number of product lines rather than con-fining themselves to just one or a very few product lines.

E-malls

The next e-retailing model we consider is the e-mall. In an e-mall, cyberspace is rented out to cyber e-stores that wish to sell their goods. This store could be a specialized or generalized e-store. So, several product lines can be present. in a single e-mall.

However, unlike the generalized e-store which is under a single unified management, in an e-mall, each store is under its own management. E-mall management is responsible only for creating the cyber sites that can be rented and can support services and marketing of the mall. It, thus, provides a web hosting service.

Several e-malls also provide software tools, which can be utilized by a prospective e-store to create and maintain it_ e-store. The advantage for an e-store is that it is grouped together with other stores in a wellknown e-mall site and, therefore, is likely to pick up visitors to the mall.

Direct selling by the manufacturer

A number of manufacturers with well-known brand name products have chosen to use the internet to carry out direct selling via the internet. One. of the best known here is Ford, which utilizes the internet to achieve direct selling but uses its dealer network to facilitate distribution and delivery. The other well -known examples are Cisco systems and Dell computers. Note that this approach permits mass customization to meet customer preferences. This direct selling by the manufacturer has an important disintermediation effect leading to reduced costs to the end customer and increased profitability to the manufacturer.

A note of caution is important here. By and large, this approach can be used by manufacturers of well-known brands of products because the customer already knows the pro-duct. Secondly, the manufacturer must have a thorough understanding of customer preferences, otherwise he has to rely on the customer knowledge of a retailer.

Brokers or intermediaries

This class of e-retailers is essentially an extension of the notion of a broker from the physical to the cyber world. A broker is an intermediary who

- may take an order from a customer and pass it on to a supplier
- may put a customer with specific requirements in touch with a supplier who can meet those requirements

- may provide a service to a customer, such as a comparison between goods,with respect to particular criteria such as price, quality, etc.

Thus, brokers provide comparison shopping, order taking and fulfilment, and services to a customer. That is the reason why they are sometimes referred to as electronic intermediaries.

There are several different models for electronic brokers and these include:

- Brokers that provide a registration service with directory, search facilities,e-payment facilities, and security-related facilities. Any business can register with such an e-broker.
- Brokers that meet a certain requirement such as a fixed price.
- Brokers that provide comparison shopping between products.The last model i.e. E-services is discussed in the next lecture.

Features of E-Retailing

- The provision of an on-line catalogue, which allows one to browse through different categories of goods. Thus, it is dynamic and linked with order process.
- The provision of a search engine, which is a very important feature that does not exist in traditional retailing.
- The provision of a shopping cart, which allows convenient goods selection. An ability to provide an automatic price update.
- Personalization of store layouts, promotions, deals, and marketing.
- The ability to distribute digital goods directly. Thus, these goods can be downloaded instantly.
- An on-line customer salesperson, "who" can help customers to navigate through the site.
- An order status checking facility, which is a useful feature before submission.
- The use of Forums (collaborative purchasing circles) to create a customer community and thus increase "stickiness."

Changing Retail Industry Dynamics

Important factors that affects the retailing industry dynamics are:

- Overbuilding and excess supply.
- Change in consumer demographics, which more premium placed on efficientuse of time
- Changes in consumer behavior, with less focus on brand name and more on lowest prices.
- Technology improvements that provide greater convenience and more information than traditional retailing.

Overbuilding and Excess Capacity

With online retailing, constraints of time and space disappear. There is no bricks and mortar storefront to worry about, no critical locations. This new way of retailing can severely affect companies that have invested in expansion and adding capacity. It is important to understand the trouble traditional retailers will face if online retailing takes off.

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The 1980s was a period of overexpansion and turmoil for retailers. By the end of the decade, complaints about excessive retail space were being voiced. Profits were declining and control of operating expenses became a paramount management objective. Retailers reduced staff and minimized merchandising in order to enhance profits. Sales growth and market share development were given second priority behind profit enhancement.

In the 1990s, companies are under pressure to grow and produce profit. An important measurement of profit gains is gross margin per square foot. For many retailers, these numbers is either growing slowly or declining, partially reflecting a less favorable product mix and more competition. Inadequate productivity, both per worker and per unit of space, is also reducing profit margins. Overbuilding also resulted in a growing shortage of lowcost, entry-level workers for the retail industry. The shortage of entry -level workers means that retailers are using under trained workers who are less able to empathize with shopper needs-leading to a perception that retailers in general and shopping centres in particular are unable or unwilling to provide quality service.

Clearly, with crowded domestic markets and competition constantly grinding away at operating profit, new ways of retailing are being explored by forward-thinking companies such as Wal-Mart.

Demographic Changes

Shopping patterns are beginning to change with the increase of time -strapped, two-career couples and the aging of America. Value and time management are the consumer concerns driving interest in online retailing. Recent retail data shows a decline in the amount of time Americans are spending in shopping malls [EDR95]. The suggested reasons vary: time constraints, safety concerns, and growing frustration with the lack of courteous service and insufficient product information. Understanding the implications of time constraints on consumer shopping behavior is important as they portend the trends to come. For instance, Americans have openly embraced shopping channels like QVC and Home Shopping Network and retailers like CUC International.

Today's time-strapped shoppers have less time and want better values, fewer hassles, and more options. Today, a shopping trip requires a consumer to decide what he or she or the family needs, brave the traffic on the way to a store, hunt for parking, find and select items for purchase, take them to a checkout, wait in line, pay for the items, sometimes bag them, and carry them back home. It can be a hassle and a lot of work, so most working professionals have learned to dread shopping trips. As technology improves, it may not be long before driving to the store gives way to online shopping with home delivery as provided by Peapod.

In contrast, there is a growing segment of the population for whom time constraints are less of a problem. The demographic outlook in the United States is for an increasing share of older shoppers (age 50 and above) who prefer shopping at stores rather than online. However, the product mix offered by many department stores and malls is increasingly out of touch with the aging population and does not reflect the shift in purchasing power.

Also, with the aging of the population, there is evidence to indicate a shift in consumer interest away from material goods and toward experiences, such as travel and recreation. In addition, as people get older, they tend to become more frugal. Retailers will need to concentrate on value by offering new product mixes. By this we mean a product mix that includes not only merchandise but also bundles in entertainment and "recreational" shopping with movie theatres, restaurants, bookstores, libraries, and community meeting facilities.

This sort of change is already occurring in bookstore design (such as Borders Bookstores and Barnes and Noble), which include a variety of facilities such as coffee shops. However, building shopping malls based on these new business models is a risky venture and requires huge investments.

Consumer Behavior

Consumer behavior is more volatile than ever before, and companies need new ways of responding to consumer needs and satisfying demand. According to one survey, the typical consumer spent only four hours a month in a shopping mall in 1990 versus ten hours in 1985, and sales per square foot dropped. Specialty retailing-power centres, discount malls, discount stores, and catalogue shopping-has become one solution for closely monitoring consumer trends and reacting to them quickly. All of these alter-natives have one thing in common: they provide consumers with a very large selection of producers priced with deep discounts.

Consumers are no longer as influenced by brand names as they used to be. The emergence of the value shopper is changing retailing. Today, the shopper is less willing to pay the premium for the brand name and much more attentive to quality and value. The decline in gross margins is the first evidence of the impact of that change, reflecting lower initial mark-ups and more discriminating shoppers in that segment clearly, retailers that are focused on providing value-the best price, service, and selection-regardless of the brand name will be successful.

The real differentiating characteristic for retailers will be in their ability to define what the broad or niche consumer segment is looking for, identifying characteristics of customers in each target segment, and learning how to bundle products and package brands so that they become the preferred choice for online customers

Technology Improvements in Electronic Retailing

Today, electronic retailing is still far from being a competitive threat to more traditional store retailing (see Table), but it is becoming increasingly attractive as technology and applications improve, and retailers gain experience.

Type of outlet	Definition and Examples
Shopping malls	These include under one roof general merchandise, drug stores and groceries department stores
Supercenters	These consist of three or more anchor stores with a total leasable are between 200,000 and 700,000 square feet
Factory outlet mall	These primarily stock name brand manufacturers' items. These are growing in stature and popularity as well. Like power centres, factory outlet mall are also gaining market share at the expense of shop ping malls

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Warehouse clubs	These are retailers offering common consumer products at near whole sale prices when purchased in bulk quantities. Examples include walmart 'sam'club, price/Costco and BJ' wholesale

Three dominant forms of electronic retailing channels are: television re-tailing, CDROM retailing, and online service based retailing, in which we include Web-based retailing. Now we can discuss about the most prominent one; the television retailing.

Television Retailing

Television-based home shopping involves the purchase of products advertised on television programs and in commercial breaks by telephoning orders through to the advertised number. This may be undertaken at the press of a button with the advent of digital satellite and cable television. Television retailing grossed an estimated Rs. 3.2 billion in 1994. One of the pioneers in this area is Home Shopping Network, Inc. (HSN), which began broadcasting electronic retailing to a small, local audience in 1982. Three years later they took this still unproven idea national- and made it work. Today, HSN is a television-based retail, entertainment company, and online retailer (owns Internet Shopping Network), with coast-to-coast customers and annual sales of $1 + billion.

The breadth and reach of TV retailing are amazing. In 1994, HSN reached 65.8 million television households throughout the United States. These households received the signals via cable, broadcast, and satellite dish, twenty-four hours a day, seven days a week. Unlike online audiences, which tend to be predominantly affluent and well educated (net annual in-come is estimated at Rs. 60,000 - Rs. 80,000), the target audience for television re-tailing is moderate income households and mostly women. How does it work?

The TV retail marketing and programming are divided into segments that are televised live, with a show host who presents the merchandise and conveys information relating to the product, including price, quality, features, and benefits. Show hosts engage callers in on-air discussions regarding the currently featured product or the caller's previous experience with the company's products. Viewers place orders for products by calling a toll-free telephone number.

Generally, merchandise is delivered to customers within seven to ten business days of placing an order. The purchased item may be returned within thirty days for a full refund of the purchase price, including the original shipping and handling charges.

The success of television shopping is the result of the effective utilization of electronic media for capturing the power and influence of celebrity and the magic of showmanship, and bringing them to bear on a sale. In its annual report, the Home Shopping Network states that a celebrity can de-but a line of jewelry on HSN and sell more than Rs. 2 million in a single weekend. Of course, there's another advantage to television retailing.

When customer interest, which is monitored by the number of calls being received, begins to wane, the retailer knows it instantly and can simply move on to the next product. More recently, infomercials have become a crucial retailing topic. The infomercial has become a new and interesting way to retail specialty products. Modem filming techniques and ingenuity make it possible to create high-quality, cost-efficient, and entertaining documentaries that sell. This Coincides with the television viewing public's appetite for information.

Infomercials are an especially logical medium since retailers have the opportunity to economically test and evaluate a product through mass channels such as television retailing before committing major capital resources to infomercial production.

3.4 CHALLENGES IN ONLINE RETAILING

While changes in retailing may be driven by technology, managerial vision is required for successful implementation. Traditionally, retailing has been a low-tech environment in which retailing executives often relegated technology issues to back-room operators. These managers are most at risk, as they do not have a clue that a major revolution has begun. Most of them have never used a computer (or had to), never been on an online service, and do not know what the Internet is or what it can do. The winners will be the players who understand how to leverage the unique capabilities of the on-line medium to effectively meet the changing needs of the consumer.

While the technology required to implement online retailing is maturing, many management issues remain unanswered. No one really knows yet how to build and run a successful, mass market online mall. The sales Medium is new, the technology is new, and retailers have a lot to learn about tricky technology, customer behavior, and management issue. But one thing is clear: For online retailing to succeed, online technology must complement management and operational strategy.

Online Retailing Success Stories

Online Retailing: Peapod's Experience

Peapod, based in Evanston, Illinois, is using the online medium for food retailing services. Founded in 1989 by two brothers, Peapod is a member of an online grocery / drug-store shopping and delivery service that already has thousands of customers in the Chicago, San Francisco, and Boston areas. Peapod was founded on the idea that people do not want to go to the grocery store. Peapod has an online database of over 25,000 grocery and drugstore items, and allows comparison shopping based on price, nutritional content, fat, or calories.

Other features include electronic coupons, retailer preferred customer discounts, and other benefits like recipes, tips, and information. Peapod membership also allows users to use the shopping and home delivery service. Peapod has a staff of professional shoppers, produce specialists, and delivery people who fulfil the order.

How Does It Work?

Peapod provides customers with home shopping ser-vices via Pc. Customers need to buy a software application that enables them to access Peapod's database through an online computer service. Peapod initially had a DOS-based system with graphics. They introduced a new version of the software in 1995-a Windows platform in which product pictures are available. Using the PC, a consumer can access all of the items in a grocery store and drug store. Peapod customers create their own grocery aisles in their own virtual store. Customers can request a list of items by category (cereals), by item (Frosted Flakes), by brand (Kellogg's), or even by what is on sale in the

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store on a given day. Within categories, they can choose to have the items arranged alphabetically by brand or sorted by lowest cost per ounce, package size, unit price, or nutritional value.

Customers also can cre-ate repeated use shopping lists (baby items, barbecue needs, and the like). Peapod's back office is linked with the mainframe databases of the super-markets at which it shops for its customers (Jewel in Chicago and Safeway in San Francisco), allowing it to provide the supermarkets' stock keeping units and shelf prices electronically to its customers. Once consumers have made a selection, they can then give specific shopping instructions, such as "substitute with same calories," or red grapes only." They can click on the "Comment" button and type in any extra information they would like the Peapod shopper to know. At any time during the order, a consumer can subtotal the amount purchased, or access the "Help" screen for immediate assistance.

Online ordering is simple: users double-click on the Peapod icon and then enter their user IDs and passwords. On verification, users get access to a whole grocery store and drug store of items. Before the actual purchase of an item, users can view images of it and the nutritional content as well. The system allows users to sort items by various criteria like price, price/ unit, total calories, fat, protein, carbohydrates, and cholesterol. With these features, Pea pod aims to target the health and fitness conscious consumer who chooses foods tailored to specific dietary needs.

There are also search features to help locate a particular item. A "Find Item" option at the top of the screen lets users search either by brand name or product type. When users have finished shopping, they click on "Done" and the order is electronically routed to Peapod. During the transaction closing process, users need to choose a delivery time within a 90- minute slot. Pinpoint delivery within a 3Dminute window) can be selected for a small additional charge. Payment can be made by check, charge, or Peapod Electronic Payment. Eighty-five to ninety percent of Peapod's orders come in via computer; the rest are faxed or phoned. Peapod orders are taken centrally, and then faxed to the stores.

The store gets a printout with the order, the delivery ad-dress, and instructions for getting there. Each order is filled by a Peapod employee, who shops the aisles of the store. The employee pays for the groceries, often at special Peapod counters in the back of the store. The order is then taken to a holding area in the supermarket, where the appropriate items are kept cold or frozen until the deliverer picks up a set of orders and takes them to the customers within their 90-minute pre-selected windows. At each stage-ordering, shopping, holding, and delivery-the processes are tailored to provide personalized service at a relatively low cost.

If a customer has a problem, he or she can call Membership Services, and a service representative will try to resolve the matter. Peapod treats each call as an opportunity to learn (and remember) each customer's preferences and to figure out what the company can do to improve service as a whole. For example, service representatives found that some customers were receiving five bags of grapefruits when they really wanted only five grapefruits. In response, Peapod began asking customers to confirm orders in which orderentry errors may occur.

Peapod members are charged actual shelf prices, plus a monthly service fee, a per-order charge of Rs. 5.00 plus 5 percent of the order amount. Customers are willing to pay these extra charges for convenience and because Peapod provides a lower cost shopping experience for the consumer. Consumers save money-despite the extra overhead-because they use more coupons, do better comparison shopping, and buy fewer impulse items than they would if they shopped at a real supermarket.

Reducing impulse purchases is important when you consider that 80 percent of the items purchased in a grocery store are impulse items-non-planned purchases. In addition, consumers save time and have more control because they can shop from home or work whenever they want.

What is the Business Model?

Rather than automating the trip to a retail store, as other online providers are doing, Peapod is using interactive technology to change the shopping experience altogether.

Indeed, the formula for Peapod's success is the busy American lifestyle. The homes it delivers to cut across many demographics.The one thing these demographics have in common is they have better things to do than grocery shop. Still, if it were not for wellmanaged logistics, these customers would be back in the stores in a second. The behindthe- scenes logistics are central to what Peapod is all about; Peapod has to make sure the orders get to the stores and that they are shopped correctly.

How does Peapod Compete with Traditional Retailers?

Traditional retailers make money from the suppliers. They provide access to customers and make their money by buying on deals, volume discounts, and getting coop advertising. Peapod makes all of its money on the customers it serves, it is a mass customizer. It creates the supply chain after identifying a specific demand from a specific customer, and it feeds off the existing infrastructure to do it. However, existing retailers do have some advantages.

An important, though subtle, advantage enjoyed by food retailers is the shopper's resistance to switching food stores because of familiarity with the shelf locations of products purchased. It is also inconvenient for consumers to relearn dozens of product locations at a new store. The online environment must offer significant advantages to overcome shopper inertia and induce trial, let alone continued, patronage. Is Peapod a competitor to the retail grocer? Not really. Peapod's strategy has been to partner with the retailer rather than compete directly.

A lot of credibility comes with the name of the retailer in its individual market. Peapod can help grocers expand into places that might not otherwise be practical from a capital investment standpoint. However, it is quite possible that in the future Peapod may be tempted to compete with grocers by emulating certain aspects of their warehousing. Why? As these new retail formats emerge , and once Peapod gains enough customers, Peapod will be tempted to say it is costing a lot to go to the store and pick up product off the shelf. To avoid the overhead , Peapod could have its own warehouse. As soon as the Peapod does that it is likely to fall into the same traps as the retailers, such as having an overflow warehouse when something is available on a deal or buying products before there is actual need.

3.5 ONLINE RETAIL INDUSTRY DYNAMICS

The Indian e-commerce industry has been on a rising growth curve and is anticipated to surpass the US to become the second-largest e-commerce market in the world by 2034.

The year 2020 although will be recalled for the pandemic. India's retail sector, particularly that of, online retail will remember it for the economic turnaround and demand revival. The crisis has transformed the way e-commerce functions, with portals having experienced an incredible traffic boom. While the traditional retail sales have declined, e-commerce has witnessed an

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impressive year-over-year growth with most if not all, brick-and-mortar stores have navigated their businesses online.

The Indian e-commerce industry has been on a rising growth curve and is anticipated to surpass the US to become the second-largest e-commerce market in the world by 2034. With technological advancements and Internet penetration, the country's online sales market has been offering promising prospects for the global business giants who are keen on exploring this space.

This has augured well for the PM's 'Make In India' campaign which is a powerful move supporting the boom of online retail. The 'Make In India' initiative will further extend investment options for universal companies and brands across to explore the Indian markets, thus accelerating the country's e-commerce growth. The campaign has created a level playing field to welcome global investors to invest in the Indian markets. Global investors have placed their capitalization around segments like textile, fashion retail, and machinery manufacturing to name a few. The current FDI regulations by the Indian government already allow 100 percent FDI under the automatic route, thus lending a helping hand to the indian e-commerce segment to achieve global recognition.

The pandemic has fast-tracked the growth of the e-commerce industry with more businesses joining the business revolution than ever before. With consumers across the globe have demonstrated a shift in buying patterns, the competition is getting steeper, and online shopping behaviours are fluctuating faster than ever before. This changing economy calls for keeping up with the developing e-commerce trends to cut through the noise, get noticed, and appeal to customers. The industry must make note that it is never too late to jump right in, learn something new, and gauge if the change is appropriate for your business and target audience. For now, consumers are in the driver's seats and e-commerce businesses will be tailoring the journey ahead for them.

The below mentioned futuristic trends will positively impact businesses in the coming months and years:

- **Personalized Commerce is the Next Frontier:** Contemporarily, e-commerce has been leveraging on personalization technology to lend consumers a tailored experience. Delivering personal experiences on e-commerce sites is accomplished by dynamically displaying content, product recommendations, and precise offers based on enriched personal data like browsing behaviour, page visits, previous purchase history, and buyer demographics. As compared to traditional retail, e-commerce does not comprise of a retail salesperson to endorse products based on interest, likings, or taste. Human touch-points offer myriad opportunities to beat out the competition and this is the magic of personalization – imitating what a buyer's in-store experience would be, through an online custom-made journey. Personalization truly is the missing ingredient to an effective virtual shopping experience and will be the future of e-commerce.
- **Product Cataloging Changing the Business Landscape:** Modern-day cataloging has surpassed the initial way of offering just images or brief product descriptions. Today, it is aimed at lending the customer an experience that is as close to physically experiencing the product. The required supplementary product data that is added to the brochure make the buyer's purchase decisions all the more effortless.
- **Interactive Product Visuals:** It is very common for customers to undergo this dilemma – you like a product, but you are unsure if what you are seeing on the site is exactly what you will receive after purchasing. This may make customers hesitant from hitting the purchase button. Modern-day buyers demand on getting an experience of the product before investing, this is why high-resolution images form an integral part of e-commerce

sales. With consumers demanding for a 360-degree viewing images that facilitate to see the product from all angles, clearly indicates that static images are no longer sufficient.

E-commerce Sector Undergoing Cross-Border Growth: India is steadily becoming a significant player in the eyes of the global stage, enabling its economy to accelerate in the coming years. India's untapped potential and a CAGR of 17.8 percent, from 2019 to 2023 is higher than any other country and this is a major reason for international online shopping firms to eye the Indian markets. Our country's e-commerce sales make up a sheer of 4.4 percent of its overall retail sales allowing major international players to explore the market to the fullest. India's e-commerce sector currently ranks 9th in cross-border growth globally.

Augmented and Virtual Reality Tools Make for an Interactive Retail Experience: A complete game-changer for e-commerce, AR and VR technology has been enabling e-commerce retailers in overcoming one of their biggest challenges - the inability of the consumers to try on or experience products before purchasing them. For instance, through AR and VR, customers can virtually try on products or position furniture pieces within their homes. The speedy acceptance of this superior technology is a clear indication that AR and VR markets are estimated to have 2.4 billion users by the year 2023.

Celebrity Endorsement Driving Social Commerce: Social commerce refers to the sale of products directly through social media. It varies from social media marketing since you are not readdressing users to a virtual shop, but instead lending them the ability to checkout directly within the network they are using at that moment. Social commerce combined with influencer marketing through sponsored content partnerships with micro and macro-influencers is a recipe for a surge in sales.

Actionable Content to Drive Business: Relevant and engaging content facilitates in driving business by appealing to potential shoppers, guiding them towards purchasing opportunities and advancing conversions. Types of content like interactive, storytelling, stance-talking, and email conversations can be effectively mixed and matched and tailored to suit each customer's interests.

3.6 ONLINE MERCANTILE MODEL FOR CUSTOMER PERSPECTIVE

Mercantile Process Model is defined as:

"the interaction between the consumer and the merchant for online commerce".

This is necessary because to buy and sell goods a buyer, a seller and other parties must interact in ways that represent standard business process. A well established standard process for processing credit card purchasers has contributed to the wide spread dissemination of credit cards. The establishment of common mercantile process model is expected to increase the convenience for consumers.

Mercantile models from the Consume rs Perspective:

The online consumer expects quality and convenience, value, low price etc. to meet their expectations and understand the behaviour of online shopper there is a need for the business process models that provides the standard product / service purchasing process. The process model for a consumer point of view consists of seven activities that can be grouped into three phases.

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They are

1. Pre phase
2. purchase consumption
3. post purchase interaction phase.

Steps taken by customer in purchasing:

1. Pre purchase Determination: this phase includes search and discovery for a set of products in the larger information space applicable of meeting customers requirements and product selection from the smaller set of products based on attribute comparision.
2. Purchase Consumption: this phase includes mercantile protocols that specify the flow of information and documents associated with purchasing and negotation with merchants for suitable terms such as price availability and delivery dates.
3. Post Purchase interaction: this phase includes customer service and support to addresses customers complaints, product returns & product defects.

Pre Purchase Preparation:

From the consumer point of view any major purchase can be assumed to involve some amount of pre purchase deliberation. Pre purchase deliberation is defined as elapsed time between the consumer's first thinking about buying and actual purchase itself.

Information search should constitute the major part of duration but comparison of alternatives and price negotiations would be included in continuously evolving information search and deliver process.

To deliberate, consumers have to be watchful for the new or existing information which are essential for purchase decision process. Information on consumer characteristics with reduced purchase deliberation time can be quite valuable when attempting to target, selective communications to desired audience properly. Thus not much attention have been paid to this important research area which may dictate success or failure of online shopping. Consumers can be categorized into three types:

1. Impulsive buyers
2. Patient buyers
3. Analytical buyers

1. Impulsive buye rs: these buyers purchase the product quickly.
2. Patient buyers: who purchase products after making some analysis or comparision.
3. Analytical buyers: who do substantial research before making the decision to purchase product or services.

Marketing researchers have isolated several types of purchasing.

1. Specifically planned purchase: the need was recognized on entering the store and the shopper brought the exact item planned.
2. Generally planned purchases: the need was recognized, but the shopper decided instore on the actual manufacture of the item to satisfy the need.
3. Reminder purchases: the shopper was reminded of the need by some store influence. This shopper is influenced by in-store advertisements and can substitute products readily.
4. Entirely unplanned purchases: the need was not recognized entering the store.

Purchase Consumption:

After identifying the product to be purchased by the buyer and the seller must interact in some way (e-mail, on-line) to carry out the mercantile transactions. The mercantile transaction is defined as the exchange of information between the buyer and seller followed by necessary payment depending upon the payment model mutually agreed on, they may interact by exchanging currently i.e. backed by the third party such as the central bank, master card, visa card etc.

A single mercantile model will not be sufficient to meet the needs of everyone. In very general terms a simple mercantile protocol would require the following transaction where the basic flow remains the same.

1. Through e-mail, online the buyer contacts the vendors to purchase a product or service. This might be done online through e-mail (or) through e-catalogue etc.
2. Vendor states the price.
3. Buyer and vendor may or may not engage in a transaction.
4. If satisfied buyer authorizes payment to the vendor with an encrypted transaction containing the digitalsignature.
5. Vendor contacts the billing service of the buyer to verify the encrypted authorization for authentication.
6. Billing service decrypts the authorization and checks the buyer account balance and puts a hole on the amount transfer.
7. Billing service give the vendor green signal to deliver the product.
8. On notification of adequate funds to cover financial transaction, vendor delivers thegoods to buyer or in the case of information purchase provides a crypto key to unlock thefile.
9. on receiving the goods the buyer signs and delivers receipt. Vendors then tell billing service to complete the transaction.
10. At the end of the billing cycle buyer receives a list of transactions.

The following are the two types of mercantile protocols where the payment is in the form of electronic cash and credit cards.

1. Mercantile process using digital cash: a bank mints (prints) electronic currency or ecash. Such a currency is simply a series of bits that the issuing bank can be verified to be valid. This currency is kept secured by the use of cryptographic techniques. After being issued some e-cash a buyer can transfer to a seller in exchange for goods upon receiving a e-cash the sellers can verify authenticity by sending it to the issuing bank for verification. E-cash issuing banks make money by charging either buyer or seller or both. A transaction fee for the use of their E-cash.

   E-cash is similar to paper currency and has the benefits of being anonymous and easily transmitted electronically. It still entails the risk of theft or loss. However, and so requires significant security by the buyer when storing e-cash.
2. Mercantile Transaction Using Credit Cards: two major components of credit card transaction in the mercantile process are

- Electronic Authorization
- Settlement

In the authorization process in the retail transaction, the 3rd party processor (tpp) captures the information at the point of sale and transmit the information to the credit card issue for authorization, communicated a response to the merchant and electronically stores the information

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for the settlement and reporting. Once the information leaves the merchants premises the entire process takes few seconds. The benefits of electronic processing include a reduction of credit card losses, lower merchant transaction costs, faster consumer checkout.

Credit card authorization is processed at the point of sale terminal using dial-up phone access into the TPP networks. The credit card no is checked against the database and the transaction is either approved typically in a few seconds. A similar procedure is used for debit cards and check verification once the electronic authorization function is completed. The information is processed within the system for client reporting. The data are then transmitted for settlement to the appropriate institution processor.

After the transaction is completed a set of activities related to account settlement are initiated. In a credit card or debit card transaction the merchant account number is credited and or either credit card issuer is notified to enter the transaction or the card holders checking account is debited automatically. A settlement institution then enter the transaction data into the settlement process. In addition to the data computer also takes cars of the settlement function through electronic transaction processing. This electronic transaction processing also provides other services such as 24 hr network, helpdesk which response to enquires from merchant location etc.

Post Purchase Interaction

As long as there is payment for services there will be references, disputes, other customer service issues that need to be considered. Returns and claims are an important part of purchasing process that impact the administrative costs, scrap and transportation expenses and customers relations.

To overcome these problems many companies design their mercantile process for one way i.e., returns and claims must flow upstream. The following are the complex customer service challenges that arise in the customized retaining which have not fully understood or resolved.

1. Inventory Issues: to serve a customer properly a company should inform a customer right from when an item is ordered to it is sold out, otherwise the company will have a disappointed customer.
2. database Access and Compatibility Issues: unless the customer can instantly access all the computers of all the direct response vendors likely to advertise on the information super highway on a real time basis, with compatible software to have an instant access to the merchants inventory and database.
3. Customer service issues: Customers often have questions about the product such as colour, size, shipment etc. and other things in mind can resolved only by talking to an order entry operator.

Mercantile process model from merchants perspective:

E-commerce order management cycle:

- To order to deliver cycle from the merchant perspective has been managed with an eye towards standardization and cost. This is based on assumption that an organization must create a set of operating standard for service and production. They perform to those standards while minimizing the cost.
- To fully realize and maintain a competitive advantage in the online environment it is necessary to examine the order management cycle (OMC) that also includes the traditional order to delivery cycle.

However the OMC has the following generic steps.

1. Pre sale Interaction:

a) Order planning and order generation:

The business process begins long before an actual order placed by the customer. The production planners develops the final forecast used to high workers and built inventory.

Order planning leads into order generation. Orders are generated into number of wages into e-commerce environment such as sales force broad cast. Since personalized e-mail to customer or creates WWW web page.

b) Cost Estimation and Pricing:

Pricing is the bridge between the customer needs and company capabilities pricing at the individual order level depends on understanding value to the customer i.e, generated by each order etc. through order based pricing it is difficult to generate greater profits that are indicated by pricing.

2. Product service purchase and delivery:

a) Order Receipt and entry:After the acceptable price code the customer enters the order receipts and entries paid in OMC.

b) Order selection and prioritization: customer service representatives are responsible for choosing which to accept and order to decline. Not all customer order created equal, some or better business and some are fit into the companies capabilities and offers healthy profits. Companies also make gains by the way they handle over priority i.e, to check which orders to execute faster.

c) Order Scheduling: during this phase prioritized orders get slotted into an actual production or operational sequence. Production people seek to minimize equipment change over communication between various function units is most essential in this phase of OMC.

d) Order fulfillment and delivery: during order fulfillment and delivery the actual provision of product or service is made. While the details vary from industry to industry in almost in every company this step has become increasingly complex. Often order fulfillment involves multiple functions and location. Different parts of any order may be created in different manufacturing facilities and merged yet another site or order may be manufactured in one location warehoused in a second and installed in the third. In some businesses fulfillment includes third party vendor.

In service operations it can mean sending individuals with different talent to the customers site. The more complicated task the more coordination required across the organization.

e) Order billing and payment: after the order has been fulfilled and delivered billing is typically handled by the finance staff who view their job as getting the bill out effectively and collecting quickly i.e, the billing function is designed to serve the needs of the company not the customer service.

Post Sale Interaction:

Customer service and support: this phase plays an interestingly important role in all Elements of a company's profit equation, customer value, price and cost. Depending on the specifications of business it can include elements such as physical installation of a product, repair and maintenance,

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customer training, equipment upgrading and disposal. Thus post sale service can affect customer satisfaction and company profitability of the year. But in most companies the post sale service people are not linked to any marketing operation, internal product development effort or quality assurance team.

Electronic Payment Systems

Electronic payment systems are emerging in banking, retail, healthcare, online markets And even government organizations and infact anywhere money needs to change hands.

The emerging payment technology was labeled as electronic fund transfer(EFT). EFT was defined as any transfer of funds initiated through an electronic terminal telephonic instrument or computer or magnetic tape so as to order, instruct or authorize a financial institution to debit or credit an account. It utilizes computer telecommunication components both to supply and to transfer money or financial assets.

EFT can be segmented into three broad categories.

1. Banking and financial Payments (such as ATm)
2. Retail payments (such as debit cards)
3. Online E-commerce payments.

Online E-Comme rce Payments:

(a) Token Based Systems :

1. E-Cash (Digi-cash)
2. E-cheque (Net Cheques)
3. Smart cards or debits cards.

(b) Credit card based systems:

1. Encrypted credit cards.
2. Third party Authorization numbers

(c) Digital Token based Electronic payments systems:

It is a new financial instrument. The electronic token which will be in the form of e-cash or e-cheques. They are designed in various forms of payments packed by a bank or a financial institution. E-tokens are of three types

1. Cash or real type: transactions are settled with exchange of electronic currency. An example of online currency is e-cash.
2. Debit or prepaid: Users pay in advance for the privilege of getting information. Examples of prepaid payment mechanisms are smart cards, electronic purses that store electronic money.
3. Credit or postpaid: the server authentication the customers and verifies with the bank that funds are adequate before purchase examples of postpaid mechanisms are credit or electronic cheques.

E-cash:

E-cash is a new concept in online payment systems because it combines computersied convenience with security and privacy that improve all paper cash. Its versatility opens up a host of new market and applications.

E-cash focuses on replacing cash as a principle payment system in consumer oriented e-payments. To displace cash the electronic payment systems need to have some qualities of cash that current credit and debit cards lack. Cash can be held and used by anyone even those who don't have an account in a bank and cash places no risk on the part of the acceptor that the medium of exchange may not be good.

Properties of E-cash:

e-cash must have the following four properties.

1. Monetary value
2. Interoperability.
3. Retrievability.
4. Security.

Monetary value:

e-cash must have monetary value. It must be backed by either cash bank authorized credit card or bank certified cashier cheque. When e-cash is created by one bank, is accepted by others reconsideration must occur without any problems.

Inte roperability:

E-cash must be interoperable i.e., exchangeable. It must be operatable in place of other e-cash, paper cash, goods and services, electronic benefit transfer etc.

Retrievability.

E-cash must be storable and retrievable. Remote storage and retrieval would allow users to exchange e-cash from home or office or while traveling. The cash could be stored on a remote computers memory in smart cards or in other easily transported standard or special purpose devices.

Securty:

E-cash may not be easy to copy or tamper with while being exchange. This includes preventing or detecting duplication and double spending.

E-cash in action:

E-cash is based on cryptography systems called digital signatures. This method involves a pair of numeric keys. One for locking(encoding) and the other for unlocking(decoding). Messages encoded with one numeric key can only be decoded with other numeric key.

The encoding key kept

3.7 MANAGEMENT CHALLNEGES IN ONLINE RETAILING

All aspects of e-commerce businesses face hurdles and difficulties. Here's a look at some top issues and what to do about them.

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1. Cybersecurity

Victor Congionti, chief information officer and co-founder of Proven Data, knows that small e-commerce sites need the proper cybersecurity practices and tools in place.

"Small businesses that focus their attention in the e-commerce space need policies and procedures to create a solid cybersecurity framework for the organization," Congionti said. "In the case of a cyberattack, a small business cannot afford to have downtime in operations and sales, because every transaction is a marginal financial success that the business depends on."

Because a small business depends on that income, Congionti said business owners need the proper cybersecurity framework to keep data safe and secure while helping employees feel empowered to implement policies and tech to combat cyberattacks. Measures such as tighter access control and data security software can shore up defenses against vulnerabilities and improve a small business's cybersecurity risks.

Businesses must have an incident response plan that establishes what to do in the event of a cyberattack, added Congionti.

"In the case of a ransomware attack, the organization might not be able to access files and data that is necessary [for] providing service to customers, such as inventory reports," he said. "Having a response plan can help the business reduce downtime in operations and continue providing service to clients through other means, such as phone sales."

> Did you know? Your offices shouldn't be your only cybersecurity focus. Cybersecurity while traveling is also a concern, as traveling with connected devices could open you up to data breaches or cyberattacks.

2. Competition

Competition comes in many forms for small businesses, especially in the e-commerce space. You have to keep up with competitive pricing, products and services – all competing for your target customer.

"As a small business, you can overcome price competition by having a very clear company value proposition that consumers can't get elsewhere," said Calloway Cook, founder of Illuminate Labs.

The e-commerce space has become so saturated that standing out from other e-commerce businesses is challenging, through no fault of your own.

"Distinguishing yourself from your competitors is crucial to standing out and attracting new customers for your business," said Harsha Reddy, co-founder of Small Biz Genius. "This can be accomplished by making sure your website looks professional and is optimized correctly to suit today's Google algorithm. Also, by providing a unique product or service, you can focus on a smaller demographic, making it easier for you to increase your domain authority."

3. Order fulfillment

Not everything has to fall on the small business owner's back. You could be inundated with more orders than you are prepared to handle on your own. In this case, outsourcing order fulfillment and e-commerce shipping can ease your workload and streamline the customer experience.

"Order fulfillment should be outsourced to a third-party fulfillment company whenever possible for increased efficiency," Cook said.

4. Customer experience

As a primarily e-commerce business or a business that conducts some selling online, you might find it a challenge to offer your customers the same experience level they would get in a brick-and-mortar store.

> "One of the most overlooked areas of the customer experience in moving to e-commerce is pricing and customer segmentation," said George Dunham, CEO of epaCUBE. "Customer experience is especially important when launching an e-commerce initiative, because customers expect to be treated as well or better online as they are face to face."

Dunham said that companies struggle to meet these new demands because doing so requires precise handling of pricing, analytics and customer segmentation. Successful experiences in the e-commerce space require the same, if not greater, clarity in product offerings, pricing, loyalty programs and more, as is required in a face-to-face buying process.

"In a world where everything is happening online, your customers expect more, and they also know more about your products, prices and competition," Dunham said. "They expect to be treated the same way online as offline, so if they can get a certain price in person but can't get that price online, they get frustrated and purchase somewhere else."

5. Quality website traffic and visitor conversion

Building, designing, and running an e-commerce website is complex, but generating quality conversions is even more challenging, according to Lisa Chu, owner of Black N Bianco.

"To turn your traffic into converting customers, you must have a website that is modern, clean, user-friendly, trustworthy and virus-free," Chu said. "Every industry is different, so understanding your audience is crucial to designing a website that resonates with your audience."

Designing an effective business website is just the beginning, though. Maximizing the content on your website through SEO is the next – and perhaps most important – step.

Phillip McCluskey, commercial director of One Erth, said that average conversion rates globally are less than 3%, making driving relevant traffic to your site a sticking point.

"Extensive short-tail keyword research should be conducted to ensure you are optimizing your pages for relevant search terms," he said. "It is likely that the competition for these terms when [they are] just starting out will not realize immediate web traffic; therefore, long-tail keyword research should be conducted to understand the relevant 'what,' 'how,' 'who' and 'where' within your niche."

Shirley Tan, developer partnership manager at Yahoo Small Business, said many businesses used to take the "if I build my online store, customers will somehow discover it" approach. "Today, that is no longer the case. When there were fewer e-commerce stores, they may have been able to rely on a stumble-upon effect, but now the internet is too crowded and noisy. Therefore, engaging the customer and getting their attention has to be more meaningful and impactful."

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To combat the noisy e-commerce space, Tan said e-commerce SMBs need to understand who they are targeting to create a customer base who will be their constant source of revenue and loyal shoppers.

6. Visibility

How are you supposed to get quality traffic to your site and turn visitors into customers if people can't find your site? It's a significant issue for e-commerce businesses and one that could make or break a business.

"If the company doesn't show up on the first page of Google's search results for relevant keywords, then it's unlikely that prospective customers will find them," said Michael Anderson, marketing and SEO specialist at GeoJango Maps. "The best way to overcome this challenge is to invest in SEO. E-commerce companies should conduct keyword research, implement on-page SEO best practices, and work on building high-authority links to their website."

Anderson said if all of the above is done correctly, it will lead to higher search visibility and optimized lead generation.

"For clothing businesses, influencer marketing works very well, but if your e-commerce business is based around a product that solves a problem, getting your website to rank on Google for keywords related to that problem through SEO efforts might be your best bet," said Nicholas Rubright, digital marketing specialist at e-commerce market research firm Zik Analytics. "Understanding your audience is key to figuring out which marketing channel will generate traffic that actually converts into sales."

7. Return and refund policies

A good return and refund policy could be the difference between success and failure. That sounds extreme, but it's true.

"If you want your brand to stand tall, then customer satisfaction should be the first priority, and whatever you're selling should be the same as what's advertised," said Syed Ali Hasan, digital marketing manager at Film Jackets.

In an ideal world, yes, there would never be an issue with the product you're selling, but that's not always the case. Sometimes the purchaser has buyer's remorse, or it wasn't what they thought it would be.

"Be transparent and create a smooth, fast and easy return policy," Hasan said. "Make it easy to understand and not too strict, so the customer won't have to go through hassles [to return an item]."

Rubright said that if you don't have a good return and refund policy, people are less likely to trust you're selling something worth the money. "When a site says 'no returns or refunds,' it makes the customer much more likely to think it's a risky purchase or, worse, a scam, since online businesses can be less known."

8. Finding the right market

"The first step of any business is to find product-market fit, and e-commerce is no different," Rubright said. "Product-market fit is the degree to which a product satisfies market demand.

The easiest way to find that fit quickly is to build a product that solves a problem you have."

However, finding the right market for your product isn't the easiest task. Rubright offered some insights on how to make it more straightforward.

"If you haven't figured out your ideal customer yet, I recommend making some assumptions as to what your target market is and running Facebook ads to this audience. When you finally do make a sale, try and understand everything you can about who bought your product, and find more of those people by any means necessary. Once you have product-market fit figured out, then you can figure out the best way to reach your ideal customers."

> **Did you know?** In addition to Facebook ads, Facebook business tools include a Facebook Page where you can engage with customers and Facebook Groups to foster communication.

9. Making and increasing sales

Once you figure out your products, get your website set up, and have your small business marketing plan in place, the next step is making sales. Making a sales plan and selling your products and services seems like a no-brainer; however, it's not always that straightforward.

"To increase sales, e-commerce SMBs need to have the right product at the right price and ensure they are top of mind when the customer is ready to make a purchase," Tan said. "This traffic can be hard to get; to drive sales, it's important a brand endears themselves to their customers."

Aside from customers already having you in mind when they need something and feeling positive about your product, your website plays a big part in how many sales you'll make.

Tan suggested asking yourself the following questions to determine your website's efficiency:

- Is the website layout easy to navigate?
- Is the checkout experience simple and easy?
- Are there coupons that can be applied when customers spend a certain amount to get a discount?

"Website functionalities like these can greatly increase conversions and make the customer experience more enjoyable," Tan said.

10. Borderless e-commerce

Because of the increase in e-commerce websites available worldwide, shopping has become borderless. Consumers can easily purchase from companies outside of their own countries. As a result, e-commerce businesses must accommodate customers of all backgrounds.

Supporting a diverse customer base means providing information in various languages. According to CSA Research, 76% of online shoppers prefer to purchase products with information in their own language, 92% would prefer shopping in their local currency, and 33% might abandon the cart if pricing is only in U.S. dollars.

To maximize your chances of having a successful e-commerce business, use thought and consideration when accommodating other languages and cultures.

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11. Augmented reality

The augmented reality (AR) market is expected to reach $198 billion by 2025. AR allows e-commerce businesses to show consumers what a product would look like in their space. For instance, if someone is purchasing a couch for their living room, AR can help them visualize the sofa in that very room.

This visualization tool often solidifies their decision to make a purchase, as consumers can have more confidence it will look good in their home.

If the AR model would work with your products, perhaps you should incorporate this technology with your e-commerce store.

12. IoT commerce

Internet of Things (IoT) commerce has been a popular way for consumers to make digital purchases through IoT devices, such as smart speakers, cars, appliances and other smart devices. In the current API economy, business owners can accelerate product delivery to new channels. To accommodate this new way of shopping, e-commerce businesses must focus on their PIM, so they are ready to respond to API requests and sell in unconventional channels.

3.8 ONLINE MARKET RESEARCH

Online Market Research is a research method in which the data collection process is carried out over the Internet. It can be either Qualitative or Quantitative. Qualitative Online Tools include Video Ethnography and Market Research Online Communities (MROCs). Quantitative Online Methods include mobile and app surveys.

This research can evaluate the performance of a product or service and may allow companies to glean insight into consumer purchasing behavior. With the rising use of the Internet, online research has become a popular tool among market research firms. Online research can provide additional information about a buyer, such as her prior purchasing history. Online research projects can be carried out by a company itself or by a hired research firm.

Growth in Online Market Research

In recent years, there has been a substantial increase in the recorded number of household Internet users, making online shopping more popular. As businesses have become more global and virtual, their target audience has expanded well beyond any specific geographical location. A company can conduct an online survey in which it selects is respondents from all over the world in a less costly manner than it would with mail, telephone, or in-person interviews.

Online retail and transactions have become more popular in recent years. In countries like the U.S., where the internet is readily available to almost every household, online retail spending is expected to increase.

As consumers increase their participation in online shopping, it may become more convenient for retailers to maintain a database of their consumers' purchasing history. Companies can effectively utilize this data throughout the course of their online research.

Advantages in Online Market Research

Conducting online research can be a complex procedure and may require considerable expertise on the part of researchers in obtaining accurate data. It may be challenging to recruit participants in online research for several reasons. Recipients may be reluctant to participate in online research because they may be afraid that the privacy and confidentiality of their personal information may be violated.

Since the identity of the researcher cannot be verified completely, people may find it difficult to trust such research methods. Researchers often present participants with some monetary or non-monetary rewards for their participation. Participants may be wary of monetary compensation promised online.

How to Conduct Online Market Research

There are several ways that may be effective for carrying out online research. Quantitative research can be carried out via online questionnaires and web-based experiments. Qualitative research can be carried out via online in-depth interviews, online focus groups and participant observation, in which a researcher acts as a part of a community to observe behaviors.

Online questionnaires and online polls are some of the most popular online research tools. Online questionnaires may need to be carefully designed in terms of format and length.

What are Online Panels?

Another common practice for online surveys is the use of online panels. An online panel is a group of selected individuals that have agreed to participate in online research projects for a particular company at specific intervals over a period of time. These participants are selected through a screening process according to their demographics, lifestyles and habits, and are usually rewarded for their efforts by the research company regularly.

Online panels may allow companies to glean insight into creating long-term relationships with their customers. These panels may also allow customers to give direct feedback about products and services without the potential reluctance that may occur in face-to-face interactions. Online panels may also mitigate bias caused by peer pressure to agree on a certain viewpoint, a phenomena that may occur in face-to-face panels.

Benefits of Online Market Research

Online market research can be a beneficial tool for companies due to its reach and convenience. Online research tools can be used with relative ease and accuracy for both qualitative and quantitative research.

- Cost advantages
- Speed advantages
- Data collection in real-time
- Advanced analytics
- Efficient global and multi-country survey management

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3.9 ONLINE MARKETING COMMUNICATIONS

Marketing is a process by which a product or service is introduced and promoted to potential customers. Without marketing, the business may offer the best products or services in the industry, but none of the potential customers would know about it. So, for firms marketing is important aspect to run it successfully. But, in today's era due to the expansion of technology and internet. Both are fast emerging tool as a sales channel. Internet is expanding and influences consumer which shifts the consumer behavior. It also creates new means of purchasing products .This has bought new opportunities, challenges and threats in the form of competition to both existing and new business.

Online Marketing Communication are the methods which are used by online firms to communicate with the consumers ,makes the use of entire marketing efforts in the form of advertising, public relation, personal selling, sales promotion, internet marketing , direct marketing in order to generate maximum impact on the target audience at the minimum cost and as well as create strong expectations.

Marketing communications are a management process through which an organization engages with its various audiences. By understanding an audience's communications environment, organizations seek to develop and present messages for their identified stakeholder groups, before evaluating and acting upon the responses. By conveying messages that are of significant value, they encourage audiences to offer attitudinal and behavioral response.

Marketing communications must be coordinate efforts towards the last P'of the marketing mix – Promotion. And need to develop strong sales and advertising messages that will connect with the customers instantly and effectively to highlight product's quality and brand's differentiation from others. Successful marketing communication relies on a combination of tools called the "promotional mix". These tools include: Advertising, Public relations, Sales promotion, Direct marketing, Personal selling, and are used to describe the set of tools that a business can use to communicate effectively the benefits of your products or services to its customers.In the era of mass communications and emerging mobile technologies, an organization must build an adequate mix of marketing communications.

With the emergence of new communication channels via the internet, we have seen an emergence of new way that marketing promotions can be launched by the firms for their potential customers. Internet has affected the traditional marketing mix and itbecame an important aspect for the success of the firm. So, now firms are using Internet marketing communication tools to promote their products in the competitive online marketing world. Internet Marketing is the process of promoting an organization using online media, typically with the goals of increasing sales and boosting profits. Internet marketing does not simply mean building or promoting a website nor does it mean simply putting a banner ad up on another Web site.

Effective Internet Marketing requires a comprehensive strategy that synergizes a given company's business model and sales goes with their Web site function and appearance, focusing on their target market through proper choice of advertising type, media, and design.A transformation of marketing is underway as we spend more time on our mobiles, tablets and laptops. The challenge for brands is to connect with customers through all these devices in real time and create campaigns that work across social media, display advertising and e-commerce.The real-time conversations brands have with people as they interact with websites and mobile apps has changed the nature of marketing. The modern-day marketing department needs to combine

the creative side of the discipline - using powerful narratives to tap into people's wishes and aspirations - with the technical side of data, digital engineering and analytics. In these days the internet is just one of many media used to carry marketing communications message.

Online marketing uses the internet and information technology to extend and improve traditional marketing function. In this paper we will focus mainly on the communication tools of online marketing and how it helps the companies to enhance their brand loyalty among online customers. Online Marketing Communication (OMC) refers to as a communication an interaction between a company or brand and its customers using digital channels and information technology.

Online Marketing Communication Methods

Online Marketing Communication methods are used by online firms to communicate the consumer and create strong brand expectations. It has dual purpose – OMC is used to strengthen the firm's brand by informing the consumer about the features of the products. Secondly it provides sales by directly encouraging the product to buy the product sooner or later.

There are different methods or tools of online marketing communication as traditional marketing concept.

These are as follows:

Online Advertising: The most known technique of online marketing is online advertising. In this method virtual space is used to put marketing messages on websites to attract internet users. Just similar to methods offline marketing and other types of online marketing, the major objective of online advertising is to increase sales and build brand awareness.

Online advertising involves using of internet for displaying promotional messages on the computer screens. Online advertising similar to TV ads uses the element of interruption. But it uses it in a much more creative. Contrary to TV advertisement, online advertisement do not force the recipient to pay attention to the promotional peace, but it tries to persuade or attract the consumer to do so, because instead of coming in intervals it is placed along or among other non-marketing contents.

The now empowered internet recipient still has the power to ignore the advertisement and it is totally up to her/him to click or not. Online advertising, sometimes called display advertising, uses different methods to display a marketing message online.

Needless to say that with the progress of technology, new ways of practicing the art of online advertisement is developed. In addition to images, pictures, logos etc., other different methods now used in this field including interstitial banners, pop-ups and pop-under, map adverts, floating advert, banner advert.

A) Interstitial Ads: Interstitial ads are full-page ads that appears before the destined webpage. Interstitials are full-screen ads that block out the app's other content. They often freeze on the screen for a select number of seconds until a "x" out button presents itself. These are generally inserted within the single website and is displayed when the user moves from one page to next.

B) Banner Ads: Banners, or display ads, are small advertisements usually at the top or bottom of the screen. They are the go-to choice in mobile advertising for developers at the moment.Banner advertising is a rectangular graphic display that stretches across the top or bottom of a website or down the right or left sidebar. The former type of banner

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advertisement is called a leaderboard, while the latter is called a skyscraper. Banner ads are image-based rather than text-based and are a popular form of website advertising. The purpose of banner advertising is to promote a brand and/or to get visitors from the host website to go to the advertiser's website.

C) Floating Ads :These are ads that appear when we first go to a Web page, and they "float" or "fly" over the page for anywhere from five to 30 seconds. While they are on the screen, they obscure the view of the page which we are trying to read, and they often block mouse input as well.

D) Pop up Ads: Pop-up ads are advertisements that show up in a new browser window. There's no one standard size for popup ads. Popup ads also vary widely in the amount of browser commands that show in the window.Pop-up windows come in many different shapes and sizes, typically in a scaled-down browser window with only the Close, Minimize and Maximize commands. Popups are simply one of many formats, alongside fixed spaces within a page, interstitials (between pages), search, rich media, microsites, email, sponsorships, listings and others. Pop-ups are simply part of the digital media mix.

E) Pop-under Ads:Atype of window that appears behind the browser window of a Web site that a user has visited. In contrast to a pop-up ad, which appears over (on top of) the browser window, a pop-under is less obtrusive as it hides behind other windows. Pop-under are used extensively in advertising on the Web, though advertising is not the only application for pop-under windows.

E-mail Marketing

It means using e-mail for sending promotional messages to internet users, has been considered one of the more effective methods of online marketing. Among its benefits point to "high response rates" and "low costs" of email marketing and believe that this advantages "are rapidly turning email marketing into an invaluable tool". Despite these benefits email marketing suffers from deficiencies. One these problems are that online customers can easily ignore the received advertisements and even some email clients would decide to put them in the spam folder. So some measures should be taken to overcome the possibility of ignoring promotional emails on the part of customers. One of the solutions is to not solely rely on email marketing.

Marketers should employ different channels and methods of marketing to increase the chance of success. Another measure to transcend problems of email-marketing is permission email marketing. "Permission marketing" has been coined by Godin. In this method recipients are asked for their permission to receive marketing messages from the commercial marketers.

So unless the recipients have not expressed their consent, they will not send commercial emails. Search Engine Ma.k~ting (SEM)SEM is a type of Internet marketing associated with the researching, submitting and positioning of a website within search engines to achieve maximum visibility and increase your share of paid and/or organic traffic referrals from search engines. SEM involves things such as search engine optimization(SEO), keyword research, competitive analysis, paid listings and other search engine services that will increase search traffic to the site.

Nowadays it is hardly possible to imagine a business which has not its own website. But having a well-designed website does not necessary result in an ideal amount of visits. In order for this goal to be accomplished another type of online marketing, called SEM should be adopted. In

fact, one of major methods of conducting online marketing is search engine optimization, which is also called search engine marketing.

Davis (2006) defines it in this way: *"SEO - short for Search Engine Optimization - is the art, craft, and science of driving web traffic to web sites... web traffic is food, drink, and oxygen – in short, life itself – to any web-based business".*

Parikh and Deshmukh (2013) also offer this definition: *"Search engine optimization can be described as a cluster of strategies and techniques used to increase the amount of visitors to a website by obtaining a high-ranking placement in the search results page of a search engine (SERP)".*

The importance of search engine optimization lies in the fact that customers most of the time use engines as a major gate to get around in the internet. So some marketing techniques have been developed to enhance the rank of intended business websites in the search engine results. The purpose of SEO strategies is to place a given website among highly listed entries returned by search engines which in its turn produces more traffic.

So, Web site owners, webmasters and online marketers want search engines to send traffic to their site. Therefore, they need to make sure that their sites are relevant and important in both the eyes of the search engines and the users.

Affiliate Marketing: Affiliate marketing is a major component of online marketing methods and refers to the process of gaining a commission by promoting products or services of another company. Also in this method two or more website owners can build relationship to increase mutual financial benefits.

With respect to its definition, "affiliate marketing is simply defined as : A web-based marketing practice , often using automated systems or specialized software in which a business rewards their affiliate for each visitor, customer, or sale which is brought about as a result of affiliate's marketing efforts. In most cases, the reward is monetary in the form of a monthly check. It is also known as tenancy relationships. It permits a firm to put its logo or banner ad on another firm's website from which users of that site can click through to the affiliate site.

Social Media Marketing: Social media marketing refers to the process of gaining traffic or attention through social media sites. Social media itself is a catch-all term for sites that may provide radically different social actions. Social media marketing, can be easily defined as" a term used to describe the process of boosting website traffic, or brand awareness, through the use of social media networking site. Most social media marketing programs usually revolve around creating unique content that attracts attention and encourages the viewer to share it with their friends and contacts on social networks.

Example: Facebook, Twitter, Myspace etc. these social networking sites allows the advertisers to focus on over 1 billion people, based on their location, age and other attributes.

Digital Public Relations: Digital Public Relations (DPR) is the use of digital and socia technologies to manage the awareness and understanding, reputation and brand of a company or organization, through the purposeful influence of exposure via digital media. Companies may also use the Internet to provide corporate information about the organization and its products. Potential customers will be able to find information such as names and background of the senior management team, investor information, history, and product information. Through the use of blogs, websites and by organizing the online events companies can respond to complaints or other customer concerns quickly and effectively, thus managing their online reputation and establishing rapport with consumers.

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1. **Blogs:** Blogs are typically focus on a specific subject (Economy, entertainment news, etc.) and provide users with forums (or a comment area) to talk about each posting. It was started in 1997 as diaries. But become mainstream and effective marketing tool for companies, fans and users since 2004. Blogs are uses to share the information and experiences.
2. **Websites:** A website is a collection of related web pages, including multimedia content, typically identified with a common domain name, and published on at least one web server.. A website may be accessible via internet. Companies try to improve their website to increase customer experiences and even modify the websites for special events, festivals and special days.

Sales Promotion offers: These are short term incentives that facilitate the movement of producers to the end users. Examples are:

i) *Coupons:* deals of the day provided by snapdeal.com
ii) *Rebates:* cash back
iii) *Samples:* one month free subscriber or membership for ITunes .com and Ganna.com
iv) *Sweepstakes:* Lucky draw games
v) *Games:* Free downloadable games etc. are provided by online firms top their customers.

Personal Selling: It involves real time conversation between a salesperson and customers, face to face by video calling through mobile phone and computers. Even some companies real time sales assistance online to their customers.

Conclusion

Internet has revolutionized every aspect of life including economy and marketing. Introducing major techniques and methods of online marketing, this study has shed light upon the various methods which are used by online firms to tap their customers' loyalty.As the Internet continue to evolve, new technologies in Internet marketing will emerge and will define how products and services will be marketed in the near future.

As per survey conducted by Forrester Research's "Forrester Wave: Interactive Marketing Agencies" report supports" the "new media" marketing trend: Increasingly marketers are realizing that (offline and online) has to be integrated." They add this is important because consumer behavior is shifting online and the data gained from the channels directs how to market to consumers.

The report further stresses that today's marketers must develop four core capabilities: measurement and analytics, audience research, cross channel integration and social media. The web masters should consider the changing media and consumer behavior as well as the cost and effectiveness of the media while using online marketing communication tools.

3.10 ONLINE ADVERTISING

Online advertising is any type of marketing message that shows up with the help of the Internet. That means it could appear in a web browser, search engine, on social media, on mobile devices, and even in email. Online advertisements are placed on websites and apps to entice potential customers that use the internet. Learn more about the definition of online advertising and get to know the types of online advertising and their examples.

- Online advertising is any type of marketing message that shows up with the help of the Internet. That means it could appear in a web browser, search engine, on social media, on mobile devices, and even in email.
- Online advertising, also known as online marketing, Internet advertising, digital advertising or web advertising, is a form of marketing and advertising which uses the Internet to promote products and services to audiences and platform users.
- Online advertising includes email marketing, search engine marketing (SEM), social media marketing, many types of display advertising (including web banner advertising), and mobile advertising. Advertisements are increasingly being delivered via automated software systems operating across multiple websites, media services and platforms, known as programmatic advertising.

Like other advertising media, online advertising frequently involves a publisher, who integrates advertisements into its online content, and an advertiser, who provides the advertisements to be displayed on the publisher's content. Other potential participants include advertising agencies who help generate and place the ad copy, an ad server which technologically delivers the ad and tracks statistics, and advertising affiliates who do independent promotional work for the advertiser.

In 2016, Internet advertising revenues in the United States surpassed those of cable television and broadcast television.

In 2017, Internet advertising revenues in the United States totaled $83.0 billion, a 14% increase over the $72.50 billion in revenues in 2016. And research estimates from 2019's online advertising spend puts it at $125.2 billion in the United States, some $54.8 billion higher than the spend on television ($70.4 billion).

Many common online advertising practices are controversial and, as a result, have been increasingly subject to regulation. Many internet users also find online advertising disruptive[6] and have increasingly turned to ad blocking for a variety of reasons. Online ad revenues also may not adequately replace other publishers' revenue streams. Declining ad revenue has led some publishers to place their content behind paywalls.

Savvy advertisers are increasingly making use of this forum for reaching consumers, for a number of reasons:

- It's relatively inexpensive
- It reaches a wide audience
- It can be tracked to measure success (or failure)
- It can be personalized for a target audience

Indeed, online advertising is only growing in scope, as new avenues for marketers pop up (think ads delivered through text message or marketing messages delivered to users in a certain area, known as geo-targeting). But, while some of the ads are less common or just gaining traction, there are plenty that we're exposed to multiple times every day. Let's take a look at some of the most popular types of online advertising.

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Types of Online Advertising

Whether you're surfing the web or just checking your email, you can't really get away from advertisements delivered in a digital setting. Here are some of the most popular types.

1. Display Ads

Probably the oldest form of online ads, display ads, appear as everything from banners of all shapes and sizes to text ads relevant to the content of a page. You might find an AutoZone display ad on a popular car blog or a banner ad promoting the newest products at Sephora on a popular beauty or cosmetics blog.

2. Email Ads

Email ads are such a popular form of online marketing that many consumers don't even think about them being advertisements. Open your inbox and you're likely to see advertisements promoting new services from your cable provider, special offers on children's clothes from Macy's, or the latest cell phone gadget from Samsung or Apple. Email ads sometimes come in the form of coupons or newsletters.

3. Native Ads

Then there are native ads that are disguised in the form of a sponsored post: for example, Virgin Mobile doing a post titled "6 Texts to Copy and Paste to Break Up With Your Significant Other" on Buzzfeed, or in the form of an advertorial, an online (and sometimes print) ad designed to look like editorial content but promoting a product or service.

Airbnb had a successful native ad placement with The New York Times, tracing the path of immigrants from other countries into the United States at Ellis Island. It is interesting and informative and advertises Airbnb in a discreet way with a small logo at the top.

4. Social Media Ads

Whether it's Facebook, Twitter, or YouTube, marketing messages are everywhere on social media platforms. From Facebook ads to sponsored tweets and ads that pop up between YouTube videos, social media is an effective place for marketers to reach their audience because we spend so much time scrolling through our newsfeed, commenting, liking, and sharing. A newer form of social

3.11 ONLINE BRANDING

Online branding relies on digital marketing for all aspects of planning, managing, and evaluating the customer experience. In today's online world, digital marketing is essential. No matter your industry or company size, it's one of the best ways to grow your business. To build your company and revenue, however, you need the best digital marketing strategies on your side. Which strategies are best for your company, though, and still relevant to consumers today?

A digital marketing strategy is a plan that outlines how your business will achieve its marketing goals via online channels like search and social media. Most strategy plans will summarize which online channels and digital marketing tactics you will use, plus how much you will invest in these channels and tactics.

To establish a digital marketing strategy is critical. If you partner with an experienced full-service digital marketing agency, like WebFX, you can trust that one of our initial to-dos is building a smart and competitive strategy for your company.

Without Internet marketing strategies, your business doesn't have a map for achieving its goals or objectives and key results. You know what you want to accomplish, but you don't know how. That often leads to the launch of a digital marketing campaign that fails to drive any results.

If you want to invest in digital marketing, you need to invest in a digital marketing plan.

- How to create a digital marketing strategy
- Curious about how to create a digital marketing strategy?

Follow these eight steps:

- **Define your brand:** Outline or use your brand guidelines to define your brand and how it'll come through in your online campaigns. Think about your unique selling points (USPs), brand voice, and value proposition.
- **Build your buyer personas:** Determine who your business wants to reach with custom buyer personas. Think about user demographics, as well as the motivations that drive people to choose your company, products, and services.
- **Create your S.M.A.R.T. goals:** Use specific, measurable, achievable, realistic, and timely goals (also known as S.M.A.R.T. goals) to guide your strategy. Think about your organization's short- and long-term goals for growth.
- **Choose your digital marketing strategies:** Pick the best strategies for your business. Focus on the techniques that offer the most value for your business and industry, versus trendy strategies.
- **Set your digital marketing budget:** Research digital marketing pricing to build a realistic budget for your business. For reference, most businesses spend $2500 to $12,000 per month on online marketing.
- **Brainstorm your strategy:** Guide your strategy to success by planning your strategy. If you're advertising, determine your ad spend. If you're publishing content, build your content calendar.
- **Launch your campaigns:** Following your planning, launch your campaigns across channels. Ensure all your channels feature the appropriate tracking information. Your website, for example, should feature your Google Analytics tracking code.

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- **Track your results:** Monitor and measure the performance of your strategies by tracking their performance. Use tools like Google Analytics, Google Search Console, and Google Ads to keep a pulse on your strategies and their return on investment (ROI).

Now, let's look at seven powerful digital marketing strategies for companies today:

1. Search engine optimization (SEO):

Search engine optimization (SEO) is one of the most effective digital marketing initiatives today. It is the process of improving your website so that it ranks highly in search engine results for keywords and phrases related to your business. The more keywords you rank for – and the higher you rank – the more people will see and become familiar with your website and business.

SEO aims to direct more traffic to your website from members of your target audience. These are consumers who are actively searching for the products and services you offer, as well as users searching for more top of the funnel content.

If you're a landscaper, for example, you may use SEO to increase your ranking in search results for the keyword, "residential landscaping design," and, "common lawn weeds." While these keywords have different intents, one transactional and another informational, they target your audience.

Due to that targeting, you encourage traffic to your website from users that matter.

Why use SEO as a digital marketing strategy?

SEO digital marketing strategy benefits

- When it comes to digital marketing strategies, look at SEO as a requirement. It intercepts every member of your target audience – no matter where they are in your buying funnel. The reason is that almost every user begins their search for a new product or service with a search engine.
- For example, did you know that 80 percent of consumers do their product research online? Or, that after searching for something, more than half of users discover a new company or product. With SEO as one of your online marketing strategies, that could be your business.
- To emphasize the usefulness of SEO as an Internet marketing strategy, consider the following:
- Less than 10 percent of searchers advance to the second page of search results
- Most of the time, when a user performs a search on Google, they don't click past the first page of results. Why? They often find what they're looking for, which means it's critical that your business earns a spot on the first page of search results.
- More than 30 percent of searchers click on the first result
- With so many users finding their answers in the first listing of search results, it's clear that you can't rank on the second page of results. Even if you have what people are looking for, you're hidden from their view – out of sight, out of mind.
- That is why an effective SEO strategy, as well as our leading digital marketing agency, is essential. With our performance-driven SEO services as a part of your online marketing strategy, you can attract more potential clients and earn more revenue.

2. Pay-per-click (PPC) advertising

Another powerful and cost-effective online marketing strategy is pay-per-click (PPC) advertising. Pay-per-click (PPC) is an internet advertising model used to drive traffic to websites, in which an advertiser pays a publisher (typically a search engine, website owner, or a network of websites) when the ad is clicked. PPC is a paid form of advertising that relies on an auction-based system.

With PPC, you bid on keywords that you want your ads to show up for – your ad triggers when a user's search includes your keyword. These ads then appear at the top of search results, above organic listings. If a user decides to click on your advertisement, you then pay for that click.

In other words, you don't pay for ad space – only for the results.

For example, if you sell winter boots for children, you could bid to advertise in the search results when a user searches, "children's winter boots." This keyword is more transactional, which is what you want for a PPC campaign – it's paid advertising, so you want a fast return on investment (ROI).

PPC can include advertising on search engines, as well as social media and other platforms. You can even advertise in apps like WeChat.

PPC aims to reach searchers with transactional queries, meaning they're ready to buy your products or services. When they click on your ad, they'll arrive at your landing page and see a call-to-action (CTA) to convert, whether by purchasing a product, signing up for an email newsletter, or another action.

PPC benefits

- PPC is one of the most cost-effective paid advertising methods.
- For many businesses just getting started with digital marketing or looking for a quick boost, PPC is a useful online marketing strategy. It propels your website to the top of search results, which can help if your company's organic search result ranking is several pages back.

Content marketing

Content marketing is another go-to online marketing strategy for companies today. In content marketing, your business focuses on reaching, engaging, and connecting with consumers via content. This content, which can include videos, blog posts, infographics, and more, provides values to users. It's not, however, sales-orientated copy – it's informational.

For example, if you run a business that sells ski and snowboard supplies, you could write an article about what a beginner needs for their first outing. You could also write articles on how to take care of a snowboard, and what accessories can help improve ski performance.

With these individual pieces of content, you target specific keywords. No matter what format you choose for your content, it's critical that it's relevant and beneficial to your audience. You want to create original and high-quality content that makes users want to share it with their friends, families, coworkers, and other people in their social network.

The overall goal of content marketing as a digital media strategy is to provide valuable information to your target audience, increase traffic, and generate conversions. From a technical

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standpoint, content marketing also focuses on optimizing your content for search engines to improve your visibility in search results.

3.12 ONLINE CUSTOMER RELATIONSHIP

The better a business can manage the relationships it has with its customers the more successful it will become. Therefore IT systems that specifically address the problems of dealing with customers on a day-to-day basis are growing in popularity.

Customer relationship management (CRM) is not just the application of technology, but is a strategy to learn more about customers' needs and behaviours in order to develop stronger relationships with them. As such it is more of a business philosophy than a technical solution to assist in dealing with customers effectively and efficiently. Nevertheless, successful CRM relies on the use of technology.

This section outlines the business benefits and the potential drawbacks of implementing CRM. It also offers help on the types of solution you could choose and how to implement them.

In the commercial world the importance of retaining existing customers and expanding business is paramount. The costs associated with finding new customers mean that every existing customer could be important. The more opportunities that a customer has to conduct business with your company the better, and one way of achieving this is by opening up channels such as direct sales, online sales, franchises, use of agents, etc. However, the more channels you have, the greater the need to manage your interaction with your customer base.

Customer relationship management (CRM) helps businesses to gain an insight into the behaviour of their customers and modify their business operations to ensure that customers are served in the best possible way. In essence, CRM helps a business to recognise the value of its customers and to capitalise on improved customer relations. The better you understand your customers, the more responsive you can be to their needs.

CRM can be achieved by:

- finding out about your customers' purchasing habits, opinions and preferences
- profiling individuals and groups to market more effectively and increase sales
- changing the way you operate to improve customer service and marketing

Benefiting from CRM is not just a question of buying the right software. You must also adapt your business to the needs of your customers.

Business benefits of CRM

Implementing a customer relationship management (CRM) solution might involve considerable time and expense. However, there are many potential benefits. A major benefit can be the development of better relations with your existing customers, which can lead to:

- increased sales through better timing due to anticipating needs based on historic trends
- identifying needs more effectively by understanding specific customer requirements
- cross-selling of other products by highlighting and suggesting alternatives or enhancements
- identifying which of your customers are profitable and which are not

This can lead to better marketing of your products or services by focusing on:

- effective targeted marketing communications aimed specifically at customer needs
- a more personal approach and the development of new or improved products and services in order to win more business in the future

Ultimately this could lead to:

- enhanced customer satisfaction and retention, ensuring that your good reputation in the marketplace continues to grow
- increased value from your existing customers and reduced cost associated with supporting and servicing them, increasing your overall efficiency and reducing total cost of sales
- improved profitability by focusing on the most profitable customers and dealing with the unprofitable in more cost effective ways
- Once your business starts to look after its existing customers effectively, efforts can be concentrated on finding new customers and expanding your market. The more you know about your customers, the easier it is to identify new prospects and increase your customer base.
- Even with years of accumulated knowledge, there's always room for improvement. Customer needs change over time, and technology can make it easier to find out more about customers and ensure that everyone in an organisation can exploit this information.

Types of CRM solution

Customer relationship management (CRM) is important in running a successful business. The better the relationship, the easier it is to conduct business and generate revenue. Therefore using technology to improve CRM makes good business sense.

CRM solutions fall into the following four broad categories.

1. **Outsourced solutions** : Application service providers can provide web-based CRM solutions for your business. This approach is ideal if you need to implement a solution quickly and your company does not have the in-house skills necessary to tackle the job from scratch. It is also a good solution if you are already geared towards online e-commerce.
2. **Off-the-shelf solutions:** Several software companies offer CRM applications that integrate with existing packages. Cut-down versions of such software may be suitable for smaller businesses. This approach is generally the cheapest option as you are investing in standard software components. The downside is that the software may not always do precisely what you want and you may have to trade off functionality for convenience and price. The key to success is to be flexible without compromising too much.
3. **Custom software:** For the ultimate in tailored CRM solutions, consultants and software engineers will customise or create a CRM system and integrate it with your existing software.

   However, this can be expensive and time consuming. If you choose this option, make sure you carefully specify exactly what you want. This will usually be the most expensive option and costs will vary depending on what your software designer quotes.

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4. **Managed solutions:** A half-way house between custom and outsourced solutions, this involves renting a customised suite of CRM applications as a tailored package. This can be cost effective but it may mean that you have to compromise in terms of functionality.

How to implement CRM

The implementation of a customer relationship management (CRM) solution is best treated as a six-stage process, moving from collecting information about your customers and processing it to using that information to improve your marketing and the customer experience.

- Stage 1 - Collecting information : The priority should be to capture the information you need to identify your customers and categorise their behaviour. Those businesses with a website and online customer service have an advantage as customers can enter and maintain their own details when they buy.
- Stage 2 - Storing information: The most effective way to store and manage your customer information is in a relational database - a centralised customer database that will allow you to run all your systems from the same source, ensuring that everyone uses up-to-date information.
- Stage 3 - Accessing information: With information collected and stored centrally, the next stage is to make this information available to staff in the most useful format.
- Stage 4 - Analysing customer behaviour: Using data mining tools in spreadsheet programs, which analyse data to identify patterns or relationships, you can begin to profile customers and develop sales strategies.
- Stage 5 - Marketing more effectively: Many businesses find that a small percentage of their customers generate a high percentage of their profits. Using CRM to gain a better understanding of your customers' needs, desires and self-perception, you can reward and target your most valuable customers.
- Stage 6 - Enhancing the customer experience: Just as a small group of customers are the most profitable, a small number of complaining customers often take up a disproportionate amount of staff time. If their problems can be identified and resolved quickly, your staff will have more time for other customers.

Potential drawbacks of CRM

There are several reasons why implementing a customer relationship management (CRM) solution might not have the desired results.

There could be a lack of commitment from people within the company to the implementation of a CRM solution. Adapting to a customer-focused approach may require a cultural change. There is a danger that relationships with customers will break down somewhere along the line, unless everyone in the business is committed to viewing their operations from the customers' perspective. The result is customer dissatisfaction and eventual loss of revenue.

Poor communication can prevent buy-in. In order to make CRM work, all the relevant people in your business must know what information you need and how to use it.

Weak leadership could cause problems for any CRM implementation plan. The onus is on management to lead by example and push for a customer focus on every project. If a proposed

plan isn't right for your customers, don't do it. Send your teams back to the drawing board to come up with a solution that will work.

Trying to implement CRM as a complete solution in one go is a tempting but risky strategy. It is better to break your CRM project down into manageable pieces by setting up pilot programs and short-term milestones. Consider starting with a pilot project that incorporates all the necessary departments and groups but is small and flexible enough to allow adjustments along the way.

Don't underestimate how much data you will require, and make sure that you can expand your systems if necessary. You need to carefully consider what data is collected and stored to ensure that only useful data is kept.

You must also ensure you comply with Québec's An Act respecting the protection of personal information in the private sector.

Avoid adopting rigid rules which cannot be changed. Rules should be flexible to allow the needs of individual customers to be met.

Questions for CRM suppliers

For many businesses customer relationship management (CRM) can be a large investment. Therefore it is vital to choose your supplier carefully. Making the wrong choice could be expensive and even jeopardise your business. Before implementing a solution based on CRM technology, you might want to ask any potential suppliers the following questions:

3.13 ONLINE PRICING STRATEGIES

A pricing strategy involves determining the ideal price of a product or service based on the market factors – market condition, customers' purchasing power, market demand, and competitor pricing.

Why is it important?

- Price mistakes can bring down your business.
- Setting low prices to attract customers may work initially, but it makes it hard to raise prices down the road. Conversely, high prices give you more profit margins on items but could reduce sales.

What's the solution?

You need to strike a balance between sales and profitability. To do so, you need to choose the right pricing strategy for your business. Let's look at some popular pricing methods you should consider for your price decisions.

Pricing Methods

1. **Penetration Pricing:** In a penetration pricing strategy, companies set the product price point significantly lower than their competitors. It enables new businesses – or new product lines of established businesses – to enter a market and quickly attract many

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customers. The price rises once the promotion ends or after the company achieves its desired objectives.

A penetration pricing strategy will help you gain a significant market share with the low selling prices. You can then retain your customers while increasing prices with marketing strategies like occasional product offers.

This method of pricing suits new companies that are looking to break into competitive markets. Once they acquire customers' trust, they can raise the prices.

2. **Price Skimming:** Price skimming means setting significantly high prices at the product launch and lowering the price gradually as the product demand decreases and new competitors enter the market.

   Price skimming caters to early adopters willing to pay a premium price for the latest product or service. The initial high price helps cover the product development costs, while the later lower costs protect your market position against new competitors.

   It complements new products in fashion and technology businesses where the latest products are highly sought after.

3. **Economy Pricing:** Pricing strategies: Economy pricing for the price-conscious buyer Economy pricing targets the price-sensitive buyer. You provide products and services at lower prices than the competition, but you also require lower costs of production to attain a reasonable profit margin. The success of this pricing model depends upon attracting buyers by providing a better offer than they find in the market. Still, it can be risky if you don't get the large sales volumes, and it ends up hurting your profits as a retailer.
4. **Dynamic Pricing:** Dynamic pricing, also known as demand pricing, is a flexible pricing method that sets prices based on market and customer demand. It is commonly used by utility businesses, airlines, and hotels.

   Companies vary prices depending on what the customer is willing to pay at that time. For example, the demand and price for event venues are high during festivities, and customers are willing to pay that high price.
5. **Freemium Pricing:** In a freemium pricing method, a company offers a basic form of a product or service for free, hoping that the customer will be willing to upgrade for more features in the future. This model suits a SaaS or software business.

   You can offer customers limited memberships or free trials so they see value in your product and trust you as the provider before committing to an extended partnership.

   Also, in exchange for the limited offer, you can get their contact information, including their email address, and use email marketing to nurture prospects into loyal customers.
6. **Premium Pricing:** Premium pricing is a strategy that tactically sets higher prices on your products than your close competitors. By this, you give customers the notion that your product is of higher quality – higher perceived value – than others in the market.

   If it succeeds, premium pricing secures more profit, improves brand value, and builds your business's general perception.
7. **Cost-Plus Pricing:** In a cost-plus pricing strategy, you base your retail price on the cost of production of the product or service.

   Ideally, you're setting prices depending on the profit you want to make.You can add a profit margin in percentages – markup percentage – to your production cost for that. The cost-plus model will only be effective if your closest competitors are also using the same model. If your competitors use a pricing tactic to acquire customers, their prices might be lower, and customers might turn to them.

8. **Bundle Pricing:** Bundle pricing is a strategy where you put together more than one product or service and sell them under one package.
   Bundling helps your customers buy more products at a reduced price than if they bought them separately.
   For the businesses, it attracts more customers and sells products that usually don't move fast.
9. **Psychological Pricing:** Psychological pricing is an effective pricing strategy that targets human psychology to get more customers. The most common psychology pricing tactic is the nine-ending price effect, as a product sells better at $599 than at $600.
   You also see psychological pricing in action when businesses place a more expensive item next to the one the customer is willing to buy. 'Buy one, get one free' tactic is also another example. When using this growth hacking strategy, you need to understand your audience. It works best if your customers are typical savers who love discounts and offers.

Hence, a pricing strategy is a crucial aspect of your ecommerce business marketing plan. It helps you set the right prices and determine your business profit margin. You can use any of the 9 pricing strategies above we have discussed to boost your ecommerce sales and scale your business.

Despite all these, still remember that an e-commerce pricing strategy that works for one business might not work for you. Understand your target audience, gauge the market demand, and research your competitor's pricing to see which pricing strategy fits your needs. As you work hard on pricing and marketing your products, we can handle your ecommerce website.

3.14 INTERNET PROTOCOL SUITE

For any network to exist, there must be connections between computers and agreements or what is termed as protocols about the communications language. However, setting up connections and agreements between dispersed computers (from PCs to mainframes) is complicated by the fact that over the last decade, systems have become increasingly heterogeneous in both their software and hardware, as well as their intended functionality.

Protocols are software that perform a variety of actions necessary for data transmission between computers. Stating more precisely, protocols are a set of rules for inter - computer communication that have been agreed upon and implemented by many vendors, users, and standard bodies. Ideally, a protocol standard allows heterogeneous computers to talk to each other.

At the most basic level, protocols define the physical aspects of communication, such as how the system components will be interfaced and at what voltage levels will be transmitted.

At higher levels, protocols define the way that data will be transferred, such as the establishment and termination of 'sessions' between computers and synchronization of these transmissions. At still higher levels, protocols can Standardize the way data itself is encoded and compressed for transmission.

On the internet, "Protocol" usually refers to a set of rules that define an exact format for communication between systems. For example, the HTTP protocol defines the format for communication between Web browsers and Web servers. The Internet Protocol suite is the set of communication protocols that implement the protocol stack on which the Internet and most

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commercial networks run. Protocol stack is the set of protocols that work together on different levels to enable communication on a network.

Protocol is a precise definition of how computers interact with one another on a network. In order for the Internet to work reliably, participants agree to set up their systems in accordance with a specific set of protocols, ensuring compatibility between systems. The protocols are based on the layers of the ISO / OSI model of layers. Each layer is responsible for providing specific services or functions for computers exchanging information over a communications network (such as the layers in the ISO / OSI reference model) and information is passed from one layer to the next. Although different suites have varying number of levels, generally the highest layer deals with software interactions at the application level, and the lowest governs hardware-level connections between different computers.

ISO Seven Layers Reference Model

The most important and widely accepted model for protocol layering is the seven layer model proposed by International Standards Organization (ISO). This model is known as ISO reference model for Open System Interconnection (OSI).

OSI model is not concerned with specific applications of computer communication networks. Rather, it is concerned with the structuring of the communication software to achieve reliable data transparent communication service between any two systems running a common set of protocols. The model is independent of any specific manufacturer's equipment or conventions. The logical structure of ISO model is shown in Fig. 1

The ISO model divides communicated function into seven layers:

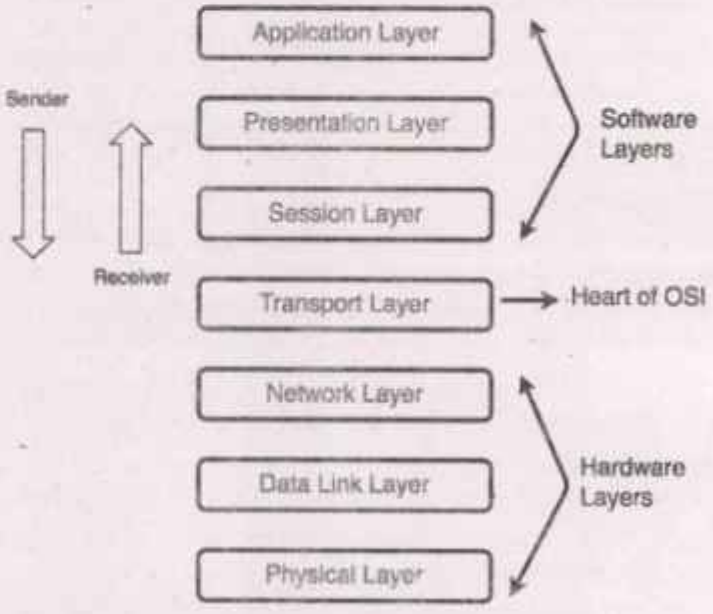

Fig. 1: ISO Seven Layer Communication Model

The first three layers (1-3) are network independent and are concerned with achieving data communication between two connected systems. The last four layers (4-7) are known as

application oriented layers as they are concerned with providing meaningful applications service using network level connectivity provided by the lower layers. The functions of each layer are described below:

1. **Physical layer:** The physical layer describes the physical interface between devices and rules by which bits are passed from one device to another.
2. **Data link layer:** The data link layer attempts to make the physical link reliable and provides the means to activate, maintain, and deactivate the link. It also provides the network layer with a reliable information transfer facility. It is responsible for such functions as error detection, recovery (using transmission of frames), and notification.
3. **Network layer:** The basic service of the network layer is to provide transparent transfer of data between transport entities. It includes facilities for network addressing and end point identification, network routing, service selection when different services are available, etc.
4. **Transport layer:** Transport layer is responsible for organizing reliable transfer of data between processes in different systems. It ensures that data units are delivered error free, in sequence, with no loss or duplication. It is responsible for end-to-end connection management logical connection using a handshaking procedure, error control, multiplexing different sessions and message sequencing.
5. **Session layer:** The session layer provides the mechanism for controlling the dialogue between the two end systems.
6. **Presentation layer:** Presentation layer is responsible for the presentation (syntax) of the data during transfer between two corresponding application layer entities. Its services include data transformation, negotiation and renegotiation of presentation image, data formatting, transfer syntax selection and encryption to ensure security.
7. **Application layer:** The application layer is responsible for providing user interface to network widely distributed information services.

Tables 1: Layers in the ISO/OSI Reference Model

ISO / OSI Layers	Focus
Application (highest level)	Program-to-program transfer of information
Presentation	Text formatting and display, code conversion
Session	Establishing, maintaining, and coordinating communication
Transport	Accurate delivery, service quality
Network	Transport routes, message handling and transfer
Data-link	Coding, addressing, and transmitting information
Physical	Hardware connections.

The order of layering as shown in Table 1 is reversed as the information is received, so that the physical layer is the first and the application layer is the final layer that information passes through.

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IPS MODEL

As shown in Table.1, the ISO / OSI model consists of seven layers. The Internet Protocol Suite (IPS) like many suites-can be viewed as a set of layers, each layer solves a set of problems, involving the transmission of data, and provides a well-defined service to the upper layer protocols based on using services from some lower levels.

Upper layers are logically closer to the user and deal with more abstract data, relying on lower level protocols to translate data into forms that can eventually be physically transmitted. But the IPS model uses only four of these layers. The IP suite uses encapsulation to provide abstraction of protocols and services to different layers in the stack. The stack consists of four layers. These are:

1. **The application layers:** The Application layer is the top layer of the Internet Protocol Suite. The application layer of the Internet suite essentially combines the functions of the top two layers-Presentation and Application - of the OSI Reference Model The Application layer of the Internet protocol suite also includes some of the function relegated to the session layer in the OSI reference model (see Table 3.1). The application layer ensures the delivery of data to a certain application from another application. Communication that occurs in this layer are application specific and data is passed from the program, in the format used internally by this application, and is encapsulated into a transport layer protocol. The actual data sent over the network is passed into the application layer where it is encapsulated into the application layer protocol. From there, the data is passed down into the lower level protocol in the transport layer. The application layer protocols can be divided into two categories :
   (a) *User protocols:* User protocols are those protocols that provide service directly to users. The most common Internet user protocols are:
      * Telnet (remote login)
      * FTP (File transfer)
      * SMTP (electronic mail delivery)

      There are a number of other standardized user protocols and many private user protocols.
   (b) *Support protocols:* Support protocols are those protocols that provide common system functions. Support protocols are used for host name mapping, booting, and management. They include SNMP, BOOTP TFTP. The Domain Name System (DNS) protocol, and a variety of routing protocols.
2. **The transport layer:** The Transport Layer protocol provides end-to-end communication services. The transport layer is the layer between the application and the network protocol and primarily provides the service of connecting applications through the use of ports. This layer handles the connection between the actual programs running on the source and destination systems. This layer is responsible for accurate delivery of data to a certain node. It ensures whether and how the receipt of complete and accurate messages can be guaranteed. The transport layer breaks down larger messages into segments, which then can be transported. This layer is roughly equivalent to the Transport Layer in the OSI Reference Model, except that it also incorporates some of OSI's session layer establishment and destruction functions. There are two primary Transport Layer protocols at present:
   (a) *Transmission control protocol (TCP):* TCP is a reliable connection oriented transport service that provides end-to-end reliability, rescreening, and flow control. It provides a reliable message transmission service.

(b) *User datagram protocol (UDP):* UDP is a connectionless (datagram) transport service. Like IP, it is a best effort or unreliable protocol. The only reliability issue it addresses is error-correctness of the data. UDP is typically used for applications such as streaming media (audio and video, etc.), where on-time arrival is more important than reliability.

3. **Network layer:** Network layer solves the problem of getting packets across a single network. With the advent of concept of Internetworking additional functionality was added to this layer, namely getting data from the source network to the destination network. This generally involves routing the packet across a network of networks, known as an Internet. All Internet transport protocols use the Internet Protocol (IP) to carry data from source host to destination host. IP is a connections or datagram Internetwork service, providing no end-to-end delivery guarantees. IP datagrams may arrive at the destination host damaged, duplicated, out of order, or not at all. The layers above IP are responsible for reliable delivery service when it is required.

   The IP protocol includes provision for addressing, type-of-service specification, fragmentation and reassembly, and security. Network layer protocols can be divided into following categories:

   (a) *The internet control message protocol (ICMP):* ICMP is a control protocol that is considered to be an integral part of IP, although it is architecturally layered upon IP-it uses IP to carry its data end-to-end. ICMP provides error reporting, congestion reporting, and first-hop router redirection.

   (b) *The internet group management protocol (IGMP):* IGMP is an Internet layer protocol used for establishing dynamic host groups for IP multicasting. It provides the mechanism by which hosts and routers can join and leave IP multicast groups.

4. **Link layer:** The link layer is the lowest layer and is responsible for the network access. The link layer is not really part of the Internet protocol suite, but is a method used to pass packets from the network layer on two different hosts. Because the Internet is actually a network of networks, this layer operates only at the local level between computers connected to the same wire. This level may be an Ethernet cable LAN installed in a corporate office, or a telephone link between a home PC user and an Internet service provider.

   It connects the node and the channel and specifies how the node connects to the communication channel. It results in a signal being transmitted on a channel. To communicate on a directly connected network, a host must implement the communication protocol used to interface to that network. This layer contains everything below the Internet layer and above the physical layer (which is the media connectivity, normally electrical or optical, which encodes and transmits messages). Its responsibility is the correct delivery of messages, among which it does not differentiate.

   Protocols in this Layer are generally outside the scope of Internet standardisation, the Internet (intentionally) uses existing standards whenever possible. Thus, Internet link layer standards usually address only address resolution and rules for transmitting IP packets over specific link layer protocols.

   It can be observed that the layers near the top are logically closer to the user and those near the bottom are logically closer to the physical transmission of data. Each layer has an upper layer protocol and a lower level protocol (except the top /bottom protocols) that either use said layer's service or provide a service, respectively. Viewing layers as providing or consuming a service is a method of abstraction to isolate upper layer

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protocols from the small details of transmitting bits over while the lower layers avoid having to know the details of each and every application and its protocol.

This abstraction also allows upper layers to provide services that the lower layers cannot, or choose not, to provide. For example, IP is designed to not be reliable and is a best effort delivery protocol. This means that all transport layer must address whether or not to provide reliability and to what degree. UDP provides data integrity (via a checksum) but does not guarantee delivery. TCP provides both data integrity and delivery guarantee (by retransmitting until the receiver receives the packet).

The Domain Name System

An Internet address of an organisation is known as domain name of that organisation.

The network layer is responsible for addressing the nodes and how they are connected. Each node on the Internet has a unique IP address. As IP addresses are difficult to remember, Internet domain names were created to give an easy to use system to find services in something other than an IP address. For example, instead of typing www. leader.com, user could also type 235.213.97.12 to find that site. Since advertising 235.213.97.12 as the company name would be very difficult for any to remember, domain names were created to allow people to find websites and other services quickly and remember them.

Domain Name System (DNS) was created to translate the words user types in into the IP address of the site. Domain names are easier to remember than its corresponding IP addresses.

Originally, six top level domains were created. Top level is the letters at the end of the domain name, such as .com,.org.edu. The six top level domains are .com, net, .org, .edu, gov, .mil, the first three letters can be registered by any individual or organization, while the last three letters are limited to those respective institutions (educational, government, and military). Country domains are two letter "codes" at the end of the domain name to signify which country the domain name is registered in. For example, .uk are domains in the United Kingdom, .fr in France, .in in India, and many more.

The Domain Name System is a highly distributed Internet directory service that allows the use of easy-to-remember domain names instead of numerical IP addresses. Domain names are used to identify connected computers (hosts) and services on the Internet. For the Internet's routers, domain names are useless because the IP address tells a router the destination of a given packet. But for human Internet users, it is important to support identifiers that they can readily remember. Moreover, each domain name registrant has the ability to change the IP address associated with its domain name any time he/she wants. Thus, Google can change the IP address associated with google.com whenever it wants or needs to, without waiting for anyone's permission, and without the Internet users ever noting the difference. The ability to change IP addresses means the ability to change Internet service providers-meaning that the DNS plays a crucial role in maintaining a truly competitive market in Internet services.

Internet Protocol Versions 6 (iPV6)

The most widely used version of IP today is Internet Protocol Version 4 (IPV4). However, IP version 6 (IPV6) is also beginning to be supported. IPV4 is able to address about 4 billion IP addresses. IPV6 provides for much longer addresses and therefore, for the possibility of many more Internet users. IPV6 includes the capabilities of IPV4 and any server that can support IPV6 and

can also support IPV4 packets. IPV6 is the proposed successor to IPV4. IPV4 uses 32-bit addresses (4 billion addresses), while IPV6 uses 128-bit addresses (3.4 x 10³⁸ addresses) IPV4 uses 32-bit (4 byte) addresses which limits the address space to 429,49,67295 possible unique addresses. However, many are reserved for special purposes such as private networks (18 million addresses) or multicast addresses (1 million addresses). This reduces the number of addresses that can be allocated as public Internet addresses and as the number of addresses available is consumed, an IPV4 address shortage appears to be inevitable in the long run.

The IP address has been divided into following parts:

- Network number (16 bit) - first two octet
- Local part (8 bit), remote address (8 bit) - last two octets.

For example IP address of Head of Commerce Department 187.140.64.12 would represent 187.140 as network part, University of Delhi; 64 as local part, Commerce Department; .12 head's Pc.

IPV6 fixes a number of problems in IPV4; such as the limited number of available IPV 4 addresses. It also adds many improvements to IPV4 in areas such as routing and network auto configuration. IPV6 is expected to gradually replace IPV4, with the two co-existing for a number of years during a transition period.

IPV6 can be installed as a normal software upgrade in Internet devices and is inter operable with the current IPV4. IPV6 is designed to run well on high performance networks (e.g. ATM, OC-12, Gigabit Ethernet, etc.) and at the same time be efficient for low bandwidth networks (e.g. wireless). In addition, it provides a platform for new Internet functionality that will be required in future. IPV6 includes a transition mechanism which is designed to allow users to adopt and deploy IPV6 in a highly diffuse fashion and to provide direct inter operability between IPV4 and IPV6 hosts.

Classes of Networks

Under classful networking, five classes were created (A, B, C, D, and E) where three classes (A, B, and C) were originally divided in IPV4 networks depending on the size of the company. These classes are created with different lengths of network number and rest fields to change the number of IPs in each range, few networks with lots of addresses and numerous networks with only a few addresses. Class A network gives access to 2²⁴ i.e., 167,77216 IP addresses. Class B network gives access to 2¹⁶ i.e., 65536 IP addresses. Class C network gives access to 2⁸ i.e., 256 IP addresses. Class D was for multicast addresses and class E is reserved. This limitation has helped stimulate the push towards IPV 6, which is currently in the early stages of deployment and is currently the only contender to replace IPV 4.

3.3.6 IP Address: Dynamic and Static

For a computer to communicate with other computers and Web servers on the Internet, it must have an IP address. An IP address (IP stands for Internet Protocol) is a unique 32-bit number that identifies the location of your computer on a network. Basically, it works like your street address -- as a way to find out exactly where you are and deliver informations to you. It allows you to be singled out from the other internet users. An IP address identifies a computer or other device to a network.

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A dynamic IP address is an IP address that is assigned automatically by the system to a device, account or user when it is connected to the network, i.e., it is assigned as needed rather them in advance. Dynamic IP addresses are assigned by the Dynamic Host Configuration Protocol (DHCP), which is one of the key protocols in the TCP/IP protocol suite. A dynamic IP address means that your computer will be assigned it's numeric identity, or location, each time an Internet session is established. On the other hand, a static IP address is an address that is permanently assigned to a device.

Typically, a static IP address has to be assigned by the network administrator or Internet Service Provider (ISP). Computers receive a dynamic IP address for the duration of that Internet session or for some other specified amount of time. Once the user disconnects from the Internet, their dynamic address goes back into the IP address pool so it can be assigned to another user. This way, it helps in resolving problems associated with inadequate IP numbers. Static IP addresses are addresses that do not change and are in use by only one Website. Static IP addresses are used for shared resources such as Web servers and Web-cams. Routers, firewalls and proxy servers also use static addresses as do most servers and printers that serve multiple users. Client machines may use static or dynamic IP address.

The static IP address means that because the computer's location never changes, it is always possible for other computers on the Internet to find it in the same place. Dynamic IP addresses in contrast with static IP addresses, are assigned manually and semi-permanently to a device, account, or user. With dynamic addressing, a computer, account, etc., will typically have a different IP address every time it connects to the network. Dynamic IPs are used in large networks where computers are frequently reconfigured, or where a limited number of IP addresses are available to share between many computers.

The main advantage of dynamically assigning IP addresses is that it allows them to be reused; thereby greatly increasing the total number of computers and other devices that can use the Internet or the other network. Another advantage is enhanced security for individual users because their IP address is different every time they log into the network. Still another benefit is simplification of network administration because the software keeps track of IP addresses and thus relieves the administrator from the very tedious job of having to manually assign a unique IP address to every Computer as it enters the network.

With the explosion of the Internet, and the increase in home networks and business networks, the number of available IP addresses is simply not enough. The obvious solution is to redesign the address format to allow for possible addresses. To over come this problem, IPv6 is being developed, but will take several years to implement because it requires modification of the entire infrastructure of the Internet.

This is where NAT comes to the rescue. Network Address Translation (NAT) allows a single device, such as router, to act as an agent between the Internet (or "public network") and a local (or "private") network. This means that only a single, unique IP address is required to represent an entire group of computers. But the shortage of IP addresses is only one reason to use NAT. The process of NAT (also known as network masquerading or IP-masquerading) involves rewriting the source and/or destination addresses of IP packets as they pass through a router or firewall. This is done in order to enable multiple hosts on a private network to access the Internet using a single public IP address.

Benefits of NAT

1. It is a practical solution to the impending exhaustion of IPV4 space.
2. In addition to the convenience and low cost of NAT, the lack of full bidirectional connectivity can be regarded in some situations as a "feature", rather than a "limitation".

To the extent that NAT depends on a machine on a local network to initiate any connection to hosts on the other side of the router, it prevents malicious activity initiated by outside hosts from reaching these local hosts. This can enhance the reliability of local systems by stopping worms and enhance privacy by discouraging scans. Many NAT - enabled firewalls use this as the core of the protection they provide.

Drawbacks of NAT

1. Hosts behind a NAT - enabled router do not have end-to-end connectivity and cannot participate in some Internet protocols. Services that require the initiation of TCP connections from the outside network, or stateless protocols such as those using UDP, can be disrupted. Unless a NAT router makes a specific effort to support such protocols, incoming packets cannot reach their destinations.
2. Use of NAT also complicates security protocols such as IPsec.

ATM Networks

The Asynchronous Transfer Mode (ATM) composes a protocol suite which establishes a mechanism to carry all traffic on a stream of fixed 53 bytes packets (cells). It is an evolving network technology designed for transmitting high speed data, voice, audio, video, and frame relay traffic in real time through public and private networks in a cost-effective manner. Data including frame relay data, is broken in packets containing 53 bytes each, which are switched between any two nodes in the system at rates ranging from 1.5 Mbps to 622 Mbps (over fiber optic cable).

The basic unit of ATM transmission is known as a cell, a packet consisting of 5 bytes routing information and 48-byte data. These cells are transmitted to their destination, where they are assembled into the original traffic. ATM is a network protocol that transmits data at a speed of 155 Mbps and higher. ATM works by transmitting all data in small packets of fixed size, whereas other protocols transfer variable length packets.

ATM is a high-speed packet switching network technology industry standard. ATM networks have been deployed because they offer the ability to transport voice, data, and video signals over a single system. The flexibility that ATM offers is that it incorporates both circuit and packet switching techniques into one technology. Creating a variable transport network solution with simple network processing functions, ATM has become the world standard that is used to interconnect telephone and data networks.

The ATM reference model has two forms, one for the User-to-Network Interface (UNI) and the other for the Network-to-Node Interface (NNI), is divided into three layers:

1. **The ATM adoption layer (AAL):** The AAL interfaces the higher level protocols to the ATM layer, which relays ATM cells both from the upper layers to the ATM layer and vice versa.
2. **The ATM layers:** The ATM layer establishes virtual connections. It determines where the incoming packet should be forwarded to, resets the corresponding connection identifiers

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and forwards the packet to the next link, and handles various traffic management functions such as congestion indication. It also monitors the transmission rate and conformance to the service contract (traffic policing).

3. **Thy physical layer:** The physical layer of ATM defines the bit timing and other characteristics for encoding and decoding the data into suitable electrical optical waveforms for transmission and reception on the specific physical media. ATM physical layer controls transmission and receipt of bits on a physical medium.
   ATM employs a star topology, which can work with fiber optic as well as twisted pair cable.

3.15 HOW CAN THE INTERNET BE USED IN BUSINESS PROCESS

Till early 1990, corporate information systems were often centralized and mainframe based. For executives and managers desiring to receive immediate information on inventory, sales and financial or purchasing data, special programming requests in a computer language such as COBOL had to be Written. Moreover, the needed information rarely could be provided in real time.

With the emergence of PC based information networks and the development of improved graphical user interfaces in the mid – 1990s, the concept of Enterprise Information System (EIS) was established. Warehousing company, through the use of PC-based networks, EIS, and company Intranets allowed users to collect data of any category, and, along with on-line Analytical Processing (OLAP), it could provide vital information to a wider range of people in the organization – and that too often in real time. For example, by implementing a highly integrated information system, a company could link together its information system's applications for customer service, inventory, sales, purchase, and accounting. By doing so, a company would be able to focus on servicing customer needs.

For example, a prospective customer may either call a company's toll – free line or visit its Website to order a product. The computer system – either through a customer service representative or a Web screen interface – would then provide information to that customer on his or her individual account, the prices of individual products to be ordered, and the availability of product in stock. This way, the company's executives would also know which products are selling well and see the financial results of their daily operations. Both systems, the Call Center and the Web-would be linked together in real time, and the company's servers would support both customer interfaces. Internet can be used in following business processes:

- Enterprise Resource Planning
- Customer Relationship Management
- Supply Chain Management
- Selling Chain Management
- Procurement
- Call Centre Solutions

These business processes have been explained in details below :

Enterprise Resource Planning (ERP)

The business information systems that integrate various functions of business are called Enterprise

Resource Planning systems. ERP systems originally evolved from manufacturing resource planning (MRP) systems. The applications in other functions of the business, such as finance and accounting were added to MRP systems. The aim of ERP systems is to integrate the various functions of a business. ERP systems integrate many common applications into one system. ERP system is an information system that supports several areas of business by combining a number of applications with a single database that stores all the data by applications. It plays an important role in any organization. All organizations have pre determined objectives and goals to achieve. It is very important, for any organization to succeed in achieving these goals and objectives successfully that all units and departments should work towards this common organization goal. Each department or business function in the organization can have its own goals and objectives which may be conflicting with the goals of other business functions within the organization.

For example, the finance department might want to cut down the advertising budget, whereas the marketing department might want more money for advertising. Similarly the production – planning department might want to reduce the inventory level, but the production department might want to have more stocks. The success of an organization rests on resolving the conflicts between the various business functions and, making them work towards the overall organization goals. For this, information is important. Everybody in the organization should know what is happening in other parts of the organization. Each department should manage not only its own activities efficiently, but it should also help other departments in managing their functions efficiently. For achieving this, its is important that various departments should not work in isolation, rather they should work in close harmony with other departments. Each and every employee in the organization should know what his counterparts in the organization are doing.

Enterprise Resource Planning (ERP) covers the techniques and concepts employed for the integrated management of business as whole, from the viewpoint of the effective use of management resources, to improve the efficiency of an enterprise.

ERP systems are computer - based systems designed to process an organization's transactions and facilitate integrated and real-time planning, production, to improve the efficiency of an enterprise.

Benefits of ERP

Enterprise resource planning systems provide organizations with transaction processing models that are integrated with other activities of the organization such as production planning and human resources. By implementing standard enterprise process and a single database which covers all the activities of the organization, ERP systems provide integration across multiple locations and functional areas. The main benefits of ERP system are:

(a) ERP integrates activities of the organization – ERP processes are cross-functional and integrate different business processes with each other. ERP systems also integrate data into a single system.

(b) ERP systems employ best practice business processes.

(c) ERP enables organizational standardization across different locations. This enables the organization to show a single image to the outside world.

(d) ERP eliminates information asymmetries because all the information is put into the same underlying database.

(e) ERP provides On-line and real time information as the information is gathered at the source and placed directly into the computer. This also reduces the paper-work.

(f) ERP allows simultaneous access to the same data for planning and control because ERP

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uses a single database in which information is entered only once.

(g) ERP facilities intra-organizational communication and collaboration because the existence of interlocking processes brings functions and locations into communication and forces collaboration. Further, the single database facilitates communication by providing each location and function with the information that they need.

(h) Since the ERP systems focus on activities of business processes, business goals are clearly articulated. This improves the quality of decision making and also increases the productivity.

(i) Since the ERP systems automate the process itself rather than automating some functions in the process, resources of the enterprise can be used in different ways and for different purposes. As resources are managed in a better way, the cost of operation is reduced.

(j) Since the ERP systems integrate various processes with the help of advanced communication links, the transfer of information between the processes is instantaneous.

(k) Since the ERP systems reduce the delivery cycle, customer satisfaction increases. They also enable to maintain closer contacts with customers.

(l) Since the ERP systems make the business operations transparent between business partners, the execution time of critical business operations is reduced.

(m) ERP systems alert the management at number of points by demanding the decision or action.

(n) ERP systems make the execution of processes faster due to application of work flow automation.

(o) Since the architecture of ERP systems is of client/server and since they apply object-oriented technology, the process changes can be easily carried out in a short duration of time.

(p) ERP systems ensure consistency of operation.

(q) ERP systems make the access of information easier by providing central information repository.

Limitations of ERP Systems

ERP Systems have following limitations:

1. Managers cannot generate custom reports of queries without the help from programmers, which prevents them from obtaining information quickly.
2. ERP systems provide current status only, such as open orders. Information is often needed to look past the current status to find trends and patterns which help in better decision-making.
3. The data in the ERP application is not integrated with other enterprise or division systems and does not include external intelligence.

There are various technologies that help to overcome these limitations. When these technologies are used in conjunction with ERP package, they help in overcoming the limitations of a stand alone ERP system and, thus, help in making better decision. Some of these technologies are:

- Business Process Re-engineering (BPR)
- Management Information System (MIS)
- Decision Support System (DSS)
- Executive Information System (EIS)
- Data Warehousing
- Data Mining

- On-line Analytical Processing (OLAP)
- Supply Chain Management

The way these technologies are related to ERP systems, has been discussed below:

(a) **Business process re-engineering:** Business process re-engineering involves re-designing of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed. Many BPR initiatives endup in the ERP implementation.

(b) **Management information systems:** MIS is a computer based system that optimizes the collection, collation, transfer and presentation of information throughout an organization, through an integrated structure of databases and information flow.

(c) **Decision support system:** Decision support systems are interactive information systems, that rely on an integrated set of user friendly software and hardware tools, to produce and present information with an object to support management in the decision making process. The role of DSS is to help managers in getting the information they want and in the way they want it.

(d) **Executive information system:** EIS is a decision support system specially made for senior level executives and is concerned with how decision affects an entire organization.

(e) **Data warehousing:** Data warehousing involves separating of non-operational data from the operational data, In case operational data is kept in the databases of ERP system, the amount of data will increase with the passage of time, and that would affect the performance of the ERP system. In addition to producing standard reports, systems support warehousing very sophisticated On-line analysis, including multi-dimensional analysis.

The primary concept of data warehousing is that the data stored for business analysis can most effectively be accessed by separating it from the data in the operational system. A data warehouse is a collection of computer-based information that is critical to successful execution of enterprise's initiatives. A data warehouse is a subject-oriented repository designed with enterprise- wide access in mind. It provides tools to satisfy the information needs of the employees at all levels of management. A data warehouse is designed to help its users to recognize the information they want and access that information using simple tools. The objective of data warehouse is to integrate operational data from various sources into a single consistent architecture that supports analysis and decision making within the enterprise.

(f) **On-line analytical processing (OLAP):** OLAP can be defined as Fast Analysis of shared multidimensional information. OLAP describes a class of technologies that are designed for live adhoc data access and analysis. OLAP is used in applications such as pricing analysis, and product profitability or for any management system that requires a flexible, top down view of an organization.

(g) **Supply chain management:** A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished goods, and the distribution of these finished products to customers. Supply chain management is a strategy through which marketing, distribution, planning, manufacturing functions are integrated. This results in integrated plan for the organization.

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The primary ERP vendors are referred to as BOPSE (BAAN, Oracle, People Soft, SAP, and J.D. Edwards.). Other ERP vendors are Great Plains, Lawson, Platinum, QAD and Ross and Solomon.

Customer Relationship Management (CRM)

CRM is the same as one-to-one marketing. This customer-focused business model also goes by the names relationship marketing, real-time marketing, customer intimacy, and a variety of other terms. But the idea is the same: establish relationships with customers on an individual basis, and then use the information you gather to treat different customers differently.

The exchange between a customer and a company becomes mutually beneficial, as customers give information in return for personalized service that meets their individual needs. The goals of effective CRM are:

1. **Achieving long running customer dialogue across all business functions and customer access points:** Customers inquiries come from various channels such as a call center, the Internet, or the postal service. To manage all of the access points from a customer, a company's effective customer relationship management requires that all customer information be centralized into a single database and available 24 hours a day, regardless of sales channel.
2. **More effective cross-selling and up-selling:** Easily accessible key information on individual customers will increase the opportunities for cross-selling and up-selling of company products. If a customer mentions that his or her family is expecting to have a baby, customer representatives of the company enter that information into the customer's profile so that they can use it at a later date to cross-sell or up-sell additional products like diapers, infant food products, etc. to the new family.
3. **Increased customer retention and loyalty:** Better understanding of customer behavior leads to increased sales and higher retention. Companies can predict the types of products an individual customer may buy based upon other buyers with similar trait. With the knowledge of types of products an individual customer might be likely to buy, companies can increase their sales revenue from each customer.
4. **Achieving higher customer profitability:** CRM efforts will enable Companies to place a value on customers. In many industries 20 percent of customers represent 80 percent of company's profit. In depth analysis of customer buying habits will allow management to determine which customers should be activity courted and which should be politely dropped.
5. **Achieving higher responses to marketing campaigns:** With an integrated system, both the sales and the service departments would be aware of offers and products available to customers. Such integration would not only facilitate communications but would also provide companies with data for further market analysis. This analysis may also identify both potential "bottleneck" problems and further market opportunities.

6.**Providing extraordinary service and support:** Extraordinary customer service is reflected in customer satisfaction surveys. Not only should companies provide assistance to their customers when needed, but they should also provide customers with technology to help themselves virtually at any time during the day.

Selling Chain Management

Selling chain management software enables the development and successful deployment on large-scale field-sales solutions that focus on automating many order-acquisition functions, such as configuration, pricing, quoting and service. The objective of selling chain management is to allow customers to find the products they are looking for quickly and helps them find the solutions that they need for their business rapidly. Effective selling-chain management should also be solutions-based in offering customers solutions that deliver and meet individual needs rather than the traditional order-taking mode.

Sales made On-line can help the companies to improve its sales productivity and effectiveness by reducing overhead time spent on field sales calls. Moreover, selling-chain management also provides customer information in a central location which facilitates a team-selling environment in which various members of a sales team-across different departments-can easily work together to finalize a deal.

Procurement

Increased procurement on the Web will reduce both the amount of paperwork needed to complete purchased items and the turnaround time to deliver the ordered goods. The initial goal of integrating the procurement supply chain was to take apart some traditional, hierarchically structured purchasing organizations. In addition, many companies continue to have multiple layers of approval producers that often slow procurement without adding any value to the process. This has led to the emergence of an emphasis on an order-to-delivery process rather than individual procurement tasks. At the same time, procurement is migrated from traditional paper-based processes to e-procurement.

The benefits of e-procurement include reduced procurement costs, faster cycle times, less unauthorized buying, more highly organized information, tighter integration of procurement function with key back-office system, increased control over supply chain, proactive management of key procurement data, and higher quality purchasing decision within organizations.

Call Center Solutions

Call center is the part of an organisation that handles incoming/ outgoing communications with customers. The world of call center is undergoing rapid change with regards to the functioning of e-businesses, but the core fundamentals of customers making the call (via a phone, email, Website, IVR, or fax) to a center [point, area, person, or thing (e.g. VR)] will remain constant. This is essentially due to the fact that call centers operate to meet customer needs in real time or near real time. They have emerged as a critical link between a company and its customers.

Interactive voice response (IVR) is a computer that operates through the telephone system, in which input commands and data are transmitted to the computer as spoken words and numbers or tones and dial pulses generated by a telephone instrument; and output instructions and data are received from the computer as prerecorded or synthesized speech.

Call centers handle a massive volume of calls, particularly at peak times. If a company is equipped with suitable call center technology, It can make itself available for the customers at any time.

Notes

Sophisticated voice applications allows caller pre-selection and subsequent transfer of a call to a suitable and competent agent. As a result, customers need not repeat their enquiry for ever before they are finally put through a right person. While the system answers standard requests politely and quickly, the agent is free to handle to more complex enquiries.

Call center solutions yield a fast return on investment. While customers appreciate the organization's professional approach, company can cut the cost of customer care. Call center technology helps in displaying the customer data on the agent's monitor. By linking the IVR system to the company's database, agents can be supplied with complete customer data as they receive the call. Equipped with all relevant information, the agent need not waste time with these preliminaries and can focus on the problem on hand. Database is created by name, the caller at once first welcomes the customer making him satisfied. If required, the systems can provide additional information for customers in text messages, by e-mail, or by fax.

3.16 DECIDING ON THE ENTERPRISE MIDDLEWARE

Middleware is defined as a set of common business-unaware services that enable application processes (i.e. components) and end users to interact and interoperate with each other across a network. In essence, middleware is a software that resides above the network and below the business-aware application software.

Middleware refers to a software which is required to facilitate client server interaction. It is a software that sits between two or more types of software and translates information between them. Middleware can cover a broad spectrum of software and generally sits between an application and operating system or a database management system.

Examples of middleware include Internet Protocols (TCP/IP and HTTP) and Network Control Program (CORBA) etc.

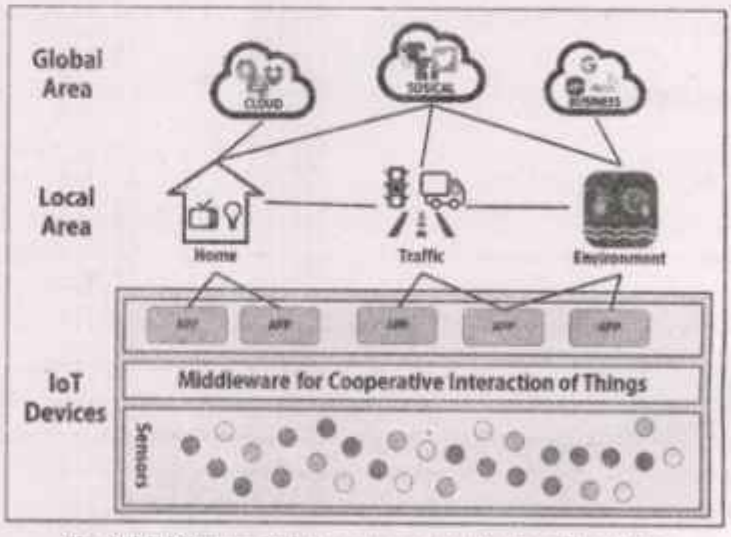

Fig. 2: Middleware and E-commerce Application Interaction

Choosing a Middleware

With the increase in popularity of the Internet, and indeed e-commerce, middleware has become indispensable in the development of Web-based applications. Middleware is employed to enable the seamless integration of the applications with the various types of databases. In choosing the type of middleware, consideration must be given to a number of factors including: the type of application being developed, the need for security, quality of service and broadcast services, etc.

The ideal middleware should mask out the differences in network protocols, operating systems, platforms and programming languages in addition to the quality attributes such as performance, reliability, safety, security and realtime. In other words, the perfect middleware would make the process and the content connectivity among dispersed autonomous systems as if they are components of the same system.

The various middleware used in enterprises involved in e-commerce operation are described in the following paragraphs.

Mail and Collaboration

For mail and collaboration on Internet, there are two areas of users and mail systems, these are:

1. **Private mail systems:** Which are used in companies and run by themselves. Private mail systems are dominated by Lotus Notes, ME., etc.
2. **Public mail systems:** Which are used by individuals and are hosted by service providers. Public mail systems are run by Netscape, Sendmail, Intermail, etc.
   Though functionality of the mail and collaboration software is similar but they are different products in both class of users.

Generally most of the Internet public mailing is handled through Intermail. But over the past few years Web-based e-mail programs are commonly used. E-mail is used due to two advantages, these are:

- It does not require any configuration and anybody using browsers is able to send and receive e-mail.
- E-mail can be read from any terminal that has à Web browser installed and is connected to the Internet.

Web Based Mailing is also preferred method of reading and sending e-mail for individuals and travelling business people accessing the Internet.

Intermail is the standard carrier of class messaging with its massive stability, and high performance. It is designed in a manner that it allows reliable operation, uninterrupted access, smooth administration and customized integration with other systems and services. The intermail software is designed to enable consumer, business and Web mail messaging services within a single architecture. Intermail lacks the secure integration into corporate mailing infrastructure.

OpenMail Anywhere private mail system which allows company's employee to access their E-mail either from within the company or over the Internet through a Web browser. It eliminates the need for remote users to rely on dial up networking. Open mail allows SSL-secured URL access from any device such an laptops, PDAs, mobile phones with an Internet browser.

Notes

OpenMail Anywhere offers a tight integration into HP's trusted Web platform Virtual Vault. With this integration, companies can reduce the cost in private networking, remote access system and support staff. Major advantage is that Virtual Vault uses trusted mandatory security mechanism in a manner that attackers can not modify Web pages, and application code. It ensures the integrity of the information accessed or send by OpenMail Client.

3.17 EXPLORING IT SOFTWARE INFRASTRUCTURE

As you know e-commerce infrastructure includes hardware, software, networking components and communication channels. In many companies hardware dictates the solution as people in IT department find it easier to maintain and manage. However hardware solutions do not drive best solution for a given problem. A combination of software and hardware platform is the perfect solution for problem. The Internet based applications are independent of which hardware and software are used to implement a solution, moreover, output needs to be platform independent.

Many companies have acquired different hardware and software platform as Internet technologies enabled these platforms to talk to each other and exchange information and services. For this, two types of software platforms are important, these are: OS platform and Internet Software. The description of software platform has been described below.

The Operating System Platform

For e-commerce two types of platforms are valued, these are: high-end commercial UNIX system and low-cost Motorola/intel based operating system such an LINUX, Windows NT, Mac OS. Every OS platform posses its own merits and demerits but the choice of choosing a particular OS depends on the need, expectation, requirements and business processes of the user. Though these days applications and services are created using Java and XML which are not dependent on any platform but can run from any platform depending on the requirements of electronic service.

Economically cheap available PCs have the advantage that user can choose from a series of operating systems. Software or services created that will run on one of these platform can be made available to the public by putting them into the public domain.

The size of e-business determines the size of the server, therefore, software platform requirements vary from company to company. In order to find the optimal solution pilot software should be tested against the availability and reliability of the proposed service.

Most the commercial applications such as ORACLE and SAP are available for Microsoft Windows NT and Apples Machintosh operating system.

Basic Internet Software

The basic Internet software are the Internet protocols that are running on most computers including workstations, Internet nodes, hosts and intermediary nodes.

Several types of software are required to access different services available on the Internet (e.g., e-mail, and Web services). The basic software required to access Internet are:

- Web Browsing Software
- Telent Software

- FTP Software
- Finger and Ping Utilities
- Tracert and other Route-tracing Program

1. **Web browsing software:** Web browsers, like Netscape Communicator and Internet Explorer, are software applications that request a page from the Web server and display it on the user's local computer. They receive HTML documents by using a Uniform Resource Locator (URL), which is the address of the file accessible on the World Wide Web. Browsers must be able to understand and interpret Hypertext Markup Language (HTML) codes in the HTML documents.
2. **Telent software:** Telent is a user command used to access a remote computer. Telent software enables the user to log on to another computer and access any applications and data to which he/she has been granted access. Access to the World Wide Web through browsers has reduced the need to log in directly to remote computers using cryptic commands associated with telent.
3. **FTP software:** A File Transfer Protocol (FTP) program is used to download a file from the host computer to the PC or vice versa. FTP clients with graphical Interfaces allow the user to drag and drop files from FTP site to a local computer. Web browsers like Netscape Communicator can also be used to issue FTP commands.
4. **Finger and ping utilities:** Finger is a program that runs on UNIX operating systems and allows a user to obtain some information about other network users. A Finger command provides a list of users who are logged on to a network. Often organizations disable the Finger Command on their systems for privacy and security reasons.
   Ping acronym for Packet Internet Gopher, test the connectivity between two computers connected to the Internet. Whenever ping command is given, it sends two packets to a specified address and waits for the reply. Ping provides data about the connection between Internet Computers such as number of connections. Ping is used to troubleshoot Internet Connections. The command is given as ping followed by IP address in a MS-DOS window
5. Tracert and route-tracing programs: Tracert is a route tracing program, sends data packets to every computer on the Internet path between one computer to another computer and time-up the packet's round trip time. Tracert provides an indication of the time it takes a message to travel from one computer to another and back. It ensures that the user computer is on-line and points out traffic congestion, if it exists.
   Route-tracing programs calculate and display the number of nodes between computers and the time it takes to traverse the entire one way path between machines.

Network and System Management

Network and system management refers to the management of various resources such as system, networks, desktops, databases and application.

In e-commerce operations, companies face enormous challenges in managing their infrastructure and therefore, an effective network and system management solution should be in place due to following reasons:

Notes

- Existing infrastructure is growing rapidly with the new hardware devices and new software.
- Technological approaches to manage networking, database, applications on various hardware and software platform which continue to diverge.
- To achieve competitive advantage on keeping cost in line while delivering more targeted goods and services.
- To manage all network and system centrally in order to control every single system and every component of the network and also to receive immediate response from the system in case of an error.
- To support open system multi-vendor environment and multiplatform infrastructure through central common interface.

Network and system management must take into account the changing strategies of the company that will lead to different hardware and software equipment. The management system should integrate all necessary enterprise functions such as inventory storage, scheduling, security, etc. It should be Open to extension with third parties, service providers, and new staff.

A security alert and early warning mechanism management should be integrated to system module to detect anomalies on the network and on the system so that the action is taken accordingly.

Security Software

Any business whether it is brick and mortar business, a brick and click e-business, or a pure play e-business needs to be concerned about network Security. The Internet is a public network consisting of thousands of private computer networks connected together. In this architecture, a private computer network system is exposed to threats emanating from anywhere on the public network. Therefore, e-business must protect against the unknown new ways of attacking networks and websites and new security holes are being originated with high frequency.

It is very important to protect e-business network and website to maintain the e-business relationship with its customer. A customer perceive a large risk to their privacy and security when customer buys product or service On-line. Security has become one of the primary concerns when a customer sends some information over the Internet and when an organization connects it private network to the Internet. The reasons for insecurity may be concluded in the following points:

- The original Internet was designed for research and not for commercial environment.
- Internet was operated in a single domain of trust where security relied on users' mutual respect and honor as well as knowledge of conduct on the network, minor security was made available in the form of user name and password.
- As the Internet grew, the community expanded and the existing security framework was found lacking.
- Basic flaws in the Internet infrastructure.

In order to make a system secure, logical or procedural and technological controls may be applied. But due to wrongly configured software and missing procedures, the systems get attacked.

Security is considered to be a process rather than technical issue. Security solutions include right procedures, practices and technologies in place to protect the intellectual property.

Information security can be managed by preventing unauthorized access to electronic data. The trust infrastructure and information security requires, the following factors:

1. Confidentiality: Privacy of message transmission and controlling who gets to read the information.
2. Integrity: Ensure that correlation and completions of the data will be maintained during transmission.
3. Availability: Ensures data/information will be made available 24x7.
4. Authorisation means legitimate user will use the resources.
5. Non repudiation refers to a procedure that prevents the sender and the vender from denying that they sent or received a specific message.

These five components may be weighted differently depending on the particular application.

Confidently and integrity can be implemented through cryptography. Strong authentication and encryption ensures the integrity and availability of the information. Non repudiation can be achieved through a trusted third party which time stamps the outgoing and incoming communication, and also verifies digital signature and its validity, and the real identity.

Payment Solution

The growth of e-commerce is dependent on the various factors but secure, user friendly and cost-effective payment system becomes more important. Payment for the products and services purchased is an obvious and vital set of processes in e-commerce operation. Handling payment is a costly process, as offline payments in most cases have been proved to be very slow and expensive. Therefore, many companies started offering digital payment solution. The importance of the payment function lies in the fact that it could encourage convergence between sectors with their own objectives but payment system are the common denominator of all e-commerce transactions. In order to make electronic payment solutions widely accepted, it needs to fulfill certain requirements there are:

1. **Acceptability of the digital payment system:** If a customer pays using e-payment solutions then company should be able to accept the payment via that particular solution.
2. **Flexibility:** E-payment solution should be open to different requirements of the customer and very flexible.
3. **Privacy:** Identity of the customer should be protected.
4. **On-line payment solution should be convertible:** One form of currency should be convertible into another form of the same currency value on-line.
5. **Minimum cost per transaction:** The cost per transaction should be negligible in order to attract the customers for on-line buying.
6. **Flexibility in mode of payment:** Paying by cash or credit card should not pose additional cost on the buyer.
7. **Integration with business application:** In order to reduce cost for the business and speed up the whole transaction, payment mechanism should be tightly integrated into business application.
8. **Availability of payment solution:** High availability of certain payment solution may be ensured which would avoid all single points of failure as there is great risk involved in money while in transit during e-commerce operation.

Notes

9. **Secure transactions:** Security architecture should be in place in order to have secured financial transaction over open networks such as Internet. As it is easy to eavesdrop on the Internet traffic and modify the messages which may be prevented by the use of digital signature.

Concerns about electronic payment methods include privacy and security, independence, portability and convenience on the Internet. Three types of payment systems have been established each with its own security and cost requirement, these are:

- Micro payments involve cash transactions with a value less than Rs 500 as the transaction cost is zero for such payment solutions.
- Consumer payments solutions are based on the principle that transaction amount will have a value in between Rs 500 to Rs. 5000. Generally consumer payments are executed by credit card.
- Business payments solutions are designed for the transaction with a value more than Rs 5000. For such high value, direct debit or invoices are posted to the business vendors.

Database Management System

Databases provide an electronic location to store information in a specific manner. This information can be accessed for customers and business. A database when integrated with the Website, make dynamic Web pages. Websites that deploy databases can be interactive providing fast access to information. Though the technologies are expensive to implement. All computers containing documents and have made publicity available through the Internet connection are known as Web server.

Note: Server is any computer that serve files or make program available to other computers connected through a network. Thus, server describes a combination of software, hardware typically found in e-commerce operations.

Similar technology is used for server computers that perform e-mail processing and database management functions. The server computer on which database management software runs is often called a database server. Database server contains database of a company. If a merchant owns several On-line stores then each store requires a separate database, thus, in such cases whole data center is equipped with database server. When data is stored on dedicated servers, then availability of the data is instaneous. Clients send request to that server and server responds with the requested data. The data can be added, modified or deleted from the database by authorized users. Bundled with software is DBMS. Most DBMS run on all platforms such as UNIX and Windows NT, as they are platform independent. The most commonly used systems are DB2, (IBM's relational database) or ORACLE database server, SQL Server. DBMS may be chosen as per the requirement and application.

Application program that performs specific function such as creating invoices, calculating payroll and processing payments received from customers is primarily on a computer known as application server. This server takes requested messages received by the Webserver. These applications servers usually obtain business logic information which is used to build Web pages from the database only. Database Server needs to be integrated with application servers using the DBMS. These DBMS packages can be quite expensive. Large information system that store the same data in many different locations are called distributed information system. The complexity of these system lead to their high cost.

High-end UNIX systems are generally defined for DBMS as they provide multi tasking and multi threading capabilities. DBMS handles the transactions and connections from clients by using a process or a thread per client. Thus DBMS can run all the connections independently. Moreover in multiprocessor environment, the processes can be distributed evenly over the set of processors available without much overhead, but concurrent processes involve all the resources.

SUMMARY

- Online banking allows a user to conduct financial transactions via the Internet. Online banking is also known as Internet banking or web banking. Online banking offers customers almost every service traditionally available through a local branch including deposits, transfers, and online bill payments.
- Retailing is expected to change with the rapid development of new online sales and distribution channels that literally can be used from anywhere, anytime-from work, school, a hotel, car, or airplane. These developments should impact retailing as much as the advent of strip malls, catalogue retailing, and TV-based home shopping. Almost every retailer is re-evaluating every aspect of its operation from customer service to advertising, merchandising to store design, and logistics to order fulfilment. Furthermore, reacting to the pressure of retailers, suppliers are assessing technology based solutions to drive down costs (labour, delivery, and production) and become more efficient producers of goods.
- The internet has allowed a new kind of specialization to emerge. Instead of specializing just in a special product line, they allow specialization in particular classes of customers and sellers. Thus, we see lastminute.com, which allows last minute purchases of travel tickets, gift, and entertainment to be matched against last minute sellers of the same items. Here, we see specialization not in a product line but in a class of purchasers and a class of sellers.
- Television-based home shopping involves the purchase of products advertised on television programs and in commercial breaks by telephoning orders through to the advertised number. This may be undertaken at the press of a button with the advent of digital satellite and cable television.
- The breadth and reach of TV retailing are amazing. In. 1994, HSN reached 65.8 million television households throughout the United States. These households received the signals via cable, broadcast, and satellite dish, twenty-four hours a day, seven days a week. Unlike online audiences, which tend to be predominantly affluent and well educated (net annual in-come is estimated at Rs. 60,000 - Rs. 80,000), the target audience for television re-tailing is moderate income households and mostly women. How does it work?
- The TV retail marketing and programming are divided into segments that are televised live, with a show host who presents the merchandise and conveys information relating to the product, including price, quality, features, and benefits. Show hosts engage callers in on-air discussions regarding the currently featured product or the caller's previous experience with the company's products. Viewers place orders for products by calling a toll-free telephone number.

KEY WORDS

- **Enterprise Resource Planning:** It covers the techniques and concepts employed for the integrated management of business as whole, from the viewpoint of the effective use of management resources, to improve the efficiency of an enterprise
- **Protocols:** Protocols are software that perform a variety of actions necessary for data transmission between computers.
- **Physical layer:** The physical layer describes the physical interface between devices and rules by which bits are passed from one device to another.
- **Transmission control protocol:** It is a reliable connection oriented transport service that provides end-to-end reliability, rescreening, and flow control. It provides a reliable message transmission service.

Review Questions

1. Briefly describe the Internet architecture.
2. What is online Retailing?
3. Explain the online retail industry dynamics.
4. What is the perspective of online mercantile model for customer? Discuss.
5. Describe the challenges in online retailing.
6. What is enterprise resource planning ? What are its advantages and drawbacks?
7. What is customer relationship management? What are the goals of effective CRM?
8. What is the basic software required to access Internet?
9. What do you understand by the "Content Management" and "content preparation"?
10. What is online customer relationship?

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UNIT 4

ONLINE BANKING

Structure

4.0 LEARNING OBJECTIVES

After reading this chapter students will be able to:

- Discuss the Online banking and implementation
- Describe the changing dynamics in banking industry
- Understand the challenges emerging in mobile commerce.

Notes

4.1 INTRODUCTION

The concept of e-commerce relates to selling goods and services over the Internet. E-payments are the way to e-commerce success. Payment is one of the important aspects of an e-business transaction. As in the physical world, payments can be made through credit cards, electronic cheques or digital cash. Electronic payment systems can be categorized in several ways.

Some electronic payment systems enable merchants to deal directly with customers rather than getting through electronic clearing houses. Some systems utilize credit cards, while others involve using the digital equivalent of real cash-string of bits and bytes that can be used to exchange for goods and services. E-Cash is a computer generated system which allows items to be purchased by credit card, cheque, or by money order, providing secure On-line transactions and processing.

4.2 ONLINE BANKING

Online banking, also known as internet banking, web banking or home banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank to provide customers access to banking services in place of traditional branch banking.

Online banking significantly reduces the banks' operating cost by reducing reliance on a branch network, and offers greater convenience to customers in time saving in coming to a branch and the convenience of being able to perform banking transactions even when branches are closed. Internet banking provides personal and corporate banking services offering features such as viewing account balances, obtaining statements, checking recent transactions, transferring money between accounts, and making payments.

Emergence of computer banking

The first home banking service was offered to consumers in December 1980 by United American Bank, a community bank with headquarters in Knoxville, Tennessee. United American partnered with Radio Shack to produce a secure custom modem for its TRS-80 computer that allowed bank customers to access their account information securely. Services available in its first years included bill pay, account balance checks, and loan applications, as well as game access, budget and tax calculators and daily newspapers. Thousands of customers paid $25-30 per month for the service.

Large banks, many working on parallel tracks to United American, followed in 1981 when four of New York's major banks (Citibank, Chase Manhattan, Chemical, and Manufacturers Hanover) offered home banking services, using the videotex system. Because of the commercial failure of videotex, these banking services never became popular except in France (where millions of videotex terminals (Minitel) where given out by the telecom provider) and the UK, where the Prestel system was used.

The first videotext banking service in France was launched on December 20, 1983, by CCF Bank (now part of HSBC). Videotext online Banking services eventually reached 19% market share by 1991.

The developers of United American Bank's first-to-market computer banking system aimed to license it nationally, but they were overtaken by competitors when United American failed in 1983 as a result of loan fraud on the part of bank owner Jake Butcher, the 1978 Tennessee Democratic nominee for governor and promoter of the 1982 Knoxville World's Fair. First Tennessee Bank, which purchased the failed bank, did not attempt to develop or commercialize the computer banking platform

4.3 PAYMENT MECHANISM: EVOLUTION OF MONEY

E-payment is a method in which a person can make On-line payments for his purchases without physical transfer of cash or documents, irrespective of time or location. On-line payment mechanism should ensure payment security, transaction privacy, system integrity, customer authentication, etc. On-line electronic payment system works in similar manner as in real world system. The concept of money evolved in following hierarchy :

(i) Exchange of goods system.

(ii) Precious coin system with specific value which keeps on changing

(iii) Copper coins by the Government with fixed value

(iv) Paper notes value as per consensus.

(v) Notational money in which value for money is stored and exchanged by authorization e.g., cheque.

(vi) Credit Card system where value is stored some where else.

4.4 CHARACTERISTICS OF PAYMENTS METHODS

Electronic payments are financial transactions made without the use of paper documents such as cheques. For example, paying for a product with your smartcard, having your stipends credited to your account, settling your credit card dues electronically, are all considered electronic payments, Internet-based payment systems are a form of electronic payment.

In general, when we evaluate a payment method, the characteristics that provide a basis for the evaluation are as follows:

1. **Anonymity:** This refers to whether the payment method is anonymous. In other words, this is concerned with whether a third party can trace back who was involved in the payment transaction.
2. **Security:** This is concerned with whether the payment method is secure, in particular whether it is easy to perpertrate different kinds of fraud such as forged payment.
3. **Overhead Cost:** This refers to the overhead cost of processing a payment.
4. **Transferability:** This refers to whether a payment can be carried out without the involvement of a third party such as bank.
5. **Divisibility:** This refers to whether a payment can be divided into arbitrary small payments whose sum is equal to the original payment.
6. **Acceptability:** This refers to whether the payment method is supported globally, and not by a closed user group only.

Notes

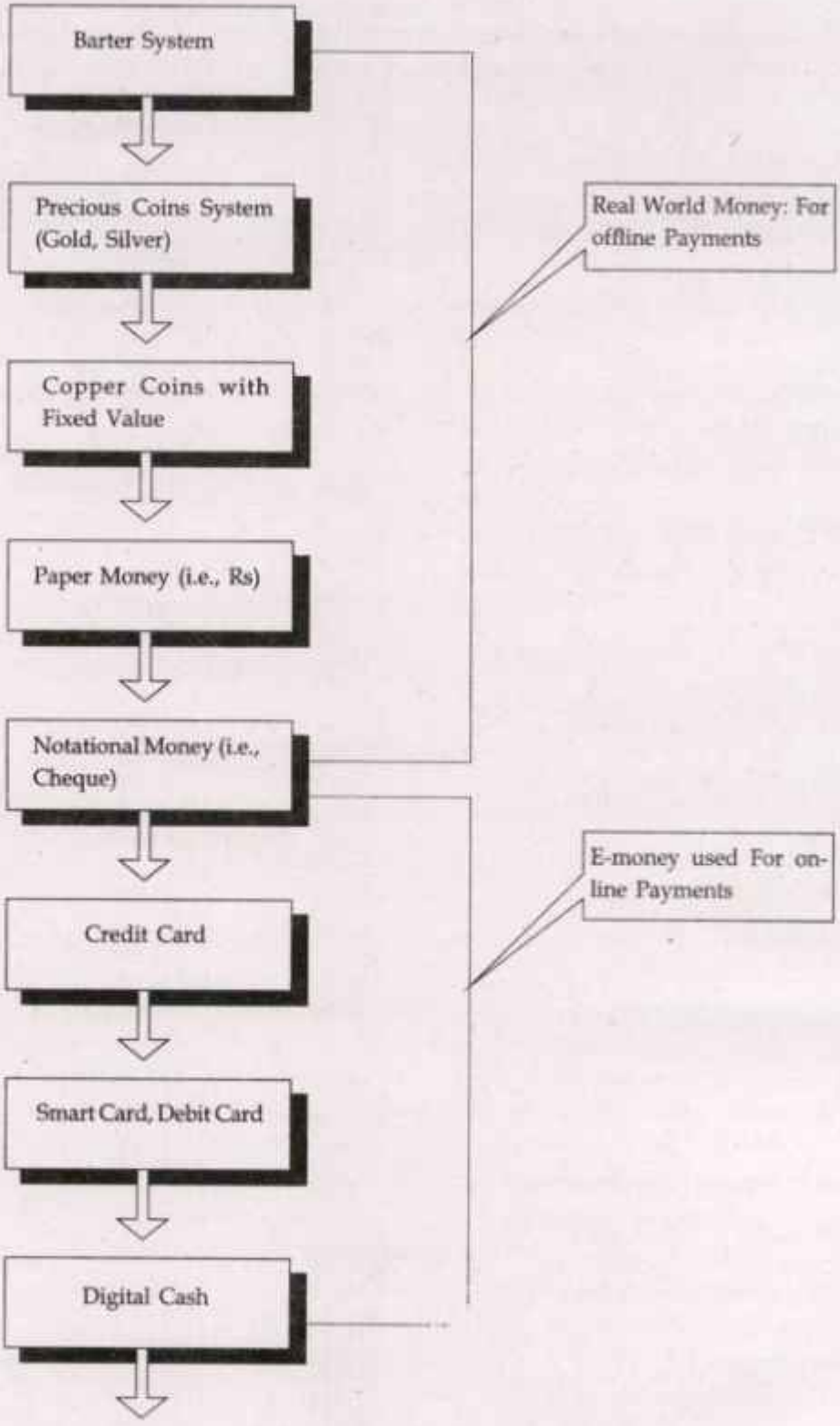

Fig. 1: Evolution of Money

Table 1 compares the various payment methods in terms of the above mentioned characteristics. Ideally, we need a payment method that is very secure, has a low overhead cost, transferable, acceptable anywhere, and is divisible. In many cases, we prefer it to be anonymous as well. As we see from the table, no payment method can satisfy all the desired characteristics.

This is one of the reasons why we need four different payment methods so as to cater for different payment requirements. To build a complete e-commerce system, we also need to implement these four payment methods in Cyber space.

Table 1: Comparision of the 4C Payment Methods

Characteristics	Cash	Credit card	Cheque	Credit/Debit
Anonymity	Yes	No	No	No
Security	Good	Good	Good	Good
Overhead cost	Lowest	Higher (because of the paperwork involved)	Highest	Low
Transferability	Yes	No	No	No
Divisibility	Not completely divisible	Yes	Yes	Yes
Acceptability	Yes	Yes	No, as it can only be used locally	No, it is generally used locally

4.5 ELECTRONIC MONEY (E-MONEY)

Payment is an integral part of mercantile process and prompt payment (or account settlement) IS very crucial. Electronic money is an electronic medium for making payments.

Electronic money or e-money is a generic name for the exchange of money through the Internet. Electronic money (also known as electronic cash, electronic currency, digital currency, digital money, or Internet money) refers to money which is exchanged only electronically. Typically, this involves use of computer networks, the Internet, and digital stores value systems. Examples of electronic money are: credit cards, debit cards, smart cards, electronic funds transfers (EFT), automated clearing house (ACH) systems, and direct deposits. Also, it is a collective term for financial cryptography and technologies enabling it.

Advantages of Electronic Money

Most money in today's world is electronic, and tangible cash is becoming less frequent. With the introduction of Internet/On-line banking, debit cards, On-line bill payments and Internet business, paper money is becoming a thing of the past.

Some of the benefits of e-money to consumers include :

- Faster, more efficient transactions
- Loyalty and frequent user plans

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- Less need to carry pocket money
- Automatic personal financial record-keeping
- Possible financial anonymity
- Possible security from theft
- Access to electronic-commerce
- More personalised banking services and instruments.

The benefits of e-money to business include :

- Instant transactions
- Substantial cost savings because of the reduction in the physical handling of currency.
- Easier collection of marketing information on customers
- Promotion of free banking
- Traditionally, the two most important constraints on business were time and distance. E-money systems effectively erase both. They will almost certainly help to globalise trade.
- E-money can also help business in improving customer retention. A customer is more likely to return to same e-commerce site where his/her information has already been entered and stored.

Disadvantages of Electronic Money

Although there are many benefits of electronic money, there are also many significant disadvantages. These include fraud, failure of technology, possible tracking of individuals and loss of human interaction.

The other disadvantages of electronic money are:

- For the operator, the cost of installing the technological infrastructure may be substantial.
- Competing e-money systems will have to be compatible and integrated with current methods of payment.
- The risk of losing cards and their charged value could intimidate some consumers.
- Because security is a major concern, full convertibility, receipted transactions and high levels of security may all become features of e-money systems.

The main drawbacks to e-money are concerns Over privacy and the possibility of identity theft. Power failures, loss of records and non-dependable software cause major setback in promotion the technology.

Different Kinds of E-Money

In general, there are two distinct types of e-money. These are:

1. **Identified e-money:** Identified e-money contains information revealing the identity of the person who originally withdrew the money from the bank. Also, in much the same manner as credit cards, identified e-money enables the bank to track the money as it moves through the economy. This type of e-money is unique to credit card and debit card transactions. Identified e-money is based on more general forms

of signature schemes and always reveals the identity of the customer Identified schemes are the electronic analog of debit and credit cards.

2. **Anonymous e-money:** Anonymous e-money is also known as digital cash. Anonymous e-money works just like real paper cash. Once anonymous e-money is withdrawn from an account, it can be spent or given away without leaving a transaction trail. Anonymous e-money is created by using blind signatures rather than non-blind signatures. Anonymous e-money does not reveal the identity of the customer and are based on blind signature schemes. Anonymous schemes are the electronic analog of cash.

Both these types of e-money, i.e. identified e-money and anonymous e-money may further be classified into two categories:

- On-line e-money
- Offline e-money

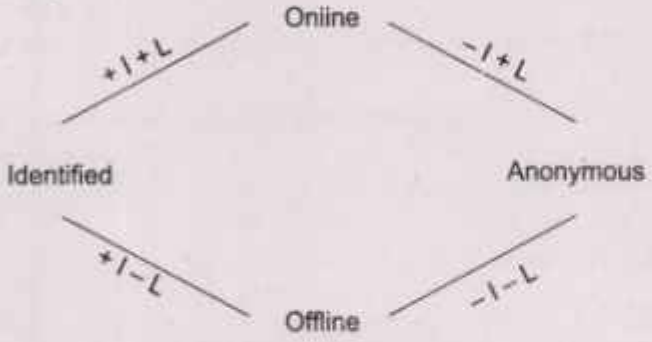

Fig. 2 Types of E-money

On-line requires the user to interact with a bank (via modem or network) to conduct a transaction with a third party. Offline means that the user can conduct a transaction without having directly to involve a bank.

Based on above classification, e-money can be further classified in four types :

1. **Identified on-line e-money systems:** In this system, buyer is identified. Credit and debit card are used in such transactions. This system prevents double spending by requiring merchants to contact the bank's computer with every sale. The bank computer maintains a database of all the spent pieces of e-money and can easily indicate to the merchant if a given piece of e-money is still spendable. If the bank computer says that the e-money has already been spent, the merchant refuses the sale. This is very similar to the way merchants currently verify credit cards at the point of sale.
2. **Identified off-line e-money systems:** It is unique to purchasing by cheques. It can accumulate the complete path the e-money made through the economy. The identified e-money grows each time it is spent. The particulars of each transaction are appended to the piece of e-money and travel with it as it moves from person to person, merchant to vendor. When the e-money is finally deposited, the bank checks its database to see if the piece of e-money was double spent. If the e-money was copied and spent more than once, it will eventually appear twice in the "spent" database. The bank uses the transaction trails to identify the double spender.

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3. **Anonymous on-line e-money system** : It is unique to cash payments where identity of the buyer is anonymons and a purchase is made against e-cash. This also prevents double spending as bank does not make money available until the deposited cheque clears through bank.
4. **Anonymous Off-line e-money** : It is unique to electronic cash. This also grows with each transaction, but the information that is accumulated is of different nature. The result is the same however. Offline anonymous e-money (true digital cash) is most complex form of e money because of double spending problem. When the anonymous e-money reaches the bank, the bank will be able to examine its database and determine if the e-money was double spent. The information accumulated along the way will identify the double spender.

The big difference between anonymous offline e-money and identified offline e-money is that the information accumulated with anonymous e-money will only reveal the transaction trail if the e-money is double-spent. If the anonymous e-money is not double spent, the bank cannot determine the identity of the original spender nor can it reconstruct the path the e-money took through the economy.

With identified e-money, both offline and On-line, the bank can always reconstruct the path the e-money took through the economy. The bank will know what everyone bought, where they bought it, when they bought it and how much they paid.

Analysing Cash, Cheques and Credit Cards

Regardless of the form of money, two distinct Sets of properties should be considered in money transfer. These are :

Test For Money

ACID	ICES
*Atomicity	*Interoperability
*Consistency	*Conservation
*Isolation	*Economy
*Durability	*Scalability

The Acid Test

The ACID test addresses following four properties of money transfer:

1. Atomicity

   Atomicity test states that:

   * A transaction must occur completely or not at all.
   * For example, A transfer of $100 must result in the amount being credited from account and debited to another. If one action fails, the whole transaction should be aborted.

2. Consistency

   Consistency test states that:

   - All parties involved must agree to the exchange
   - For example, before X buys a product from Y, X must agree to buy it for $A and Y must agree to sell it for $A. In other words, the customer must agree to purchase the goods for a specific price and the merchant must agree to sell it at that price; otherwise, there is no basis for exchange.

3. Isolation

   Isolation test states that:

   - Each transaction is independent of any other transaction.
   - Each transaction is treated as a stand-alone episode.

4. Durability

   Durability test states that:

   - It must always be possible to recover to the last consistent state or reverse the state of an exchange.
   - For example, customer is not happy with the product so the merchant should refund him.

The ICES Test

The ICES test addresses following four important properties of money transfer:

1. Interoperability

   Interoperability means the ability to move back and forth between different systems.

2. Conservation

   Conservation test states :

   - How well money holds its value over time (temporal consistency)
   - How easy it is to store and access (temporal durability)

3. Economy

   Economy test states that:

   - Processing a transaction should be inexpensive and affordable
   - Relative to size of transaction

   For example, paying a $1 charge to process $10,000 transaction is acceptable. However, it is not acceptable if the transaction being processed is of $2.

4. Scalability

   Scalability test refers to the ability of the system to handle multiple users at the same time.

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Table 2: Comparison of Different Systems

Comparing Difference Systems

	ACID TEST				ICES TEST			
	Atom-icity	Consist-ency	Isola-tion	Dura-bility	Interoper-ability	Conser-vation	economy	Scalability
Cash	Y	Y	Y	Y	Y	N	Y	Y
Cheque	Y	Y	N	Y	N	Y	N	Y
Credit Card	Y	Y	N	Y	N	-	N	Y

As shown in the Table 4.2, cash has all the ACID and ICES test properties except conservation. Cash also fulfils all the properties of the ACID test, but the problem with cash is transportability and storage of large amounts. Cash is the most anonymous form of payment. While using cash as a mode of payment, it is not necessary for the buyer to reveal his identity.

Cheques do not fulfil the isolation property of the ACID test. This is due to the fact that the drawer of the cheque can always stop the payment of the cheque before it is cleared. Although it takes two- three days or getting the cheque cleared, but the cheques may be considered atomic for money transfer. Moreover, cheques do not fulfil conservation and economy properties of the ICES test.

Credit cards may appear atomic to the seller, but in fact they are not. Though the seller is guaranteed payment, but the credit-card issuer may incur a loss in case the credit card is stolen or it is used fraudulently. Moreover, the question of storage and retrieval of value is not applicable to credit-based systems. Credit card transactions are less anonymous than cash, although some forms of digital transactions can hide the identity of the buyer from the seller and vice-versa.

Requirements to Accept On-line Payments

The ability to accept electronic transactions depends on the following criteria:

1. The company must have a merchant account.
2. Payment gateways that provide a compatible bridge between banking systems and computer systems of Web host providers or company in-house systems.
3. The company must have a Website communicating with a payment gateway that is in turn communicating with a banking computer system.
4. Companies must have a way of gathering customer information so products can be delivered and customer service can be implemented.

4.6 ONLINE BANKING IMPLEMENTATION

Online banking is a new phenomenon in the financial sector. With the advancement of information technology, many banks are adopting new ways of conducting business activities. New information technologies such as the Internet have revolutionized the world and given rise to new ways of interacting, communicating and doing business. The Internet offers dramatic opportunities and

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enormous advantages for banking organizations to improve their productivity, and opens up new and updated markets on a global scale. Financial services companies are looking at the Internet as a new distribution channel because of quality and flexible service, easy access, lower cost and improved interaction possibilities for potential customers worldwide. Banks are increasingly viewing the Internet as an important alternative delivery channel for banking services and products. These new models of commercial interactions are emerging as financial organizations and customers participate in the electronic marketplace.

Banking organizations are now able to start new businesses and market their services around the world through the Internet without having any particular location and without direct contact with the clients. This technological innovation has challenged the classical business paradigm and redefined how business transactions will be conducted in the future.

Today, commercial use of information technology is well established. With the help of the Internet, banking organizations can communicate with clients instantly and send required information to them with speed and promote business by creating a virtual storefront on the Internet. In the last few years, many commercial banks have started to offer online banking through the Internet in order to provide easy, rapid and flexible service to their customers. Although security of online transactions has raised some concerns, electronic banking in fact will make tomorrow's financial system more secure with the development of electronic checks and digital cash payment systems.

Online banking is going to develop much faster than most people may imagine. The rapid commercialization of online banking by financial organizations has created a field for study into their level of implementation and possible challenges in the process. This has raised questions about the problems faced at the managerial and strategic organizational levels, and about how management will approach these challenges. The question is also raised about how many people are aware of these innovations and what their perceptions about online banking services are. The objective of the study is to investigate the drivers of adoption of online banking and benefits of usage of online banking systems. The study also identifies the challenges faced by bank management in implementing online banking and how management meets those challenges.

Newness of the study

The rapid adoption of the Internet as a commercial medium has caused financial organizations to experiment with innovative ways of providing services to customers in a computer-mediated environment. These developments on the Internet are expanding beyond anticipation as a commercial medium and an ultimate channel for online banking. The Internet has emerged as a global marketplace and undisputed business medium in the information era.

With the evolution of the Internet, traditional business activities are rapidly transforming into digital information systems. This development on the Internet is growing beyond imagination as a communication medium as well as a rapid and convenient channel for financial transactions.

However, until recently, research on the implementation of information technology by banking organizations has been scarce. Therefore studying online banking and the utilization of the Internet in financial organizations is important to understand issues related to the execution of information technology in financial service organizations. Results of the study will be helpful

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for the financial organizations and particularly in developing countries to develop policies and strategies for online banking systems. The study will be useful for managing information technology innovations in the financial sector. The research will also be beneficial for the public, to make them aware of and to better comprehend the issues related to electronic banking, particularly issues related to privacy and security in online transactions.

Information Vehicle

A bank can use the Internet as a tool to market and deliver information to potential customers. It can provide institutional, promotional information and special offer announcements in the website. A bank's website also can be used for public relations purposes that include press releases, newsletters and welcome letters. Financial information such as stock information, various fees and interest rates can be included in the site.

The customer can view and print account balances and summaries, account transactions, full bank account statements, foreign exchange rates, request for statement of account by mail and requests for a check book.

Channel of financial transactions

The Internet has made online banking a channel of financial transactions. Online banking an provide application forms to open checking and saving accounts, obtain a credit card, and apply for loans and investments. Checking an account balance and statement is the most obvious services in online banking. Bill payments, transfers of funds between accounts of the same customer at the same bank into different accounts as well as transfer of funds to other bank accounts are important features of online banking.

Transactions are executed and confirmed quickly compared to traditional banking.

Customer relations

Online banking has provided a better opportunity to communicate with customers. It allows two-way communication between customers and bank management. Through online banking, a bank can improve customer relations by providing options such as service requests, opinion surveys, and complaint reports. A bank can offer an e-mail address where customers can write to the bank or request any service at any time they want. A bank can provide information and help customers to make financial and investment decisions.

Factors affecting the adoption of online banking

The psychological and behavioral factors are the most important aspects that affect the adoption of any new innovation such as online banking. Availability of access to the Internet is an essential prerequisite for the adoption of online banking. The more widespread the access to the Internet, the greater the possibility for the use of online banking would be. According to Suganthi, Balachandher and Balachandran (2001), one of the more important characteristics for adoption or acceptance of any innovative service or product is the creation of awareness among the consumers of the product or service.

According to Cooper (1997) ease of use of an innovative product or service is one of the three important characteristics for adoption from the consumer's perspective. The design of

the website with an appropriate graphical user interface and navigational tools are important determinants of user friendliness and ease of use. The web design and web content have an influence on consumer satisfaction.

The information content, amount of information, information format, and layout features affect consumer satisfaction. Proper navigational attributes, a search facility, and interactivity of the site affect the consumers' perception of the user friendliness.

Cost is another factor in consumer consideration of adoption of online banking. There are two types of cost involved in online banking. First, the cost associated with Internet access and connection fees and secondly, the bank's charges for using online services. Customers need to be charged a reasonable price for using online banking.

Many consumers are reluctant to use a new system of banking, as the existing banking system meets their financial transaction needs. For customers to change their present ways of operating and to take up new technology, it must fulfill a specific need. There are many ways to overcome the reluctance to change consumer behavior. Personal assistance to customers in performing online transactions can improve customers' perceptions about using the service.

Banks can also provide specific value added services, which are currently not provided through traditional banking (Suganthi, Balachandher and Balachandran, 2001). The speed of downloading information from a website increases users' satisfaction. If online banking uses high-resolution graphics and inefficient web services, it might create a negative impact on consumers' perceptions about online banking. However, download speeds can also be associated with users' computer hardware power and connection process.

There are some customers who like personal physical interaction while doing banking transactions. Some are not confident that their money is going the right direction via the Internet. There are some people who are afraid of using the new technology. The reason for this technophobia may be that they do not have enough confidence in it or knowledge about it. They may not know the benefits and convenience, or how to use the technology. They trust human beings rather than computers and machines.

Concern about online privacy and security

Privacy and security are important concerns affecting the acceptance and adoption of online banking. Although online banking has the potential to revolutionize the financial system by dramatically lowering transaction costs and facilitating new types of commercial transactions, many consumers lack trust in doing transactions through the web. People are worried about fraud and privacy of their data and personal information. Customers are not sure about the security of their transactions. They are also concerned about the lack of a predictable legal environment governing virtual transactions. The online banking system has made it easy to pay for bills, services, and money transfers electronically.

However, security of online transactions has become a crucial issue as the criminal minded hackers might retrieve confidential account numbers and use them for personal purposes at the expense of other people. For that reason privacy and security are major concerns of online banking. There was a time when people were confident that invasion of privacy was difficult, but with the technological revolution it is becoming easy to invade privacy and confidentiality.

Technology has changed the rules of privacy. At one time there was plenty of it but now it is almost gone, says Kevin Murray, who runs Murray Associates, aNew Jersey-based firm that

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sweeps clients' offices for bugs and other surveillance equipment. In the age of technology people go through life involuntarily dropping crumbs of data about themselves. Following right behind there are powerful cleaners, computers accessed by marketers, snoops and even criminals "sucking up the information", labeling and storing it for future reference.

Method

The study was conducted in a regional bank in north Texas, USA. This bank was chosen due to the accessibility of information and the ability to observe overall online banking activities, which might not be possible with a larger national bank.

The Bank was established in 1986. The online banking system is a recent adoption in the bank. It has more than $100 million in assets and 50 employees. Its online banking goal is to make banking easier and better for customers. This research adopted case study approach to draw evidence. The study provided an in-depth understanding and analysis of online banking implementation. The case study approach provided an in depth understanding of the implementation of electronic banking within the context of managing information technology innovation in the financial organization. The unit combined several data collection methods such as the use of archives, observations of the web site, and in-depth interview with bank professional as well as statistical data regarding online banking activities. The frequency and descriptive statistical analysis was conducted using SPSS.

4.7 CHANGING DYNAMICS IN BANKING INDUSTRY

In the banking industry there are many things which are changing very dynamically, the most dynamic thing of banks are the rate of interest on the fixed deposits of customers. There is a tendency to lower the amount of rate of interest and make the customers less attracted towards bank for depositing there money, and start investing in share market.

Banking is the life blood of an economy and it is the pillar and strength of modern business. It is a main and an essential part of the human life and it is in its growing phase. Banking industry and sound financial system plays a key and significant role in the economic development in developed and developing countries .The banking system in India is dominated and large area is controlled by nationalized banks. In India 27 public sector banks, 21 private sector banks and 45 foreign sector banks exist and working properly.

Paper is prepare to focuses on how the technology is playing an important role for transformation of banking system in India. This study includes the history of the banking industry, financial innovations, performance and the future growth of the Indian banking system. Financial innovations are like, RTGS, EFT, ATM, ECS Retail banking, NEFT, e-commerce, e-marketing, e-banking. Now Indian banking model is Internet-based model and it carries its business to create a sustained competitive advantage by using this model.

Now banks are totally depends on information technology and the technology risks increase, both for individual banks and the financial industry at large but Continuous technology advancement and innovations are playing great role in the satisfaction of customers, suppliers and counterparts

Background of Banking in India

India had a centuries old tradition of indigenous Banking. The theory of Banking was not new to India. There are several books that shows banking has a powerful existence. Initially, the money related issues, i.e. lending money etc. were controlled by Seths, Sahukars, Mahajans. They followed a simple and easy process to take loan for distribution hassle free loan and charged a high rate of interests and no record was maintained so that they can exploit urban and rural people.

The origin of Modern Banking in India starts when the British came into India and starting rule over here. They established the first bank that is Bank of Hindustan which was in Calcutta in 1770. It works as per rules and regulation of European and British management. It was lost its existence in 1830-32 by liquidation. The development and progress of banking in India can be understood by dividing into three different phases as follows:

Phase I: Phase I was Nationalization of Banks in 1969. At that time the rural population of the country was dependent on unorganized sector, such as small money lenders, sahukars and zamindars.

At the time of Independence financial requirements fulfill by the unorganized sector. At that time the Indian Banking sector was working under private ownership. For development of the economy and setup of organized financial system the Government of India decided to nationalized the Reserve Bank of India in 1949. In 1955 the another bank Imperial Bank of India was nationalized and named the State Bank of India.

Further The Banking Regulation Act, 1949 was enacted in 1949. Phase II: This period is known as the Nationalization Period (1969 to 1991). In 1969, banks were nationalized by the Government of India. The number of such nationalized banks was 14 and their deposits was more than 50 crores. The result of nationalizations was that the Indian Banking system enormously started developing and for the development and advancement of the rural, illiterate and weaker public of the nation. The Narasimham Committee in 1974 recommended the establishment of Regional Rural Banks (RRB) as rural, illiterate and weaker as they were not considered under this system. For removal of this problem Regional Rural Banks (RRB) was introduced. On 2nd October 1975, RRBs were established .The objective of RRBs is to disburse the credit to villagers and rural public.

After it six more banks were proposed to nationalize. Finally, in 1980 six banks were nationalized. With the great effect of Phase II of nationalization, the target of priority sector lending was also raised to 40%

Phase III: Liberalization Phase (1990 to till): for the financial stability, systematic development and increasing profitability of Public Sector Banks, Government of India decided to arrange a meeting and according to suggestion of this meeting a committee was set up under the chairmanship of Shri. M. Narasimham. As per the recommendation of the committee several steps were taken to reform the banking system in the country. These are

- To make banks financially strong, competitive, and conducive for the development of the financial system.
- Government and RBI advice to implement the same policies for both the banks, Public sector banks and Private sector banks .They should be treated equally. More suggestions are related to no more nationalization of banks.
- It was emphasized that banks should avoid the traditional system of banking and encouraged to adopt a new and progressive function such as merchant banking and underwriting, retail banking, etc. for the financial stability.

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- Foreign banks would be invited and facilitate them so that they can open offices in India either as branches and legalized to set up joint ventures with Indian banks and Promote to start other newer forms of financial services.
- In phase III RBI took a decision to issue license to private sector banks such as Centurion Bank, Global Trust Bank, Times Bank and Development Credit Bank, ICICI Bank, Axis Bank, Bank of Punjab, IndusInd Bank, HDFC Bank, IDBI Bank to entry in the Banking sector. All these banks are Private Banks.

Organization of Banking in India

The organisation of Indian banking sector can be understood by categories into two sets. The first one is scheduled banks and another is non-scheduled banks. According to the guideline of the Reserve Bank of India Act, 1934 all banks, which are included in the Second Schedule Banks are schedule Bank. Scheduled Co-operative can be further classified as Scheduled State Co-operative Banks and Scheduled Urban Cooperative Banks. On the basis of their ownership and/or nature of operation and functions Scheduled Commercial Banks in India are classified into five different categories

- State Bank of India and its Associates
- Nationalised Banks
- Private Sector Banks
- Regional Rural Banks
- Foreign Banks

Reserve Bank of India

Indian Banking structure is totally controlled by RBI. It came into existence on 1st April 1935 under the RBI Act 1934. Reserve Bank of India is recognised as The Banker's bank, Head Bank, Apex Bank and Central Bank of India. Reserve Bank of India kept reserves of all Public and commercial banks and it has a power to control of currency and the issue of currency in India.

- Commercial Banks: Commercial Banks can be divided into Scheduled and Non-scheduled banks:
- Scheduled Banks: For a Scheduled Bank the following two conditions which has to be fulfilled. The first one is that Scheduled banks should include in the 2nd schedule of RBI Act, 1934 and another one is the minimum limit should not be less than Rs.5 lakh for paid up capital and collected funds by the of bank.
- Non-scheduled banks: These banks are not included in the list of scheduled banks that's why they called non-scheduled banks. These banks are not entitled for granting loans from RBI for meeting their general activities only avoiding in emergency unlike scheduled banks.

Commercial bank includes public sector banks, private sector banks and foreign banks.

1. **Public sector banks:** There are 26 public sector banks with the inclusion of SBI, its five associate banks, IDBI bank Ltd. and nineteen nationalized banks. In terms of the volume State Bank of India is the major commercial bank and 90 percent of total banking business in India is covered by public sector Banks.

2. **Private sector banks:** Private sector banks are those which have equity, by private shareholders not by the Government. For example: ICICI Bank, HDFC Bank, AXIS Bank etc. the Private sector bank playing a major role by increasing the efficiency and customer satisfaction in the development of the Indian banking industry. They are giving competition to public sector banks.
3. **Foreign Banks:** Foreign banks operate their branch in India and have their head offices out of India. They run their banking operation and services in India, but controlled and handled from Head Office. CITI bank, HSBC bank, Standard Chartered bank etc. are the examples of foreign banks which are giving their services in India.

Regional Rural Bank (RRB)

To Assist Rural and Poor People RRB's were established on 2nd October 1975 under the provisions of RRB Act 1976. To develop the rural economy, it was necessary to set up a bank which could help the rural public staying there. They are working in all states apart from Sikkim and Goa. These regional rural Banks are sponsored by its state itself.

These are the state oriented banks. Their borrowers include small and marginal farmers, rural people, labour involved in agricultural activities, artisans etc. The control of RRB is done by NABARD. NABARD assisted RRB by Providing short term and medium term loans and fulfil their requirements accordingly.

Co-operative Bank

Co-operative bank was set up by passing a co-operative act in 1904.Various amendments were done timely. Now they are organised properly. They worked on the principal of co-operation and mutual help.

The main objective of a co-operative bank is to provide rural credit, short term agriculture loan for agricultural, rural development, nonagricultural loans, employment oriented schemes and short term loans.

4.8 CHANGING DYNAMICS IN BANKING

There is regular changes, technological evolution, up gradation, and advancement in the banking industry. For that it is necessary to controlled by the various committees so that this industry can perform its services properly. These committees were set up and controlled by RBI and the government of India. The advancements in technology have changed the market scenario.

Now, due to technology and internet connection, it is easy to access the services in the mobile and internet banking services it is getting popularity among the urban as well as rural public. The banking sector is trying to improve its operations and services. It is starting to give emphasis on customer services and for better customer services banks are regularly upgrading their technology and system to make it sound. For it banking industry is implementing various changes time to time.

The Changing Dynamics are as follows:

- **Computerization:** The computerisation of Indian Banks is started from 1980. Computerization means each and every Indian banks and its branches had to start the

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installation and setup of computers to systematise the functioning of the branches. It focuses on particularly at that branch where the load of transactions are higher. Computerization helps in growing and developing in the economy as a whole. All the information of customers is stored in computers and can be checked when required. This system is known as KYC.

- Set up of Satellite Banking: With the help of satellite banking it is very easy to establish a good connectivity among various banks and its branches. It will help banks to give their services to underserved areas, villagers and reach at hilly areas of India, and in such a way they are providing better facilities, such as electronic funds transfers etc.
- Although Satellite Banking is expensive services for the banks but it facilitates banks to serve their customers in time and with satisfaction and expanding market share.
- Development of Distribution Channels: With the advancement of technology the banking distribution channel has changed. Now the bank branches is not only the channel of distribution for a bank but upcoming and latest channels of distribution are ATMs, internet banking, mobile and telephone banking and card based delivery systems.
- Automatic Teller Machines: First Time foreign banks introduced ATMs in the Indian banking industry in 1990s. Innovations in ATM technology have changed the environment completely. With the foreign banks, Public sector banks, private sector banks, cooperative banks have also started and introduced their ATM networks to expand their market.
- Now the ATMs has different phases of development. Multilingual ATMs: Now ATMs are available in multilingual. Due to the Illiteracy and the problem with English language this new technology was not getting success. With the Installation of multilingual ATMs the banking functions become easy and many people are availing this type of services.
- Multifunctional ATMs: Now the ATMs are also in advanced versions. It can perform multi-function at a time. Now the facility of Multifunctional ATMs are provided by public, private and foreign banks in India, Multifunctional ATMs are designed in such a way that it can execute a wide range of different services such as distributing cash and providing account information, prepaid and post-paid mobile recharges, Ticket booking (Air, Bus, Railway etc.), and PIN management, Bill payment (electricity & water bill), Cash payment, Cash recycling to minimized operating costs of ATM, Top-Up addition, Ticketing of different events, Money transfer and Examination fees etc.
- Some new areas are being explored via multifunctional ATMs, such as and advertising. Through Multifunctional ATMs banks are generate good revenue for the banks by effectively performing various services at a place and at a time.
- ATM Network Switches: By using this technology, only one ATM card from a bank can be used with the ATMs of other banks means with the use of one ATM Card can operate ATMs of different banks. This facility is providing better customer convenience. Under this service, banks generate revenue by charging a fee for permitting the customers holder of ATM of other bank to access its ATM.

The various ATM network switches are Cash Tree, BANCS, Cash net Mitr and National Financial Switch. These are linked to Visa or Mastercard gateways. IDRBT, controller of the National Financial Switch, decided to reduce the cost of operations by waived the switching fee as the demand of the ATM are increasing regularly.

Internet Banking: Internet banking in India started from 2000. Internet banking services are offered in three levels.

1) The first level include a bank's informational website. On this website only customer queries are handled related to bank transactions.

2) The second level includes Simple Transactional Websites. This website will assists customers to give them instructions regarding the transactions.

3) The third level includes offering Fully Transactional Websites. This website will allow for easy and safely fund transfers and various value added services for bank customer.

Phone Banking and Mobile Banking

Phone and mobile banking are an updated and current scenario for the Indian banking industry. It is the updated and latest trend in Indian Banking Sector which works through a system that is known as an Interactive Voice Response System (IVRS) or telebanking executives of the banks. All the functions and transactions can be accomplished via phone banking and mobile banking. These Transactions may be information about Bank balance, last 5 transaction enquiries, stop payment SMS services and other instructions on cheques and funds transfers of small amounts etc. You have to follow strict rules for the security issues before using a phone and mobile banking.

Card Based Delivery Systems

In the card based delivery system mechanisms, various banking services such as credit cards, debit cards, smart cards etc. are introduced and they have been enormously fruitful in India since their launching.

Payment and Settlement Systems: Innovations, advanced technology and strong communication infrastructure have a great impact on banks. Through this development Bank's payment and settlement systems become secure as this is the central and the major portion of the businesses by of banks.

Paper Based Clearing Systems: Among the all-important amendments, the introduction of MICR technology was the main amendment done with this improvement in paper based clearing.

Cheque Truncation System (CTS): Under the process of Truncation no cheque is moved from one bank to another bank means the movement of the cheque is stopped under this process. The electronic image of the cheque sent to the drawee branch along with the relevant information like the MICR fields, date of presentation, presenting banks etc. Thus, with the implementation of this process reduces the risk of frauds, carrying cost, reconciliation problems, logistics and distribution problems and the cost of collection of cheque.

Electronic Clearing Service: The Electronic Clearing Service (ECS) presented by the RBI. It was introduced in 1995. ECS working is in two types 1) ECS debit clearing and 2) ECS credit clearing service. Electronic credit clearing works with that mechanism that is used to for update the transaction in single debit multiple credits. It deals with the transactions related to releasing of salary, Payment of dividend, pension transfer, payment of interest, etc. ECS debit clearing service operation is working with the mechanism of single credit multiple debits. It includes the transaction related to utility service like collection of electricity bills, telephone bills and other charges. This system supports banks for collections of principal amount and interest repayments also.

Electronic Funds Transfer Systems: An electronic funds transfer (EFT) is a mechanisms that proceeds over a computerized network with Internet Services, among accounts with the same

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bank or different accounts in different bank and financial institutions. It is the Electronically Funds Transfer (EFT) from one bank account to another bank account by using the online Mechanism System.

The EFT System was working in India since 1995. It covers 15 centres. Clearing houses are managed and controlled by the Reserve bank of India.

Real Time Gross Settlement (RTGS): RTGS services were started from 2004. It works on the system of Systemically Important Payment Systems (SIPS). It is a facility for transfer of amount with the minimum value of 2 lakh. It deals with the amount which monetary value is higher.

Technology Vendors: Most of the banks are now preferring to engage ith IT vendors for minimising the complexities involved in it by introducing specialized software which help in risk management systems, retail and corporate banking, credit card management. Management systems, complete back office support, including data management systems.

FDI in Commercial Banks: Foreign capital has been invited for rapid growth and development of the banking sector. For this foreign capital is invited as foreign direct investment and foreign institutional investments.

FDIs and FIIs are permitted to invest in India by the Government in almost all the sectors of the economy along with the banking sector.

Developments in India's Banking Industry Include

- The Indian banking system is very wide as it consists of 27 public sector banks, 26 private sector banks, 49 foreign banks, 56 regional rural banks, 1,562 urban cooperative banks and 94,384 rural cooperative banks.
- In September 2018, Government of India took initiative for achieving the objective of financial inclusion by launching India Post Payments Bank (IPPB) and it achieved by opening bank branches across 650 districts of India.
- When we talk about the advancing and deposits of banking. The figures tells that In FY17-18, total advancing increased at a CAGR of 10.94 per cent and total deposits increased at a CAGR of 11.66 per cent. India stand, fourth rank in retail credit market among all countries. The value of retail credit is reached to US$ 281 billion till year 2017. India's digital lending is going to increase regularly. It stood at US$ 75 billion in FY18 and now it is estimated to increase by five-times by FY2023 in the digital disbursements.
- In August 2017, it was announced by the Global rating agency Moody's that the Indian banking system was not fluctuate rapidly, as it is stable, that is a good indication of future growth. Four Indian banks upgraded from Baa3 to Baa2 by Global rating agency Moody's In November 2017.
- Various mergers and acquisition have taken took in 2017. The major merger deal in the micro finance segment of FY17 was with the IndusInd Bank Limited and Bharat Financial Inclusion Limited. Through mergers and acquisitions national, global and multinational banks are extending their business operations exchange their technology and human resource and eliminate the competition.
- The Indian banking sector is also working for microfinance. According to the Data availability In May 2018, in microfinance sector the total equity funding's was growing up

at the rate of 39.88 to Rs 96.31 billion and the total equity funding's in 2017-18 it was Rs 68.85 billion

- RBI also amends laws related to investment policies that these investments will not exceed 10 percent of the unit capital of investment instruments in real estate investments trusts (REITs) and infrastructure investment trusts (InvITs).
- The Government of India supposed to implement a two percentage point discount made via digital payments on business-to-consumer (B2C) transactions in the Goods and Services Tax (GST)
- For the development of MSME sector SIDBI (Small Industries Development Bank of India) decided to launch an online portal Finally 'Udyami Mitra' a new online portal was launched by SIDBI to support, improving credit availability and financial assistance to Micro, Small and Medium Enterprises' (MSMEs) in the country.
- To support the public sector banks through banking reforms and capital infusion Government of India has released a two-year plan with the amount of Rs. 2.11 lakh crore (US$ 32.5 billion). With the implementation of a two year plan public sector banks are playing a great role for in the development of the financial system and give it a boost up to the MSME sector. In this regard the Lok Sabha has taken the decision to issue various bonds worth Rs 80,000 crore.
- To support the banking sector and overcome the problem of bankruptcy a new amendment was passed by President Ram Nath Kovind. The Insolvency and Bankruptcy Code (Amendment) Ordinance, 2017 to pave the loopholes in the current system and to make the process effective so that banking sector perform their work properly.
- National Bank for Agriculture & Rural Development (NABARD) sanctioned around 204,000 Point of Sale terminals to improve banking infrastructure, particularly in the villages Financial Inclusion Fund was used for implementation for Point of Sale terminals. This step increases the user of debit cards and no. of transactions of debit cards. Due to the demand of Point of Sale (PoS), the terminals were increased by 1.25 million by 2017. The total number of saving and deposit bank accounts opened in different banks under Pradhan Mantri Jan Dhan Yojana (PMJDY) reached 333.8 million till November 2018. PMJDY scheme is nationwide, open ended scheme with lots of benefits and incentives.

Challenges and Opportunities of Indian Banking

After Liberalization, Privatization and Globalization in India, Indian banks are facing many problems and challenges. These are as follows:

a. Low profitability and productivity

b. Lack of integrity

c. Increase of administrative and office expenses

d. Survival of loss making branches

e. Scandals

f. Lack of professional behavior

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g. Lack of professional and friendly approaches with customer
h. Non-performing assets
i. Customer oriented market
j. Difficulty in customer satisfaction
k. Recession period face by the Industry
l. Handling work force
m. Controlling of technological innovation

Opportunities

In present scenario Banks have some prospects in India. By facing challenges banks can grab the opportunities, the bank can have better advantages from the following opportunities:-

1. Offering of innovative products
2. Customized service approach
3. Customer relationship management
4. Professional approaches
5. Managerial excellence
6. Technological and Marketing advancement
7. Customized services
8. Branch expansion
9. Deposit Mobilization
10. NPA management
11. Asset reconstruction
12. Motivational HRM policies
13. Changes to make easy lending process
14. Merger and acquisition
15. Total quality management
16. Cyber services

Conclusion

Today, Indian Banking industry is one of the most growing and flourishing industries. To increase in the banking services it is better to understand the customers, and by using new techniques bank will be successful in meeting their customer needs.

For this with traditional banking services, Indian banks should adopt various product innovations, new services and various application with the use of Information Technology. It is the demand of today to use the information technology.

The benefit of Information Technology will help to compete the current challenge and to saturate sufficiently to the public living in rural areas. Some new and innovative programs,

agenda and software in regional languages could be developed to fascinate urban, rural and poor people of India. Banking systems of any country need to be effective and efficient. Effective implementation of Banking innovations and Services can lead economic development of any country and can provide ample business opportunities

4.9 MANAGEMENT ISSUES IN ONLINE BANKING

Online banking has many benefits. Two of the most important are speed and convenience. People who participate in online banking can access their accounts, view their statements, make transactions, pay bills, and much more - from their homes or on the go. It's no surprise then that 76% of UK citizens used online banking in 2020. Despite the benefits, there are also distinct challenges marketers in this sector face. In this blog, we explore the main issues and challenges in the online banking industry.

The challenges are highly significant both for banks that offer online banking, but also for their customers, who depend on the banks to operate effectively. Online banking marketers need to know these challenges so that they can efficiently navigate them.

Let's know about them.

1. Shifting Banking Habits

Online banking usage has seen a surge during the pandemic. UK bank TSB, for example, saw a recorded 137% increase in enrolment for internet banking since March 2020. Due to lockdown restrictions, online banking adoption soared and now up to 80% of people prefer online banking to visiting the bank, and banks all over the world have started closing the doors of their physical branches.

Further to this increase in digital banking usage has been an increase in contactless solutions amidst social distancing practices. Mastercard reported an increase of 40% globally in contactless transactions in 2020. As consumers have made the shift to digital and businesses have started increasing their ecommerce capabilities, the appetite for fully virtual, contactless banking solutions will continue to increase. Further to this, the adoption of wearable payment devices has seen an increase and experts predict the market value of wearable payment tech to grow at a compound annual rate of 29.8% between 2021 and 2028.

With this growing shift in digital banking habits, banks need to keep their product offerings relevant. As they introduce more online banking capabilities, it's up to marketers to ensure that customers are aware of their bank's full product offering, further enhancing the online banking experience for them and exposing them to the numerous benefits that come with doing banking online.

2. Security

Security is one of the most significant challenges for online banking marketers because of the inherent concerns that are traditionally associated with banking online. Although banking systems are designed to be virtually impenetrable, cyberattacks and fraudulent activity are still a reality. But often users don't realise that their online habits may be putting them at risk.

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Mobile browsers and apps account for 71% of fraudulent bank transactions. Fraudsters prey on poor privacy habits on the part of the user. issues like weak passwords and using unsecured networks make people vulnerable to online attacks, like login credential theft and phishing, which could result in fraudulent bank transactions.

Marketing professionals in the online banking sector need to focus on demonstrating and explaining the security of their online bank systems, but also educate customers on how to be more conscientious online by improving their privacy and security habits. Practices like multi-factor authentication and using passphrases represent a good starting point.

3. Technical Issues

Whenever we use the internet, we risk experiencing technology and service interruptions. System stability and efficiency can affect your ability to access your accounts if your internet is slowed or stopped entirely. Similarly, no matter how sophisticated the tech, bank servers are still prone to both intentional and accidental downtime.

System downtime can be a challenge as not only are users unable to make payments or conduct transactions but concerns about data and fund security also start to emerge. Downtime can cost businesses $1.55 million every year.

Marketers should prioritise alleviating customer worries by explaining that their funds are not at risk if technical issues occur. However, they should also ensure adequate communication of planned system downtime, like scheduled maintenance, so that customers know to expect service interruptions.

4. Lack of Personal Relationship

Although 73% of people worldwide use online banking at least once a month, more complex customer needs can be difficult to meet through digital banking alone. The benefits of having a personal relationship with your bank are often overlooked, as navigating challenging banking scenarios can often be made easier by the involvement of bankers. Having an in-person banking relationship can help customers compare their options and find solutions tailored to their needs, something which isn't as easily achievable through self-service.

The ideal scenario would be a blend of online banking for day-to-day transactional needs and personal relationships with bank staff to help customers find the right solutions for their overall banking needs.

Marketers can strive for this blend by letting their customers know how to access real people, but also by ensuring that their digital banking experience is streamlined and easy to understand. This will help keep customers as informed as possible in both the digital and physical banking environment.

5. The Changing Banking Landscape

The changing banking landscape has seen a rise in digital-only banks and FinTechs offering streamlined banking solutions. Brazilian neobank Nubank, as of June 2021, had an impressive 25 million customers. And in the UK, there is a thriving challenger bank scene. Chime saw an increase of 8 million customers in 2021, bringing its total customer base to 12 million. Whilst

here are just a few of the other UK challenger banks (or neobanks) seeing impressive growth:

- Revolut with 15 million personal users
- Monzo with more than 5.6 million personal users
- Starling Bank with more than 2 million customers

Considered nimbler and more transparent than traditional banks, neobanks have fully embraced the power of digital to offer a seamless banking experience with little to no fees. These pose significant competition for traditional banks, as merely having an online banking component is no longer enough. Traditional banks must continue to adopt digital transformation and adapt their services to be as easily available and efficient online as they used to be in-branch.

Banks can look to leverage customer data to provide a personalised banking experience, redefine call centre strategies and up-skill agents to be able to deal with complex customer needs, and identify opportunities for digitisation across the value chain, including process digitisation and intelligent automation.

While banks work on honing their competitive advantage in the changing banking climate, marketers can economise on customer loyalty by reinforcing their banks' wealth of knowledge and well-established presence. Plus, they can continuously emphasise the value they add to customers' banking experiences through user-friendly platforms, increased digital product offerings and transparent and prompt communication - especially as banking behaviours evolve.

Hence, we can conclude that online banking is one of the most significant developments for the Finance industry. However, despite the many benefits for customers, we also outlined the key challenges in online banking that marketers face. But we hope we've demonstrated how these challenges can be turned into opportunities to improve processes and customer engagement.

Changing consumer habits and FinTech innovations, as well as security and technical concerns, are all major challenges of online banking that marketers must reconcile to succeed in this field. Demand is high, and digital banking apps and challenger banks will only grow more advanced and successful as they resolve marketing challenges and meet new consumer needs.

4.10 INTRODUCTION TO MOBILE COMMERCE CHALLENGES EMERGING IN MOBILE COMMERCE

The new typeof e-commerce transactions, conducted through mobile de-vices using wireless telecommunications networks and otherwired e-commerce technologies, is called mobile commerce(increasingly known as mobile e-commerce or m-commerce).Due to the special characteristics and constraints of mobiledevices and the wireless network, the emerging mobile com-merce operates in an environment very different from e-commerce conducted over the wired Internet.

In terms of business potential, mobile commerce promises many more alluring market opportunities than traditional e-commerce because of its inherent characteristics such as ubiquity, per-sonalization, flexibility, and dissemination. Mobile commerce will likely emerge as a major focus of the business world andtelecommunication industry in the immediate future.

For example, according to Guy Singh (2000), the global mobile bcommerce market is expected to be worth a staggering US$200 billion by 2004. The marriage of mobile devices and

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the Internetis, however, filled with challenges as well as opportunities.

This unit presents an overview of mobile commerce development by looking at the enabling technologies, the impact of mobile commerce on business models, and the implications to mobile commerce providers. We also provide an agenda for future research in this area.

Features of Mobile Commerce

Promising unlimited information, entertainment, and commerce, mobile commerce gives users the ability to access the Internet from any location at any time, the capability to pinpoint an individual mobile terminal user's location, the functionality to access information at the point of need, and a need-based data/information update capability.

Mobile commerce has features not available to traditional e-commerce, some of which we discuss next:

1. **Ubiquity**: Through mobile devices, business entities are able to reach customers anywhere at anytime. On the other hand, users can also get any information they are interested in, whenever they want regardless of where they are, through Internet-enabled mobile devices. In this sense, mobile commerce makes a service or an application available wherever and whenever such a need arises.
2. **Personalization.** An enormous number of information, services, and applications are currently available on the Internet, and the relevance of information users receive is of great importance. Since owners of mobile devices often require different sets of applications and services, mobile commerce applications can be personalized to represent information or provide services in ways appropriate to the specific user.
3. **Flexibility.** Because mobile devices are inherently portable, mobile users may be engaged in activities, such as meeting people or traveling, while conducting transactions or receiving information through their Internet-enabled mobile devices.
4. **Dissemination.** Some wireless infrastructures support simultaneous delivery of data to all mobile users within a specific geographical region. This functionality offers an efficient means to disseminate information to a large consumer population. The essence of mobile commerce revolves around the idea of reaching customers, suppliers, and employees regardless of where they are located. It is about delivering the right information to the right place at the right time. This flexibility of mobile commerce is made possible by the convergence of the Internet, enterprise applications, and wireless technology.

In this section, we focus on mobile commerce business activities. We describe the unprecedented enthusiasm mobile commerce has generated, and discuss new value-added mobile commerce applications.

Mobile Enthusiasm

Mobile commerce, enabling information exchange and purchases using mobile devices, means different things to different people: to customers, it represents convenience; merchants associate it with a huge earning potential; and service providers view it as a large unexplored market. Japan and Europe are already witnessing early successes in mobile commerce. In Japan, NTT DoCoMo's iMode phone has emerged as a great success highlighting the application of wireless

technology to a business environment. Introduced in February 1999, NTT DoCoMo iMode provides a continuous Internet connection via mobile phones, and connects users to a wide range of online services, many of which are interactive.

All services link directly to the iMode portal Web site, and users can access any service virtually instantly by pressing the mobile phone's dedicated iMode button. iMode has already attracted more than 13 million Japanese consumers, particularly youth. Connected continuously to the Internet, these 13 million users can send e-mail, get stock quotes, and play online games.

Soon they will be able to use on-line map guides and even conduct commercial activities by phone. Europe has also embraced a simple mobile data service wholeheartedly. Short Message Service (SMS) technology makes wireless e-mail a reality, and the new Wireless Application Protocol (WAP) facilitates Web browsing and other Webbased transactions on mobile phones. Bluetooth, another European data initiative, further establishes a common standard for a wide range of appliances and industrial devices to communicate wirelessly. With new developments in technology, it is estimated that more than half of the European mobile commerce market in the next few years will include financial, advertising, and shopping services (Muller-Veerse, 2000).

North America, where people tend to have a PC-centric view of the Internet, has lagged behind in applications of mobile technology. But companies here have started to realize that they might miss business opportunities if they don't get a share of the current mobile commerce market, and they are attempting to catch up.

Cellular operators such as Sprint PCS and Verizon now offer customers wireless access to news, the weather, sports, and financial information. MasterCard International and Motorola announced they would collaborate on mobile commerce projects. These examples demonstrate that the global enthusiasm for wireless technologies is rapidly converging on mobile commerce.

Value-Added Applications

As mobile commerce extends the current Internet sales channel into the more immediate and personalized mobile environment, it also revolutionizes the business world by presenting it tremendous opportunities to provide additional value to hard-to-reach end customers. These value-added services include:

1. **Easy, timely access to information** (e.g., the latest availability of flights). Delivering a service that not only reaches more people but also is available all of the time, mobile commerce enables consumers to make purchases from wherever they are whenever they are ready. This will result in an increase in revenue to the company providing the mobile services.
2. **Immediate purchase opportunity** (e.g., last minute purchases of tickets or gifts). Provided with a personalized, immediate opportunity to purchase, the customer will make the purchasing decision on the spot and not go to an alternate source.
3. **Wireless coupon based on user profiles.** Since a mobile device's location can be determined precisely, the stores around the mobile device user can transmit user-specific information, such as current sales or specials, and alert the user about similar upcoming events. Wireless coupons, which enable an advertiser to deliver a geographically targeted and time-sensitive message to a willing consumer directly with a promotional offer virtually anytime and anywhere, will increase acquisition efficiency and allow direct offers suited to user profiles or stated user's preferences.

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4. **Beaming money.** Some bank transactions such as withdrawals and deposits will be conducted via mobile terminals in the near future. Electronic money can even be transferred to mobile devices allowing the latter to be used for electronic payments.
5. **Buddy finding.** This location technology will quickly alert a user when his or her friend or colleague is nearby. It will also help the user locate the nearest restaurant or ATM.

The only limit on the number and types of mobile commerce applications is our imagination. Varshney and Vetter (2001) identified a few important classes of applications such as mobile finance applications, mobile advertising, mobile inventory management, and product location shopping. As wireless technology further evolves, its application in business will only be broadened by more and more innovative mobile commerce possibilities.

Current wireless devices include phones, hand-held or palm-sized computers, laptops, and vehicle-mounted interfaces. In order to be easily carried these mobile devices must be physically light and small. In addition, a mobile device should be a multiple-purpose device so that a user does not have to carry other appliances. While achieving mobility, mobile devices suffer from some drawbacks compared to personal computers.

They have (1) small screens and small multifunction key pads; (2) less computational power, limited emory and disk capacity; (3) shorter battery life; (4) complicated text input mechanisms; (5) higher risk of data storage and transaction errors; (6) lower display resolution; (7) less surfability; (8) unfriendly user-interfaces; and (9) graphical limitations. In addition to these device limitations, there are technical restrictions related to the wireless network. As compared to wired networks, wireless communications add new challenges: (1) less bandwidth, (2) less connection stability, (3) less predictability, (4) lack of standardized protocol, and (5) higher cost.

Mobile commerce is enabled by a combination of technologies such as networking, embedded systems, databases, and security. Mobile hardware, software, and wireless networks enable mobile commerce systems to transmit data more quickly, locate users' positions more accurately, and conduct business with better security and reliability. In this section, we investigate the key technologies that make mobile commerce a reality and that will improve its performance and functionality in the near future.

Communication Technology

Though Internet access is available in most major cities and many rural areas, the Internet connections for many businesses, homes, and schools use relatively slow modem connections to Internet Service Providers (ISPs). Making high-speed (broadband) connections directly available to all locations is the key to realize the true benefits of mobile commerce applications. A number of existing or future technologies that enable connections between mobile devices and other information appliances, and between mobile devices and the Internet, are discussed below:

1. **WAP.** Wireless Application Protocol (WAP) is designed specifically to deliver Web information to mobile phones enabling them to access the Internet. It specifies an end-toend application protocol and an application environment based on a browser as two essential elements of wireless communication. With WAP technology, mobile phones become communication devices capable of communicating with other devices over a wireless network. Although WAP could provide many new opportunities for mobile commerce, its application is severely restricted by slow service, clumsy controls, and a limited number of Web sites.
2. **Bluetooth:** Bluetooth is a relatively new, inexpensive shortrange wireless standard supporting local area networks (LANs) where low-power radio technology is used to link

electronic products, such as PCs and printers, without cables.

3. **Second-generation (2G) network.** GSM (Global System for Mobile Communication) is considered the secondgeneration (2G) digital network. It is a circuit-switched service, where users must dial-in to maintain a connection when data communications are desired. It operates in the 900 MHz and 1,800 MHz frequency bands, and is widely used in Europe and beyond.

4. **2.5 G network:** GPRS (General Packet Radio Service) and EDGE (Enhanced Data GSM Environment) are so-called 2.5G technologies. GPRS, based on GSM, is a continuous packet data service. It uses the existing network infrastructure but is being marketed as delivering ISDN-type speeds.

   Rather than sending a continuous stream of data over a permanent connection, GPRS's packet switching system only uses the network when there is data to be sent. Users can send and receive data at speeds of up to 115 kbits/ second with GPRS. EDGE, a faster version of GSM, is designed to enable the delivery to multimedia and other broadband applications. It will use new modulation techniques to enable data rates of up to 384 kbits/ second over the existing GSM infrastructure.

5. **Third-generation (3G) network:** UMTS (Universal Mobile Telecommunications System) is the so-called "thirdgeneration (3G)" technology. It aims to offer higher-bandwidth, packet-based transmission of text, voice, video, and multimedia needed to support data-intensive applications.

   Once UMTS is fully implemented, computer and phone users can be constantly connected to the Internet and have access to a consistent set of services worldwide. Integrating the functions of a whole range of different equipment, the new 3G mobile phone can be used as a phone, a computer, a television, a paper, a video conferencing center, a newspaper, a diary, and even a credit card. There are two major competing schemes for UTMS. Wide band-CDMA (W-CDMA), which is supported by Nokia and Ericsson among others, and time division-code division multiple access (TD-CDMA). WCDMA is similar to standard CDMA except that it uses higher bandwidth on the transmission channel. TD-CDMA is a scheme that makes use of both TDMA and CDMA techniques.

Information Exchange Technology

Information is at the heart of any system that makes use of mobile devices and telecommunication technology. The current methods for information exchange in mobile application rely on standards supported by the wireless infrastructure.

Information exchange has a long history in information technology. Traditional information sharing referred to one-to-one exchanges of data between a sender and receiver. Online information sharing gives useful data to businesses for future strategies based on online sharing. These information exchanges are implemented via dozens of open and proprietary protocols, message, and file formats. Electronic data interchange (EDI) is a successful implementation of commercial data exchanges that began in the late 1970s and remains in use today.

Some controversy comes when discussing regulations regarding information exchange. Initiatives to standardize information sharing protocols include extensible markup language (XML), simple object access protocol (SOAP), and web services description language (WSDL).

From the point of view of a computer scientist, the four primary information sharing design patterns are sharing information one-to-one, one-to-many, many-to-many, and many-to-one. Technologies to meet all four of these design patterns are evolving and include blogs, wikis,

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really simple syndication, tagging, and chat.

One example of United States government's attempt to implement one of these design patterns (one to one) is the National Information Exchange Model (NIEM). One-to-one exchange models fall short of supporting all of the required design patterns needed to fully implement data exploitation technology.

Advanced information sharing platforms provide controlled vocabularies, data harmonization, data stewardship policies and guidelines, standards for uniform data as they relate to privacy, security, and data quality

4.11 SCOPE OF MOBILE–COMMERCE

Mobile commerce provides instant connectivity between mobile users irrespective of their geographical location and time of the day. With enormous growth of wireless and mobile technology and rapid penetration of mobile phones in developing countries worldwide, the scope of m-commerce has increased manifold. With the advent of super fast 3G access technology that ensures high speed data transfer rates of the order of 20 Mbps, m-commerce is opening up new vistas of digital media applications.

3G technology, equipped with WiMax and UMTS standards for high speed mobile broadband internet connectivity, supports mobile multimedia application delivery at far greater bandwidths. So, it is now possible for mobile users to watch their favourite TV programmes or download and view famous movies in their mobile devices while travelling. The scope of mobile commerce is all pervasive, and is gradually engulfing all aspects of lives of modern day citizens. Ranging from mobile banking, mobile browsing and mobile ticketing up to mobile marketing, mobile advertising and mobile computing, mobile commerce is gradually becoming an integral part of both corporate world and common people.

With the prices of mobile phone decreasing exponentially and the number of different mobile applications increasing enormously, more and more people will indulge in m-commerce applications and soon it will become the preferred choice of the digital business world.

4.12 APPLICATION AREAS OF MOBILE COMMERCE

The main advantage of mobile commerce is that it offers instant connectivity to mobile users even if they are travelling in remote areas and want to communicate in the wee hours of the day. With the help of digital cellular technology and wireless broadband internet access, the mobile user can browse through websites on the screens of their mobile devices and perform business transactions anytime and from anywhere.

Customers can place orders as well as pay their bills through their mobile devices while in transit. As the price of mobile phones are decreasing rapidly, number of mobile phone users are increasing in millions and more and more people resort to m-commerce activities.

With the increased use of mobile devices, mobile marketing and advertising have become an effective tool and all big corporations have started their product campaign through mobile devices. In financial sector, mobile banking allows customers to access their bank accounts and pay their bills from their mobile handheld devices. The same handheld device can be used for

viewing the latest stock prices and also for conducting share trading. The service plan details of any mobile service, such as mobile phone service can be accessed, mobile bill payment can be achieved and account updates can be viewed through the mobile devices easily and effectively.

In information services, delivery of financial news, sports events, weather reports and traffic updates, all can be achieved with a minimal cost and time. In retail industry, customers can place orders for goods/services from their mobile devices on-the-fly. All these applications come as the direct consequences of the instant connectivity feature.

Mobile Banking

Mobile banking is the process of performing banking transactions such as balance checking, account transfer, bill payments, credit card-based payments, etc. through a mobile device, such as a mobile phone or a Personal Digital Assistant (PDA). Such transactions could be performed from any remote locations and at any time of the day irrespective of the normal working hours of the bank. In order to avail the mobile banking facility, the customer must have an account in the bank, the mobile phone number must be preregistered in the bank and also the network service provider (for the mobile device of the customer) must have a tie-up with the bank. When the customer wants to perform a mobile banking transaction, the transaction request from the customer first goes to the premises of the mobile service provider, and from there it is finally routed to the bank.

Depending on the type of transaction, two types of mobile banking are available, namely SMS banking and WAP-based mobile banking. SMS banking is usually used for non-financial transactions, such as viewing of balance statement, requesting for a checkbook, status checking or stopping a check payment although some banks permit financial transactions also through SMS banking. In SMS banking, an SMS code requesting a transaction is sent to a particular number (as directed by the bank) from the mobile device of the customer.

As soon as the bank receives the SMS, the required transaction is performed, the information is retrieved (in case of non-financial transaction) and sent back to the customer mobile phone in the form of another SMS. The entire transaction takes only a few seconds and the cost of the transaction is only that of an SMS.

For different types of transactions different SMS codes are used. In WAP-based mobile banking, the customers are provided with a mobile Personal Identification Number (PIN) by the bank. At the time of performing the transaction, the customer logs on to the WAP website of the bank from the WAP-enabled mobile device. In the bank website, the customer enters the PIN to gain access to the various financial/non-financial transactions of the bank. After the successful verification of the PIN by the bank, the customer is allowed to perform various financial/non-financial transactions, such as transfer of funds from one account to other, payment of bills, credit card-based payments, fixed deposit enquiry, etc.

Another facility available in mobile banking is mobile banking alerts. The customers are provided regular alerts whenever a special type of transaction occurs. For example, the customers are alerted whenever credit/ debit crosses a threshold or a check is returned.

Although mobile banking offers convenience and ease of use to the customers, the security concerns have become a major challenge to mobile banking. The small mobile devices are prone financial loss to the account owner. In order to avoid such nuisances, a second level of authorization

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can be introduced in the form of passwords. At the event of loss/theft of the mobile device, both the PIN and password can be locked by the bank on user request to prevent further fraudulent transactions using the device. Also, the regular change of password reduces the risk of misuse and tampering by unwanted users.

Mobile Payments

Mobile payment is an alternative payment system where the mobile user makes payment using the mobile device for a wide range of services or goods. Depending on the mode of payments, mobile payments can be broadly classified in the following categories:

Mobile Phone Based Payments

In this mode, the customer makes payment using the mobile device. In SMS-based payment, the payment is made by sending an SMS to the retailer. Both the customer and the retailer must have a regular credit/ debit account in a partner bank. After selecting an item for purchase, the customer sends an SMS 'from his/her mobile device to the retailer requesting the purchase. The retailer responds by sending a payment request through SMS to the customer. The customer keys in the bank PIN number to approve the payment. The bank verifies the PIN and the amount is automatically debited from the customer bank account to the retailer's account.

Both the retailer and the customer get SMS from the bank indicating the details of the transaction and the entire process takes only 10-15 seconds.

In SIM card based payment, the customer uses the mobile phone for purchase of digitized items such as mobile ringtones, MP3 music, video games, wallpapers, etc. that can be downloaded in the mobile device itself. The purchase amount is added to the monthly mobile bill of the customer. This offers an alternate cashless payment option that does not require use of credit/ debit cards or any other online payment service provider, such as PayPal and thus bypass bank and credit card companies altogether. The payment is either debited from the subscriber's prepaid account or added to the standard post-paid invoice of the subscriber as the case may be.

Card based Mobile Payments

In credit card based mobile payments, the mobile handset is used as a credit card for making payments. The credit card issuing bank gives a PIN number to the mobile handset user. At the time of making payments, the mobile user initiates the transaction by entering the PIN from his/ her mobile handset. The issuing bank verifies the PIN and authorizes the payment.

Next, the customer enters the amount to be paid and the transaction, is completed. The amount is automatically deducted from the credit card account of the mobile user and credited to the bank account of the payee business partner, such as the shop owner.

In smartcard based mobile payments, the SIM (Subscriber Identity Module) card of a mobile handset are equipped with smart card capabilities. Smart cards are plastic cards with embedded integrated circuits containing microprocessor and memory to store personal data such as credit card number, PIN, driving license number, etc. The information stored in a smartcard can be read by a card reader in either contact or contact less mode. The SIM card of a mobile device is also

a processor card containing programmable memory to store user information for authentication purpose. If the smartcard capabilities are combined with the SIM card of a mobile device, it can be used as a contact less .smartcard, and can be used effectively in making mobile payments.

Mobile phones equipped with contact less smartcards employ Near Field Communication (NFC) technology to exchange data between the mobile device and the nearby smartcard .readers. It combines the smartcard interface as well as the reader interface in the mobile device so that the mobile device can communicate with the card readers and other NFC devices/mobile phones.

At the time of making payments, the mobile phone user waves his/her mobile phone (equipped with contact less smartcard) near a reader module installed in a store or in a public transport system.

In order to make the transaction more secure, a PIN is used for authentication purpose, which is automatically supplied by the smartcard. After successful verification of the PIN, the transaction is completed and the payment is automatically deducted from the pre-paid account of the mobile user or charged to the bank account of the user directly.

Such NFC-based contact less mobile payment finds wide application in transportation services, toll-tax collection, transit fare collection in mass transit networks, parking fee collection and other unattended POS terminals, where the users can pay with their smartcard enabled mobile phones sitting inside the car while driving.

Mobile Web Payments through WAP

In this mode of mobile payment, the payment is made through the web pages displayed in the micro browser of the mobile phone. The web page is displayed following Wireless Application Protocol (WAP) and associated technology. At the time of making a purchase, the mobile user types the URL of the website of a merchant in the mobile device. The website containing various product information is displayed in the micro browser of the mobile handset.

The user selects a product that he/she intends to buy and places order for the product through the website. The merchant then sends an invoice to the user. If the user intends to pay through a credit card, he/she enters the credit card number, which is transmitted to the partner bank through a secured channel that employs encryption.

The partner bank verifies the credit card number, and if found OK, informs the acquirer bank for making the payment. Alternatively, if the user wants to pay directly from the partner bank in the form of account transfer, he/she enters the PIN number, which is sent to the partner bank for verification. After successful verification of the PIN, the partner bank debits the amount from the user's account and credits to the merchant's account. In either case, an SMS is sent to both the user and the merchant confirming the payment.

The entire payment process is simple, quick and user-friendly as they have a similarity to the familiar online payment systems. Above mobile payment systems are emerging as a potential payment mechanism that ensures fast, smooth and transparent micro payment solutions to mobile users. The mobile phones tend to replace the pocket money and provide a low cost alternative to credit/debit cards for cashless payments anytime, anywhere and for anything. However, like all other online payment systems, special care should be taken to secure such mobile payments. Stringent security arrangements in the form of encryption and/or password authentication should

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be adopted to ensure that the financial transaction performed through the mobile device cannot be duplicated, re-used or counterfeited.

Mobile Ticketing

Mobile ticketing is a special application of m-commerce which allows users to purchase tickets for air/rail/bus travel or for any sports/ entertainment events from any location and at any time using mobile phones or any mobile device. The users can avoid tedious and time consuming process of getting paper tickets after waiting in a long line and the organizations can reduce production, distribution and infrastructural cost by providing simpler ways to purchase tickets anytime/anywhere.

Mobile tickets are available for a number of cases, such as mass transit tickets, airline check-in, movie/theatre shows, sporting events, consumer voucher distribution, and so on. There are a variety of options by which a user can purchase mobile tickets, such as online purchase from merchant website, from WAP page in the mobile handset, purchase via SMS from the mobile handset, over the phone from a voice call or through a secure mobile ticketing application. Due to the convenience it offers to the customers and cost savings it offers to the companies, mobile ticketing is gaining momentum and more and more people are opting for mobile ticketing. Around 6 million mobile tickets were sold during 2012 worldwide, and the number is expected to increase manifold to cope with the ever increasing demand of the mobile users.

At the time of purchasing a mobile ticket, the mobile handset owner logs on to the website of the organization (providing the mobile ticket) and choose "Mobile Ticketing" as the delivery option. Alternatively, the user can log on to WAP page of the organization in the mobile handset.

Next, the cell phone number, mobile carrier and cell phone model is entered in the website. In another variation, the request for mobile ticket can be sent through an SMS from the mobile handset to the designated organization. After making online/mobile payment for the ticket, the user receives the mobile ticket in the form of a text message in the phone. The text message includes an image (MMS) with a barcode.

At the venue of the event/airport/railway station, the text message with the barcode is produced at the gate. The gate is usually equipped with a barcode reader which after successful verification allows the user to pass through. Alternatively, the alphanumeric number in the barcode can be manually entered in a computer at the gate for verification.

With affordable internet services, decline in handset prices, rapid evolution of secured and easy-to-use mobile applications and convenience of mobile usage, more and more people have started purchasing travel tickets through mobile devices.

Realizing the potential of mobile ticketing, almost all major travel portals have launched their mobile ticketing applications for booking purpose. People at the time of making last minute changes to their travel plans find mobile ticketing the only option giving surety and security. In India, Indian Railways (website irctc.com), makemytrip.com, cleartrip.com, yatra.com and many more offer mobile ticketing in their travel offerings. Apart from ticket booking, such travel portals also allow other customer support features, such as cancellation of tickets, tracking refunds on cancelled tickets, and so on.

In order to maintain security and integrity of service, special validation techniques have been adopted to avoid reuse of mobile tickets. Such systems employ encryption of barcode data of the mobile ticket, which is decoded at the venue and validated at the centralized server

containing ticket database. The mobile ticket once scanned by the barcode reader can never be reused again, thus preventing the fraudulent practice of duplicate tickets.

Mobile Computing

Mobile computing is a technology that allows users to perform normal computing operations, such as internet surfing, document preparation, spread sheeting, preparing PowerPoint presentations, send/receive e-mails or download MP3 audio files using portable computing devices while in transit. The portable computing devices include smart phones, personal digital assistants, laptops, ultra mobile PC or wearable computers. Some of these portable computers have bigger screens compared to mobile phones and hence overcome the small screen limitations. For example, Apple iPad comes with an 8" x 10" screen, which is suitable for reading e-books as well as viewing websites.

In order to communicate with the external world, mobile computing employs wireless communication technology. For wireless internet access, Wi-Fi or Wi-Max technology is used that utilizes radio waves to broadcast internet signal from a wireless router to the surrounding area. Alternatively, digital cellular technology can be employed that utilizes cellular modem in the form of a data card that connects to nearby cell towers for high speed broadband internet access. The data card fits into the PC card slot of the laptop or the notebook computer.

Broadband internet access is also provided to cell phones and PDAs using cellular broadband technology.

Mobile computing uses specially developed software that allows users to perform all the functions that are possible in standard desktop PCs connected under LAN environment. Such software are designed for small-power handheld devices such as Personal Digital Assistants (PDA), enterprise digital assistants or smart phones, and are either pre-loaded in these devices or downloaded by customers from internet.

Usually, mobile software is developed by transforming existing software used by computers into software which can be used in any mobile device. Sometimes, new mobile applications are developed for different mobile platforms and programming languages based on the type of mobile device.

Different mobile devices use different hardware components, and therefore, the corresponding mobile software needs to be developed using different software architectures and operating systems. Well-known mobile software platforms include Java ME, Symbian OS, Android, Windows mobile, BREW & Palm OS. Each of these platforms supports a development environment that provides tools to allow software developers write numerous mobile applications in these mobile platforms.

Apart from normal e-commerce and m-commerce operations, mobile computing finds wide application in transportation industry, manufacturing and mining industry and distribution industry. In transportation industry, mobile computing is used in exact delivery time tracking, consignment tracking, fleet management information gathering and real-time traffic reporting. Mobile networks are employed to provide two-way communication between fleet drivers and their dispatch centers.

Realtime passenger information can be obtained from kiosks/bus stops/road signs. In mining industries, portable computers are used in mines for in-process monitoring. In manufacturing industry, portable computers fitted in shop floors help in real time asset management, instant purchase verification, delivery confirmation and order tracking. In hospitality industry, guest

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check-in can be done using handheld devices, such as PDAs, Blackberry and cellular phones. Portable computers can be employed in sales force automation and mobile POS (Point of Sale) applications. Another service associated with mobile computing is cloud computing that allows mobile users to access application software, databases and shared computing resources, such as server spaces through internet from a mobile computer.

The application software such as Microsoft Office, databases etc. reside on a remote server and user can access and use the resource through internet as and when required and pay for exactly what they use. Thus, the company field representatives can utilize company resources, such as, databases or application software from remote locations through internet accessed in their mobile computers, rather than carrying the company resources with themselves in bulky machines.

Mobile computing also provides access to company's Virtual Private Network (VPN) by tunnelling through the internet. Mobile computing has become an integral part of corporate world. From Gmail to Twitter, Skype to Linkedin, cloud computing to VPN, it is virtually impossible to do without it just like it is without electricity.

4.13 MOBILE BUSINESS VALUE CHAIN

Transport, basic enabling service, transaction support, presentation service, personalization support, user application, and content aggregators are the seven links in the mobile business value chain. The transport link maintains and operates the infrastructure and equipment to guarantee data communication between mobile users and application. Basic enabling service link provide services such as server hosting, data backup, and system integration. The Transaction support link provides the mechanism for assisting transactions, for security, and for billing users.

The presentation service link converts the content of Internet-based applications to a wireless standard suitable for the screens of mobile devices. The Personalization support link gathers users' personal information, which enables personalized applications for individual users. The Content aggregators link provide information in a category or search facilities to help users find their way around the Internet. Finally the user applications link used to carry out mobile business transactions for mobile consumers. The following sectors will get benefit under m-business transformation :

1. **Banking industry:** Possible facilities that could be offered include Account Balance Enquiries, Last 'n' transactions, Utility Bills Payment, Cheque clearing notifications, Inter account Transfers, Statement and Cheque book requests, Access to Portfolio management and other share dealing services.
2. **Share market industry:** Mobile phone-based stock trading allows users to receive instant updates on market information. The system allows to users to identify which stock they are interested in and what levels of alert they want. The warnings are then sent to the user's handset, and then they can buy or sell immediately without going to a computer.
3. **Shopping:** Many mobile service providers are planned to launch services that promote shopping using mobile. Fabmart, Zee marketing are few examples. Customers can pay for their purchases through their mobile phone bills. Text message shopping is already in use to buy books, CD etc., at bargain rate.

4. **Building and construction materials industry:** The fragmented nature, geographical spread and multiplicity of levels in the distribution structure for most products in this industry offers unique challenges and opportunities for e-business & m-business initiatives. M-business adaptation in this sector would be driven by factors such as improving brand building and customer services, penetrating markets in the semi-urban and rural pockets, improved dealer management, and ensuring timely supplies and services.
5. **Metal industry:** M-business adaptation in the metal sector would be primarily driven by working with lower inventories and adapting IT techniques and catering the customers through remote devices. This will increase market coverage and widen distribution reach, improved dealer management and controlling cost at every stage of the value chain. Metals, as commodity, also provide considerable scope for on-line tendering and auction applications.
6. **Office automation industry:** The Indian office automation industry is another potential candidate to adopt m-business strategies to its sales and service. The major benefits would be improved customer service, wider market coverage, and marketing and procurement costs reductions.
7. **Packaging industry:** The packing industry is another potential sector for adopting mbusiness. Handling order taking and order placement through mobile, the package industries can improve supply efficiency, customer service and market coverage.
8. **Indian engineering industry:** Engineering industry with huge annual turnover is another potential candidate for m-business implementation. Front-end activities like enhanced customer service and receiving new order, and back-end activities like enhanced vendor communication and booking purchases can emerge key priority areas in this industry.
9. **Electrical and electronics industry:** Implementing e-business and m-business in these industries is expected to result in improved sales and customer service through better information dissemination.
10. **Chemical industry:** Chemical and Petro-chemical industries are considered on-line business is a cost reduction tool. By adopting these strategies they would improve supply chain efficiency and reduce marketing / procurement costs.
11. **Hotels and tourism industries:** Booking hotel rooms and resorts at any time, at any place can be done through m-business options.
12. **Pharmaceutical industry:** Pharmaceutical industry views m-business as a tool that would aid community building, and to smaller extent, reduce costs through better supply chain management. They also expect to use this medium to provide people with more information on diseases and the products used to cure them.
13. **Logistics industries:** Both transportation and warehousing parts of logistics are potential candidates for m-business implementation due to the fact of increase in products sold on-line. The need to move a large volume of small parcels and the increase in customer expectations.
14. Auto –components industry: The auto-component industry is another prominent candidate for m-business implementation. Due to the increasing competition in the domestic market and threat of imports, necessitating widening of market reach, and exploring export markets.

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15. **Lottery and Betting:** All on-line lotteries and betting can accept the bets through the message delivered by SMS. The M-business technology allows not only mobile betting but also, using a mobile video-phone, be able to watch the actual race while moving on the road or while travelling in an aeroplane.

Mobile positioning services: With mobile positioning services your phone could become a personal tracking device, allowing your family friends and employer to know where you are at all times. Mobile positioning integrates with satellite positioning systems and let people tell others where they are.

4.14 PRINCIPLES OF MOBILE COMMERCE

Mobile commerce is based on wireless mobile communication system, which utilizes digital cellular technology. The cellular network consists of a number of cell sites. Each cell site consists of a stationary base station (a radio frequency transceiver), an adjacent tower antenna (for transmission and reception of signals) and a surrounding cell (a hexagonal shaped geographical area). Each cell is allotted a band of radio frequencies and provides coverage to any portable mobile device that comes within the geographical range of the cell. Whenever a mobile device such as a mobile phone or a pager, etc., comes inside a cell, it starts communicating with the base station using one of the cell frequencies. The base station receives the signal from the mobile device and transmits using the tower antenna to a distant base station for call delivery.

To distinguish signals received from different mobile devices at the same base station, different access technologies such as Frequency Division Multiple Access (FDMA), Code Division Multiple Access (COMA) or Time Division Multiple Access (TDMA) are used. Whenever a mobile user tends to move away from one cell to another adjacent cell, the cell frequency switching occurs, whereby the old cell frequency is dropped and the mobile device is automatically allotted a new frequency corresponding to the adjacent base station. The mobile device switches from previous base station frequency to current base station frequency and the communication with the new base station continues without interruption. This is known as cell handover.

There are a number of different digital cellular technologies which are used in various mobile phone networks worldwide. These are: Global System for Mobile (GSM) Communication, General Packet Radio Service (GPRS), Enhanced Data Rates for GSM Evolution (EDGE), Digital Enhanced Cordless Telecommunications (DECT), etc.

The geographical location of a base station is fixed, i.e. stationary and the frequency band and location of each base station are registered in the database of a centralized Mobile Telecommunication Switching Office (MTSO). So, whenever a mobile device changes position from one cell site to another, its geographical location can be easily tracked from MTSO.

Utilizing this fact, mobile commerce offers a number of location-based services, such as tracking and monitoring of people/vehicles, identifying or discovering nearest ATM machines/banks/hospitals/restaurants and local weather/traffic reports.

People tracking can help in criminal investigation where the mobile phone used by a criminal can be tracked and its location is identified. The vehicle tracking is utilized in finding out the actual position of the goods to be delivered and helps in supply chain operation management. The local traffic and weather report can be generated in a local office and delivered to the mobile phone of a user on request. The local bank/ ATM/ hospital/restaurant info can also be delivered to a mobile user at a minimal cost.

Benefits of Mobile Commerce

The main advantage of mobile commerce is that it provides instant connectivity to the mobile user, irrespective of his/her geographical location and time of the day. The mobile user can stay connected with his/her business network and gather information even if he/she is in transit and remotely located away from the business installation. The same light weight mobile device can be used for making business transactions or making online payments round-the-clock in a costeffective way.

Highly personalized information can be delivered in the mobile device in an efficient manner to satisfy numerous needs of a large number of customers. The major benefits of mobile commerce are as follows:

Anytime Anywhere

Mobile commerce together with wireless communication technology and wireless broadband internet access, keeps the mobile user connected with the internet while travelling across the globe.

The business information is available to the mobile user any time of the day and anywhere around the globe. This anytime/anywhere internet access makes business transactions more flexible and customer communications more efficient, which in turn improves the productivity of the company and increases customer satisfaction. The valuable market information, stock/share prices, inventory position, delivery schedule, etc. are instantly available at the fingertips.

Handheld devices, such as Blackberry, etc. work on internet mode and allow users to continuously send/receive electronic mail, download news alerts, stock prices and receive weather updates. The round the clock (24 x 7) internet availability benefits many users to conduct business transactions from their homes or from any other place while on the move and at any convenient time. Thus m-commerce offers greater mobility and flexibility to mobile users in performing business transactions using their handheld mobile devices.

Cost-effective

The costs of transactions using mobile devices are relatively low. The time-critical business data, such as reports, photographs, etc. can be captured and transmitted easily from the mobile devices without involving any bulky expensive equipment. The customer queries can be attended and support provided instantly from the mobile device, thus making customer support more comprehensive. The SMS-based micro payments facilitate bank account transfer within a few seconds and at the cost of an SMS. Contact less smartcard based mobile payments provide a low cost alternative for toll tax payments in mass transit systems. In case of mobile billing, users can pay for electricity bills, telephone bills, petrol, grocery, etc. through their mobile phones. The payments made in the mobile phones for such items will appear as part of their mobile phone bills, thus eliminating the need for a third party payment mechanism such as, credit cards. This reduces the cost of payment to a large extent.

Personalized Service

Mobile commerce offers a number of personalized services to the mobile users depending on their various requirements and purposes. The digital cellular technology can monitor the location of user performing mobile transactions. Knowledge of the user's location may be used to deliver

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timely and useful contents such as product availability and discount information to the potential customer. Timely information, such as flight schedules and flight availability can be delivered to the user at the last minute. Delivery of time critical as well as emergency information, SMSbased notifications and alerts can be easily made if the location of the user is tracked. The location tracking is also utilized in offering customized services to the user, such as delivery of discount coupons that can be cashed in and around of the location of the customer.

Delivery of regional maps, driving directions and online directories are also possible if the location of the mobile user is known. Another major advantage-of location tracking is that, in criminal investigation, the location of the mobile user can be monitored and recorded as part of the investigation process.

Limitations of Mobile Commerce

Although mobile commerce has some distinctive advantages, such as instant connectivity and location and time independence over electronic commerce and offers low cost personalized services to the mobile users, it suffers from some serious limitations which restrict its use in mainstream business world.

The mobile device limitations, such as small screen size, small memory capacity and lower processor speed makes it unsuitable for high quality internet graphics applications. The limited availability of bandwidth to various mobile operators imposes a limitation on the speed of operation of different mobile commerce applications. The wireless networks used in mobile commerce are more vulnerable to external hacker attacks compared to wired networks and stringent security arrangements in the form of encryption and authentication should be adopted to prevent unwanted intrusions. The main disadvantages of mobile commerce are explained in detail below.

Mobile Device Limitations

1. **Small screen size:** Mobile devices have smaller screen size (of the order of 2 by 3 inches) and poor resolution which makes them inconvenient for browsing applications. Data entry can be quite difficult using small combinational keypad that comes with most of the mobile handheld devices. The wide and high resolution screens in conventional desktops or laptops used in ecommerce applications offer ease of use in data entry operations as well as viewing web pages These larger screens support 1920 x 1080 resolution and 3D graphics display. Although mobile devices offer greater mobility and flexibility in accessing information, the smaller screen size restricts the amount of information that could be presented and offers a less convenient user interface in the form of menu-based scroll-and-click mode of data entry.
2. **Low speed processor:** Most mobile devices come with low-powered processors with much lower processing speed compared to sophisticated processors (i.e. core 2 duo or i-core series) used in desktops or laptops. Such low speed processors restrict the download speed in most mobile commerce applications. The applications requiring too much processing power should be avoided as they may become irritably slow due to low speed processors. Also, keeping the low processor speed in mind, the mobile websites must be optimized to ensure customer satisfaction. Unnecessary plug-ins, flash images and animations should be removed to ensure speed of delivery.
3. **Small memory capacity:** The mobile devices do not have large storage space. The memory capacity in mobile devices is in the order of 5 GB to 10 GB compared to 2

TB or higher used in desktops/laptops. So, it is difficult to store large video files in mobile devices for future use. The mobile application developers must be concerned about the size of their applications during the development phase.

4. **Low power backup:** Mobile devices use batteries as their power supply. Normally, power for a mobile device lasts up to 2-3 days, depending on the size of the device. After this period, the battery should be recharged again, and it adds an additional burden to the user who has to remember every now and then to recharge it.

Wireless Network Limitations

Mobile commerce depends on wireless networks which are usually of lower speed compared to wired networks. In many cases, wireless networks offer one-fourth speed of standard wired network. Also, most wireless networks are more common in urban areas and some of the rural areas might not have wireless communication facilities.

So online mobile services may become unavailable in some rural areas, and thus the popularity of mobile services may be suffered. Unless the mobile device is 2.5G or 3G technology compatible, the applications will become sluggish and unreliable compared to wired network applications. Atmospheric interference and fading of signals transmitted through wireless networks sometimes cause severe data errors and may even lead to disconnections.

Bandwidth Restrictions

A major disadvantage of mobile commerce is the bandwidth limitation, which imposes a limitation on speed of operation in various m-commerce applications. Wireless networks use frequency spectrum to transmit information across the network.

Regulatory bodies control the use of available frequency spectrum and allocate the spectrum to various mobile operators. In India, the frequency spectrum were initially allocated and regulated by Department of Telecommunication (DoT). Later, the Telecom Regulatory Authority of India (TRAI) was set up to control the usage of frequency spectrum. The limited availability of bandwidth to various mobile operators in turn restricts the data rate in mobile commerce applications. The GSM technology offers the data rate of the order of 10 Kbps and 3G technology can go up to 10 Mbps.

(4) Security Issues

Another concern that is often raised in connection with mobile commerce is the security issue. Mobile devices are more vulnerable to theft, loss and mishandling. Special care must be taken to ensure that the security and privacy of the mobile customer are not compromised at the event of loss of a mobile device. This includes not storing sensitive information in the mobile devices and changing/locking of PIN (password fast and simple at the time of need.

Mobile commerce employs public wireless networks for transmission of signals which can be easily intercepted by hackers for capturing/ altering stream of data travelling through the wireless medium.

In wired networks, in order to gain access, the intruder has to gain physical access to the wired infrastructure. In wireless networks, anyone with the ability to receive signal in a mobile device can gain access to the network. In order to protect the wireless network from unwanted users, various encryption and authentication techniques should be employed.

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As the handheld devices have limited computing power and storage capacity, it is difficult to employ 256 bit encryption technique that requires enough computing power. However, the SIM cards inside a cell phone can include the digital signatures of PKI system. Thus, the PKI system of digital signatures can be integrated in a mobile device that adds to the security of the mobile application.

Authentication of mobile devices prior to carrying out any financial transaction is another important issue. The Subscriber Identity Module (SIM) stores the subscriber identity in the form of cryptographic keys. The authentication server of the wireless network stores the matching keys and verifies the user identity prior to any transaction. Though it is far easier to intercept signals over wireless networks, the encryption and authentication mechanism makes it harder to decipher by the unwanted user.

Despite of the described limitations, number of people performing m-commerce transactions are growing exponentially. As in-commerce provides mobility to busy professionals, more and more people tend to access internet through their mobile phones. People find it more convenient to shift from e-commerce to m-commerce, and the projected global revenue from m-commerce is expected to cross 400 billion USD, during 2015.

The day-to-day functioning of individuals as well as corporations are being transformed to mobile applications and is embedded in mobile devices. The mobile network operators have started providing value-added services that supports the new concepts of anytime anywhere computing. Accordingly, a new mobile business model has emerged, which is based on shared revenue distribution through sales in respective channels.

For example, in mobile retail, a diverse range of mobile applications are developed to enable the multi-channel retailer to perform the key functions, such as mobile promotions, mobile payment, product information display, order management, catalogue management, create and display shopping list, loyalty programmes and other value-added services. Similarly, in travel industry, location-based tourism, mobile ticketing, navigational guidance and local weather/and traffic information delivery results in new revenue generating opportunities.

In order to make these value-added services work efficiently, and in a cost-effective manner, perfect collaboration between various network providers, technology providers and application developers is required. In order to integrate different mobile services, applications and technologies in a well-coordinated and controlled architecture, a mobile commerce framework needs to be developed. The purpose of the framework is to develop a structured integration of mobile services, applications and technology resources so that it will be able to deliver diverse range of value-added services in different industry sectors, and at the same time aim to reduce operating cost and improve efficiency to attract the end user population. The mobile commerce framework consists of the four basic building blocks as follows:

Content Management

This component deals with the creation, distribution and management of diverse range of media rich digital contents that can be browsed through the small screens of the mobile devices. The digital contents are used in performing various business transactions such as buying and selling of goods, making online payments, product promos and providing on line customer support.

An important part of content management is the ability to track different content providers and maintain and manage the relationships among them. The security and authenticity of the

contents must be guaranteed and the access control mechanism must be provided to prevent unwanted users from misusing the document. The content distribution, rights management and clearing financial settlements, all come under the purview of content management module.

Technology Infrastructure

This component deals with the distribution of digital contents and transaction details over wireless communication networks to customer locations or other business installations. The wireless network infrastructure provides the very foundation of mobile commerce framework as it fulfills the basic requirements of data transmission between various business partners while performing any business transaction.

The technology infrastructure includes wireless communication technology, Wireless Application Protocol (WAP) and mobile security technology. These technologies need to support digital content distribution, mobile application development and distribution and also provide a secure technological platform for mobile billing and prepaid services through the use of mobile Virtual Private Networks (VPN).

Application Development

The application development component of mobile commerce framework deals with the diverse range of mobile commerce applications. The main purpose of these mobile applications is to provide the product information to the end users, and also to enable them in performing the mobile business transactions. There are four major categories of mobile applications namely the information applications, communication applications, entertainment applications and commerce applications.

Several mobile applications, such as mobile ticketing, mobile banking, mobile advertising, mobile office applications, etc. fall under these categories. These applications support key business functionalities in respective verticals and are meant to achieve higher revenue generation as well as cost reduction. Sometimes, more than one application are combined together to deliver an aggregated service, which leads to further cost reduction.

With the rapid development in various emerging mobile technologies, the application development is going through an evolutional stage. In order to meet the requirements of today's rapidly evolving markets, the mobile applications must be developed in an innovative manner so that it allows the service provider to quickly address the growing demands of the market and also at the same time offer more profitability and greater cost reduction.

Business Service Infrastructure

The business service infrastructure provides the backbone to the mobile commerce framework. It supports the back office functionalities, such as payment services, location and search facilities and security arrangements of the mobile commerce systems. Production and fulfillment of these services are beyond the scope of traditional telecom service providers. These services are managed and delivered by some outside vendors, who have the ability and experience to provide such functionalities. They maintain the required infrastructure for supporting secured financial transactions in mobile commerce environments and also provide back-end support for searching and other facilities.

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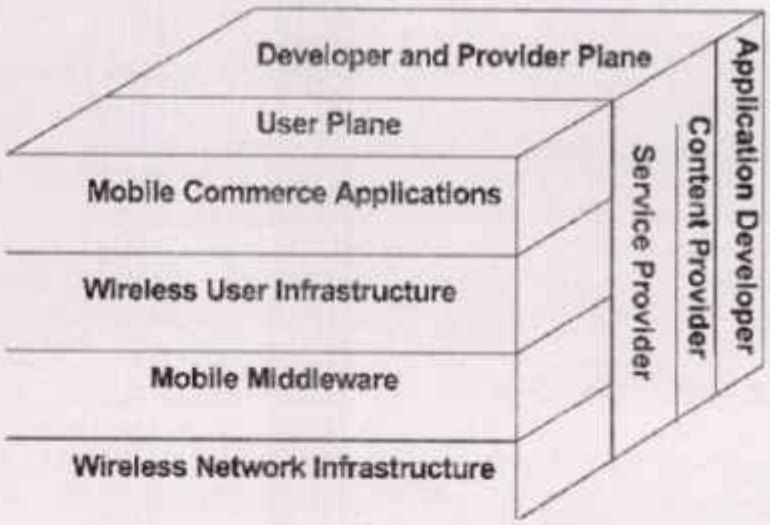

Fig. 3 : Mobile Commerce Framework.

Such back office systems are meant to be flexible enough and also are capable of rapiddeployment of new services. They have a direct impact on end user experience, and have thegreatest influence on the success or failure of the service provider. With the help of such back office infrastructures, mobile service providers can avoid upfront capital IT expenditure, and also these managed services offer the service providers the ability to quickly upgrade to the newer technological environment without any Significant investment.

Above four components are the four pillars of mobile commerce framework and all m-commerce activities revolve around them. Whenever a mobile user tends to download MP3 music or a latest movie in his/her mobile device, sends an SMS requesting online payment to a bank, submits online order form requesting purchase in a mobile browser or books a mobile airline ticket, he/she is indulging in either or all four of the above mobile commerce framework components.

In order to cope with the dynamic nature of the modern day lifestyle, people are demanding more mobility in accessing their business applications. A properly integrated and well coordinated mobile commerce framework needs to be developed in order to provide easy-to-use and secure mobile services to end customers. The main purpose of a structured and balanced mobile commerce framework is to enable the organizations to rapidly adapt to the latest mobile technologies and to ensure customer loyalty by providing them improved and enhanced services in sync with the growing market demands.

4.15 MOBILE COMMERCE BUSINESS MODELS

A business model determines the path or process through which a business organization can realize some profit. It shows the way by which an organization can make some investment, add some value to the investment, get a finished product or service and generate some revenue through sales of the product or service. The revenue generated through sales must exceed the operating cost, so that the company gets some profit. Business models specify the mechanism for generating profit margins and to sustain in the value chain. Thus, business models help

managers in strategic planning and formulating overall business strategy of the organization. Electronic commerce has some traditional business models that are widely followed by all major ecommerce vendors worldwide. These include Merchant model, Broker model, Service Provider model, Advertiser model, etc.

Mobile commerce business models differ from those of electronic commerce due to their intrinsic difference in operations and technology. As mobile commerce imparts extra mobility to the users, the business models also reflect the mobility in their nature. The four major services offered by mobile commerce are the payment services, mobile advertisements, mobile shopping and mobile entertainment. Accordingly, mobile commerce business models also revolve around these four applications. The four major mobile commerce business models are described below.

4.16 PAYMENT GATEWAY

The payment gateway can be viewed as a telephone wire that connects the sender's message to be receiver. The that communicates payment gateway is the system between the merchant's Website, the bank holding the merchant account, and the bank holding the financial records of the customer. There must be a communication channel among these entities and if the merchant's system is not compatible with the banking system, a transaction cannot take place. Payment Gateways is the electronic payment processing system, designed for collecting payment messages and instructions from remote Internet and mobile commerce nodes as well as classical merchant On-line point-of-sale terminals, and processing these transactions. At the heart of a gateways is a robust and highly portable infrastructure software application that provides all the functionality and features required for distributed transaction capturing and processing in a secure and reliable manner. It enables electronic business solutions like e-banking, e-brokerage and e-payment to be deployed.

A real time (automatic) credit card transaction is more expensive than the manual method of credit card processing by a human operator, but it suits companies that turn over high volumes and do not wish to use a manual processing method. Thus, payment gateway is a software program which is integrated to a merchant's Website for facilitating transmission of transaction data to the credit card or net banking acquirers for settlement of payments. This enables the merchant to perform real-time credit card authorization from a Website through Internet. After the gateway obtains authorization from credit card institutions, the customers can do the required payments across the Internet within a few seconds.

Advantages of Payment Gateway

- Money is transferred in merchant's account at the time of the transaction.
- No manual card processing work is required.
- In the case of high turnover businesses, it is more cost-effective than manual order processing.

Disadvantages of Payment Gateway

- In the case of small turnover companies, it is not as cost effective as manual order processing.
- If the business is out of stock, then it must organize a refund (however, most gateway companies provide the means for making refunds).

In the following section SET Protocol and some of the facilitators for payment to merchants, who actually act as a gateway are discribed.

Notes

Secure Electronic Transaction (SET) Protocol

In e-business, the parties involved in a transaction need to have all sorts of guarantees that are dealing with legitimate customer/merchant. For example, merchants need to know that they are dealing with a legitimate holder of a credit card, cardholders need to know that they are dealing with a legitimate merchant, merchants need to know that the customer has the funds to pay for the purchase, and customers need to know that their order and payment information will not be disclosed while being transmitted over to network and that merchants will not misuse their credit card information.

The Secure Electronic Transaction (SET) protocol provides these guarantees. SET is a system for ensuring the security of financial transactions on the Internet. SET protocol specifications were defined by the credit card industry to facilitate credit card purchases over the Internet. SET protocol was developed by the SET consortium which includes organizations such as Visa, Mastercard, GTE, IBM, Microsoft, Veri Sign, RSA Data Security, and others. The main objective of SET is to provide security for card payments as they transverse the Internet between merchants sites and processing banks.

SET is an open encryption and security specification designed to protect credit card transaction on the Internet. SET is not itself a payment system. Rather, it is a set of security protocols and formats enabling users to employ the existing credit card payment infrastructure on an open network, such as the Internet, in a secure fashion. SET provides confidentiality of payments and order information. Payment information cannot be viewed by the merchant, and it can be viewed only by the payment authorization and processing entities. Order information can be viewed only by the merchant and not by payment processing entities. Through SET merchants are authenticated to guarantee they can accept payment card transactions and cardholders are authenticated as legitimate users of a credit card. It authenticates the identification of the parties involved in the transaction by using a combination of cryptography systems along with a trust hierarchy of digital certificates. SET serves the following four objectives:

1. **Confidentiality:** SET ensures confidentiality of payment information as it is processed electronically.
2. **Integrity:** SET ensures integrity of data transmitted which implies that the data will not be corrupted during transmission or processing.
3. **Authentication:** SET authenticates the cardholders as legitimate user of a credit card. It also authenticates that the merchant handling a sale can accept an authorized card via the acquiring bank. Thus, it authenticates both card holder account and merchant.
4. **Interoperability:** SET ensures interopretability across network providers. This implies a more empassing or comprehensive way of making electronic payments over the Internet 24x7x365 without delay.
5. **Anonimity:** Although the protocol defined by SET is thorough but it is complex. Each purchase request transaction requires exchange of four messages between merchants and customers. Therefore, it is not economical for small payments.

Assuming that a customer has a SET-enabled browser such as Netscape or Microsoft's Internet Explorer and that the transaction provider (bank, store, etc) has a SET enabled server, SET works in the following four phases (see fig. 4 given below):

1. The customer opens a Master card or Visa bank account. Any issuer of a credit card is some kind of bank.

2. The customer receives a digital certificate. This electronic file functions as a credit card for On-line purchases or other transactions. It includes a public key with an expiration date.
3. Third party merchants also receive certificates from the bank. These certificates include the merchant's public key and the bank's public key.
4. The customer places an order over a Web page, by phone, or by Some other means.
5. The customer's browser receives and confirms from the merchant's certificate that the merchant is valid.
6. The browser sends the order information. The message is encrypted with the merchant's public key, the payment information, which is encrypted with the bank's public key (which cannot be read by the merchant), and the information ensures that the payment can be used with this particular order.
7. The merchant verifies the customer by checking the digital signature on the customer's certificate. This may be done by referring the certificate to the bank or to a third-party verifier.
8. The merchant sends the order message to the bank. This includes the bank's public key, the customer's payment information (which the merchant cannot decode), and the merchant's certificate.
9. The bank verifies the merchant and the message. The bank uses the digital signature on the certificate with the message and verifies the payment part of the message.
10. The bank digitally signs and sends authorisation to the merchant, who can then deliver the order.

Fig. 4: General Secure Electronic Transaction Information Flow

4.17 CYBERCASH (CYBERCASH.COM)

CyberCash is one of the company with world-wide export licence of 1024-bit RSA encryption algorithm. CyberCash server acts as a gateway and it offers a real-time and secured credit card authentication service over the Internet based on digital signatures. CyberCash is a Web-based service that automatically processes and verifies customer's credit card information, debiting the customer account and crediting the merchant's account electronically. CyberCash payment system is a system which provides multiple means for users and merchants to move money on the Internet CyberCash Inc. provides a suite of electronic payment systems. This system can be used by any user, any merchant, and any bank. CyberCash offers secure communication for conducting credit card transactions over the Internet. For customer to merchant payments, there are three parties connected to the Internet: the customer, the merchant, and the CyberCash server. With the use of dedicated lines, a typical sale transaction via the merchant's Website involves the following steps:

Notes

As explained earlier, the credit card information is encrypted so the merchant cannot see it. Typically, a transaction goes through the transaction processing cycle in less than 15 seconds. CyberCash acts only as an intermediary and charges the merchant on a per transaction basis.

The CyberCash (Credit-card) system is described below:

1. A customer will engage in a dialog with the merchant's Web server, eventually arriving at a decision to buy some goods or services. All of the dialog related to the sale is under control of the merchant until it is the time to make the payment.
2. At the point of making the payment, the merchant presents the user with the amount to be paid and transaction identifier, and then turns control over to the CyberCash payment system.
3. The customer provides his/her credit card details to CyberCash.
4. CyberCash issues the digital certificate to the customer which will identify the customer in future.
5. The customer sends a message to the merchant containing his/her digital certificate and the transaction details.
6. The merchant validates the order, checks for duplicates and sends it along with a command to charge the customer's card to CyberCash. This command is encrypted and digitally signed.
7. CyberCash decrypts, validates, and forwards the order to the merchant's bank for processing.
8. The merchant's bank forwards it to the customer's bank who sends an approval or denial back to the merchant's bank.
9. This approval or denial is then send to CyberCash, who in turn sends it to the merchant.
10. The merchant then sends out the goods, to customer.

As explained earlier, CyberCash provides secure transaction thus, has the following benefit.

1. Merchants are protected from unauthorized payments and payment denial from cardholders.
2. Banks are protected from unauthorized purchases.
3. Customers are protected from merchant imposters (add ons)) and theft of credit card details.

But CyberCash has following disadvantages:

1. All transactions with CyberCash are traceable, so there is no privacy for the customer.
2. The cost of a credit card transaction is lower limit of the cost of a transaction in this system, making it expensive and viable for higher value payments.

In a nutshell, the CyberCash protocol has addressed the following issues to create a perfect electronic payment system:

1. Universal: Any customer with a valid credit card can take advantage of this system.
2. Convenient: Al transactions are performed On-line, and are typically conducted in less than 20 seconds.
3. Automated

4. Secure: Card information is automatically encrypted using highly secured 768-bit and soon to be 1024-bit public key encryption technology.
5. Exportable: The cybercash system is approved for export by the US government.

Flow of transaction using Cyber Cash Gateway is described below:

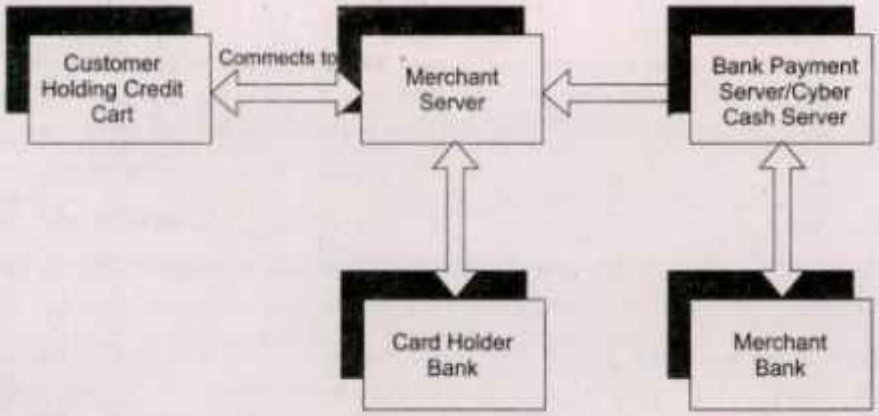

Fig. 5: Cyber Cash Gateway

4.18 NET BILL

Net Bill is a micro-payment system. The Net Bill system enables consumers and merchants to communicate directly with each other, maintain accounts for both consumer and merchant, confirms and ensures security for all transactions. It is designed to support very low-cost transactions involving electronic goods. Net Bill is a dependable, secure, and economical payment method for purchasing digital goods and services through the Internet. NetBill enables merchants and consumers to deal with each other easily over the Internet without taking the trouble and transaction costs of using credit cards for each purchase. Moreover, consumers need to keep track of only one account when purchasing goods from different merchants.

Net Bill uses both an encryption and a challenge system to secure its transactions. In addition, if the transfer does not go through properly, the purchaser simply selects it from the list of notations to transmit again.

Net Bill uses an account server, which maintains accounts for both customers and merchants, linked to conventional financial institutions. The NetBill server acts as an aggregater to combine many small transactions into larger conventional -- sized transactions. In NetBill, all money related activities are centralized at the bank and take the form of transfer between accounts. The basic steps in the NetBill operation are configured as follows :

Step 1. **The consumer clicks on the URL in his/her browser** and requests a price quote from the merchant. Requesting the price quote typically involves clicking on the item in the catalog. In step 1, the customer in the each other and the merchant authenticate using public-key certificates. They establish a symmetric session key to encrypt subsequent messages.

Step 2. **The merchant responds with a quote** to the customer, based on customers identity.

Step 3. **The customer accepts or rejects the price quote.** If the customer accepts the price quote, a digitally signed purchase request is sent to the merchant.

Notes

Step 4. **If the quote is accepted, the merchant delivers** the information in Step encrypted form. The consumer's software computes a checksum of the goods, along with the accepted price, the product identifier, back to the merchant.

Step 5. **The customer sends the electronic payment** order to the merchant. At this step merchant compares the two checksums and, if they do not match, retransmits the data or aborts the operation. This step ensures that the goods were transmitted without error.

Step 6. **The merchant sends the electronic payment** order and key to the Net Bill server. The merchant then sends this to the Net Bill server, the Net Bill server verifies that the product identifiers, prices and checksums are all in agreement. If the customer has the necessary funds or credit in his account, the Net Bill server debits the customer account and credits the merchant's account, logs the transaction, and saves a copy of the decryption key.

Step 7. **The Net Bill server sends a receipt to the merchant.** The Net Bill server then returns to the merchant a digitally signed message containing an approval, or an error code indicating why the transaction failed, the merchant forwards the Net Bill server's reply and (if appropriate) the decryption key to the customer.

Step 8. **The merchant sends a receipt to the customer,** allowing the customer to decrypt the information who now decrypts the purchased information.

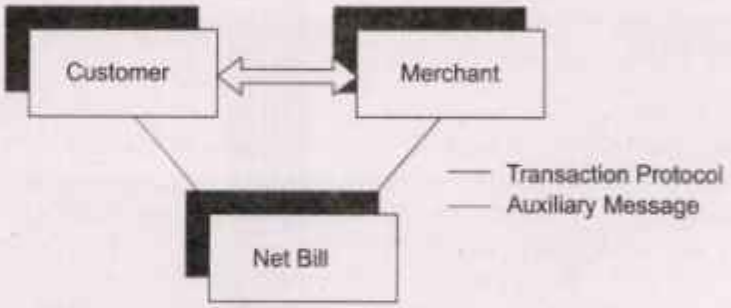

Fig. 6: NetBill Payment System

The Net Bill server operates transactionally to ensure that the consumer does not get billed for goods he cannot decrypt or receive goods without paying for them. The transaction is atomic, meaning that all actions occur or none do. If for any reason any transaction is incomplete, Net Bill guarantees that the consumer will not be charged.

These is little personal anonymity in this process. The Net Bill server does not know anything about the information the customer purchased from the merchant. It might be pages from Bible written in Urdu, or a cryptography program from an Indian citizen. This information is kept secret.

However, the Net Bill server keeps a transaction record of purchases made from different merchants, and this potentially allows all information requests to be linked. The accounts on the NetBill server are linked to financial institution a bank. A consumer can replenish funds in NetBill account using credit card or bank account. Similarly, merchant can transfer funds from its NetBill account to his bank account.

4 First Virtual

First virtual is one of the first companies that offered a third party verification method to make payment over the Internet. The system works as follows:

Customers purchase a first virtual account by filling an On-line form. To avoid sending credit card information over the net, their card numbers are given by phone. Customers pay a small one time fee and receive a First Virtual PIN for their purchases. Each time they want to buy something from a merchant that accepts FV, customers send their FV PIN to the seller. The seller then sends FV PIN to First Virtual for verification. FV checks the availability of funds and sends a confirmation request via e-mail to the buyers. Once the buyer authorizes the payment, FV confirms it to the seller and money is transferred from the customer's account to the merchant's account.

First Virtual has devised a unique and innovative method to conduct secured On-line transactions to create automatic authorization that requires no previous relationships between buyer and seller. It does not use encryption. Neither buyer nor seller is required to install new software - it never asks for the credit card information. All transactions will use Virtual PIN, which works like an ID that relates the customer with his or her credit card number, issued by First Virtual company.

The credit card number is stored offline, on secured computers not connected to the Internet. The credit card will not be charged until the first Virtual Company receives a reply to confirm the sale. The security mechanism for first Virtual Protocol is very minimal because there is no involvement of credit card number inside the messages send over the Internet.

The man advantages to this system are:

1. Neither buyer nor seller needs to install any software in order to use the system.
2. Buyers are protected from fraud.
3. Purchases are essentially anonymous. The merchant is never given the buyers name from first virtual.
4. It is easy to become merchant or seller under FV. FV does not screen merchants. They do not require merchant to have business account established with bank.
5. First virtual has very low processing fee as compared to other payment schemes.
6. There are no credit card numbers over Internet because all the credit card checking is done offline.
7. It aggregates all monthly purchases into just one monthly charge.

However, the system has following disadvantages :

1. It takes some time to ask for and receive the e-mail confirmation of the order.
2. There is a cost for the merchant.
3. Two commissions are involved (credit card and FV). Therefore, it might not be feasible for small transactions.

4.19 ELECTRONIC PAYMENT MEDIA

Electronic payment media is the way in which a person can make On-line payments without transfer of physical cash or documents, irrespective of time or location. The various electronic payment media are:

Notes

- Credit cards
- Debit cards
- Smart cad
- Digital cash
- E-Wallet
- Electronic funds transfer
- Automated clearing house

These have been explained in details in the subsequent section.

Credit Cards

A credit card system is a type of retail transaction settlement and credit system, named after the small plastic card issued to the users of the system. A credit card is different from a debit card in that the credit card issuer lends the consumer money rather than having the money removed from an account. Most credit cards are of the same shape and size, as specified by the ISO 7810 standard.

Credit cards-based payments can be divided into three categories:

1. **Payment using plain credit card information:** The easiest method of payment is the exchange of (unencrypted) credit cards over a public network such as telephone lines or the Internet. The low level of security inherent in the design of the Internet makes this method problematic. Authentication is also a problem as the merchant is usually responsible to ensure that the person using the credit card is its owner.
2. **Payment using encrypted credit card information:** Encrypting credit card information is a solution to the problems inherent in using plain credit card information. However, the major concern of this method of payment is the cost of the transaction itself, which could prohibit low-value payment (micropayments).
3. **Payment using third-party verification:** One solution to security and verification problems is the introduction of a third-party, such as First Virtual, which is a company that collects and approves payments from one client to another. After a certain period of time for processing, one credit card transaction for the total accumulated amount is completed.

In On-line business, accepting credit cards is a must. Customers enjoy both the convenience and the security of buying with a credit card. In order to accept credit cards, the business must have a merchant account. A merchant account gives a business the ability to accept credit cards as payment for the company's goods and services. The merchant account provider authorises the credit card transfer from customers and deposits the funds for their purchases right into the merchant account, typically within two business days. Most credit card processors will also verify the customers address to ensure that it matches the address on file with the card's issuing bank.

A complete electronic credit transaction may consist of several basic steps as explained below:

1. Phase I: Purchase of goods
   (a) The consumer accesses the merchant's home page and receives a display of the merchant's goods.

(b) The consumer selects the desired goods and offers a credit card payment to the merchant.

(c) The merchant server accesses its bank for credit authorization of the customer's credit card number and the amount of purchase. The merchant's bank completes the authorization and informs the merchant whether to proceed with the purchase or not.

(d) The merchant informs the consumer whether the transaction has been completed.

2. Phase II: Settlement

This phase is executed separately by the merchant server to collect the payments on various credit card purchases. The steps involved are:

(a) The merchant server accesses the merchant's bank and provides a collection of receipts of various electronic credit purchases.

(b) The merchant's bank accesses the card issuer and obtains the money for the purchases.

3. Phase II: Consumer update of credit card bill

In this phase, the card issuer updates the card holder (consumer) about the amount of credit transferred to other parties as a result of purchases. The consumer may receive the account updates once a month through postal mail or e-mail.

Benefits and Concerns of Electronic Credit

Electronic credit approach has following benefits:

1. The card number and expiry date can be prevented from disclosure to the merchant. This characteristic does not exist in the traditional credit card systems. In this context, the electronic credit can provide a higher level of security than traditional credit card system.
2. The electronic credit system can be designed to obtain almost instant payments to the merchants from credit card sales.

The following concerns must be addressed for electronic credit transactions:

1. A procedure will be required to handle any loss of credit card information over the Internet.
2. The credit card system must provide non-repudiation and related documentation to address any disputes. The credit card receipts are generated electronically. As such, any disputes should be resolvable based on available On-line documentation.

Credit cards can either be processed in real-time or collected and batch processed. Real-time processing means that the customer enters credit card information, it is immediately accepted or denied, the customer is notified, and if it is accepted, the transaction is concluded. Batch processing means that a number of credit card transactions are processed together at a later date. The obvious advantage to real-time credit card processing is that the transaction is processed immediately and customer knows whether or not it has been approved. However, the risk of fraud is greater with real time processing because there is always a chance that a stolen card is being used before it has been reported stolen. Moreover, if credit card processor's server goes down, business cannot accept any orders. Batch processing can be the better option for smaller businesses because it reduces the risk of fraud.

Notes

If a customer has used a credit card, no money has actually changed hands. Any of the reputable merchant account provider will provide the business owner with payment into their account within the first 24 to 48 hours of the initial transaction. Business is not concerned with the fact whether that customer has a balance on that card. If the customer disputes the said transaction, the bank is usually under no obligation to pay the business owner, especially if that dispute has been deemed acceptable.

Credit Card Laundering

Once an account is opened, regulations provide that a member bank may not accept deposits from any person or entity with which there is no merchant agreement. Therefore, merchants can legally deposit only those drafts generated by their own businesses.

Credit card laundering is sometimes called as credit card factoring. Laundering is selling invoices to obtain your money today, instead of waiting for 30, 60, or 90 days to be paid. It is a sale of company's Current accounts receivable, to a party at a discount. This party then takes over the credit risk of the account debtors and obtains the funds when the debtors settle accounts. Credit card laundering is one of the available to financing options a company for supplemental working capital. Credit card is an important finance management tool for a small company that is out of debt. Credit card laundering is different from obtaining a loan in the sense that it does not require any collateral security. Credit card laundering system working is explained below:

Sometimes, a company does not have a credit card merchant account with a bank or any other credit card company. In this case, the credit card company appoints another company, not having the merchant account, for processing the credit card transaction through its account. When the credit card processing company receives the payment for the credit card charges, it returns the money over to the company that does not have an account. However, it keeps a previously agreed upon percentage or the other fee. But it is true that processing credit card transactions for another business through your merchant account may prove fatal for your business. The reason why some companies need other companies to process their credit card transactions is that investigations and credit checks by banks and/or credit card companies revealed that these companies are bad risks and may end up having excessive charge backs. Banks and some credit card companies investigate and evaluate business before they give them merchant accounts to avoid doing business with merchants they consider to be at potentially high risk for incurring losses, excessive charge backs, or harm to the reputations of the credit card companies and their members. Risks associated with credit card laundering are:-

1. **Financial risks:** When a merchant agrees to process another merchant's credit card charges, he takes on the responsibility of paying for any charge backs, which are likely to exceed any commission he might earn. For example, disreputable companies can use other merchants to bill consumers for sales for which the goods are never delivered. After receiving payment from the merchants that processed the transactions, these disreputable companies often close their operations or move to new and undisclosed locations without ever Sending the products to consumers who ordered them. When these customers find that the company has closed or disappeared, they contact the banks that issued their credit cards to challenge the charges on their bills.
2. **Credit risks:** Credit card laundering is a violation of a merchant agreement with a bank or credit card company, and discovery by the bank or credit card company

will result in termination inspite of good reputation of the processing company. It may become difficult for them to obtain other merchant accounts in the future.

3. **Legal risks:** Credit card laundering can also expose the processing company to criminal or civil liability for fraud, unlawful business practices, breach of contract, interference with contractual relations, and trademark infringement.
4. **Ethical risks:** By engaging in credit card laundering, the processing company also helps in perpetuating the fraudulent and unethical business practices of-disreputable and financially unsound companies. This is in direct opposition to ethical business practices.

Debit Cards

A debit card is an ISO 7810 card which physically resembles a credit card, and like a credit card, is used as an alternative to cash when making purchases. Debit cards are the electronic equivalent of cheques. Debit cards look like credit cards or ATM cards, but operate like cash or personal cheques. A debit card is a banking card enhanced with automated teller machine and point of sale features so that it can be used at merchant locations. A debit card is linked to an individual's bank account, allowing funds to be withdrawn at the ATM and point-of-sale without writing a cheque. A debit card enables the cardholder to pay for his purchases directly through his or her bank account, replacing cash and cheques.

When using a debit card to pay for goods and services, the purchase amount is deducted from the cardholder's bank account. Depending on the type of card, processing a debit card transaction requires the cardholder either to sign a sales draft, or to enter a PIN into special terminal equipment just like at an ATM. However, when purchases are made with a debit card, the funds are withdrawn directly from a purchaser's bank account. The debit cards can be divided into two categories on the basis of two ways in which debit card transactions are processed: On-line debit cards and offline debit cards. 'On-line' debit cards are usually enhanced ATM cards which work the same as they would in an ATM transaction.

It provides the means to immediately electronically transfer from the user's bank account to the merchant's bank account. On-line debit cards require electronic authorisation of every transactions and debits are reflected in the user's account immediately. The transaction may be additionally secured with a Personal Identification Number (PIN) authentication system and some On-line cards require such authentication for every transaction, essentially becoming enhanced automated teller machine (ATM) card. One difficulty in using On-line debit cards is the necessity of an electronic authorisation device at the point of sale (POS) and sometimes also a separate keypad to enter the PIN. The On-line debit card is generally viewed as superior to the offline debit card because of its more authentication system and live status.

Offline debit cards have the logos of major credit cards (e.g., Visa or Master card) or major debit cards (e.g. Maestro) and are used at point of sale as a credit card. This type of debit card may be subject to a daily limit, as well as a maximum limit equal to the amount currently deposited in cardholder's account from which funds are withdrawn. Offline debit cards in some countries are not compatible with the PIN system, in which case they can be used with a forged signature, since users are rarely required to present identification. Transaction conducted with offline debit cards usually require 2-3 days to be reflected on user's account balances. This type of debit card is similar to a secured credit card.

Notes

Debit cards are different from credit cards. While a credit card is a way to 'pay later', a debit card is a way to 'pay now'. Debit cards offer an alternative to carrying a cheque book or cash. They allow the user to spend only what is in his/her bank account. It is a quick transaction between the merchant and user's personal bank account.

Benefits of using a debit card

1. Makes the payment process at the checkout counter quicker and more convenient. It does not require to fill out a cheque or to present identification and wait while the identification is written down or verified.
2. Eliminates the need to carry a cheque book or cash.
3. Does not deplete the available cash in cardholder's wallet.
4. Can be used out of town or at locations where personal cheques are not accepted.
5. Reduces the possibility of loss or theft of cash.

Disadvantages of using debit cards

1. Debit cards cannot be used in all situations.
2. The cardholder must be certain of his or her bank account balance, as it might be possible to make purchases beyond the funds available.

Smart Cards

Smart cards are embedded with a microprocessor chip. They are more "intelligent" because data on the smart card can be manipulated through programs or commands. Furthermost, data is better protected by means of cryptographic techniques. Hence, it cannot be copied easily. In other words, this makes smart cards more tamper-proof. Smart cards have numerous applications such as electronic payments, authentication, and health care. In particular, smart cards are playing an important role in e-commerce. By carrying a smart card, people can conduct different types of electronic transactions anywhere in a secure and efficient manner over the internet. It is expected that incoming smart cards are having 3i features such as, 'intelligent', 'multifunctional', 'interactive' as they can interact with other devices on the internet. Moreover Smart cards are "interoperable", as different smart cards can communicate with each other. This is its interface with the outside world and handles a variety of applications.

Why Smart Cards Are Smart?

A schematic overview of smart card is shown in Figure 4.2. The chips also add 'smarts' to the cards, allowing it to store and to process information. A prepaid smart card contains stored value which the person holding it can spend at retailers. After accepting stored value from cards, retailers are periodically reimbursed with actual money by system providers. A system provider receives money in advance from people and stores corresponding value onto their cards. During the transaction, secured data representing value is exchanged for actual money or for goods and services. Smart cards art available in disposable (or memory) and reloadable (or processor) versions. Disposable cards have value the user can spend. In contrast, most reloadable smart cards have more memory, more information, and a higher level of security. They can contain multiple applications on a single chip, manage several passwords; and use authentication and encryption techniques to combine freedom of use with security.

Typically, a smart card has the dimensions 8.56 cm x 5.4 cm x 0.08 cm.

Technically, this form of smart card is called ID-1. There is another form of a smaller size

called ID-000, which is used in small terminals such as cellular phones. As mentioned before, an integrated circuit chip with a microprocessor is embedded in the smart card. This chip also provides mechanical contacts to external devices, for providing power supply, supporting data transfer, etc. Smart cards are better protected from misuse than, conventional credit cards, because the smart card information is encrypted.

Unlike a smart card, a credit card does not contain cash, credit card contains, a number of an account that can be charged. However, on the other hand a smart card contains private user information such as financial facts, private encryption keys, account information, credit card numbers, health insurance information, and so on. It also encrypts digital cash on the chip which can be refilled.

Smart Cards have following benefits:

1. Smart cards contain stored value which provides the users with the ability to make purchases.
2. Smart Cards contain private user information such as financial facts, private encryption key, credit card numbers, account information, etc.
3. With a smart card, credit theft is practically impossible because a key to unlock the encrypted information is required.
4. Smart cards provide the advantage of portability and convenience.
5. Smart cards enable the holders to manage their expenditure more effectively and provide the ability to access multiple services and the Internet.
6. Smart cards are capable of performing data encryption.
7. Smart cards also help in reducing the paper work.
8. Smart cards are a safe place to store sensitive or important information. Moreover, the information stored on the card can be PIN protected and/or read/write protected. Also smart cards are not only capable of storing information, but they are also capable of processing information.
9. Chip of smart cards is tamper-resistant.

How Smart Cards Work?

There are several steps in a smart card transactions (most of which are transparent to users) that ensure that the transferred cash reaches the correct destination. The following steps are followed to transfer electronic cash from buyer to seller:-

1. The card user inserts the smart card into a reader. Operationally, smart cards require a special reader to connect the card with a computer system programmed for this purpose. The merchant and the card user are both validated to ensure that both the user and the merchant are still authorized to make transactions.
2. The merchant's terminal requests payment while simultaneously transmitting the merchant's digital signature.
3. The customer's card checks the merchants digital signature. In case the signature is valid, then the transaction amount is deducted from the cardholder's card.
4. The merchant's terminal checks the customer's just-sent customer digital signature for authenticity. In case the cardholder's signature is validated, the merchant's terminal acknowledges the cardholders signature by again sending back to the cardholder's card the merchant's signature.

Notes

5. Once the electronic cash is deducted from the cardholder's card the same amount is transferred into the merchant's electronic cash account. Waiting until after the transaction amount is deducted from the cardholder's card ensures that electronic cash is neither created nor lost.

Applications of Smart Cards

1. Smart cards contain stored value which provides the user with the ability to make purchases.
2. Smart cards can contain private information of the user such as financial facts, private encryption key, credit card numbers, account information etc.
3. Smart cards are capable of performing data encryption and decryption to ensure security, integrity, and confidentiality.
4. Smart cards are a safe place to store sensitive or important information.
5. In addition to storing information, smart cards are capable of processing information.
6. Smart Cards can play an important role as a means of authentication and verification.
7. Smart cards can be used to withdraw cash from banks.
8. Smart cards can be used as credit cards.
9. Prepaid telephone cards seem to be the most common smart card application.
10. SIM card that is inserted in a cellular handset is an other application of a smart card.
11. Many retailers have started using smart cards as loyalty cards.
12. Health care is another sector where smart cards are making their mark. They may be used in health insurance scheme.
13. Smart cards are currently being used for fast ticketing in public transport such as Metro in Delhi, parking and road tolling.
14. Many universities and schools are using smart cards for ID purposes. These ID cards can also be used at the library, canteen, etc. in the school.
15. By using smart cards for network access, companies gain an extra layer of security.
16. Smart cards storing digital certificates and encryption keys can be used by business to authenticate resellers, suppliers, and customers who have On-line access to extranets or other computer resources. Smart cards give permission to perform a variety of functions, make purchases check inventory, bid and negotiate on contracts and securely transmit sensitive documents On-line.

Future of Smart Cards

Due to the inherent advantages of smart cards over magnetic stripe cards, there can be no doubt that the future of smart card is very bright. If the current trends continue, the smart card market is set for exponential growth in the next few years.

Future of smart cards depends mainly on the introduction of multi-application cards and overcoming the simplest mindset that smart cards are just a method of making a payments. Smart cards will gain importance in connection with various types of payments, electronic transactions, and wireless communications. Smart cards are the wave of the future for consumer use, commercial use and internal network security. The availability of wireless local area networks

(WLAN) hotspots and WLAN enabled laptops and personal digital assistants are allowing people to continue working on the move. This increasing number of mobile users in corporate networks highlights the role of smart cards as a means of authentication and verification. Growing security needs of businesses across the world are expected to continue to push the adoption of smart card based corporate ID system. Smart cards have the ability to provide enhanced security through multiple factors of authentication and can perform cryptographic algorithms without exposing the entire personal information of an individual when it is presented.

Relationship of Smart Card to the Internet

The role of the Internet has developed to include the support of electronic commerce. It was designed for the free exchange of information, and as such, it is rich supply of academic, product, and service information. The smart card is the ideal support for payment over the Internet, whether in cash or as credit. However, the Internet shopper needs to connect his smart payment card to his computer and through the computer to the Internet. Smart card readers are inexpensive, low power devices which can be easily added to existing computers. The additional cost of building them into future computers or peripherals is extremely low.

The Internet is focusing the need for On-line identification and authentication between parties who cannot otherwise know or trust each other; and smart cards are believed to be the most efficient way of enabling the new world of e-trade. Smart cards can act as an identification cards, which is used to prove the identity of the cardholder.

Digital-Cash / E-cash

Digital Cash (digicash) is a bank-issued number that can be used in place of cash for Internet transactions. Its aim is to emulate physical cash payment. As mentioned earlier, physical cash has two special characteristics: anonymity and transferability. In other words, payment is anonymous and no third party is involved in the payment process. Till now, no software-based payment method can fulfill the transferability requirement. The main problem is that people can duplicate data in computer easily, so it is almost impossible to prevent double spending unless third party is involved to verify the transaction during the payment process.

Hence, the current aim of e-cash is to achieve only anonymity. Digital cash is a system of purchasing cash credits in relatively small amounts, storing the value in the computer, and then spending them when making electronic purchases over the Internet. Theoretically, digital cash could be spent in very small increments, such as tenths of a cent (USA) or less. Most merchants accepting digital cash so far, however, use it as an alternative to other forms of payment for somewhat higher price purchases.

Digital cash can also be stored on an electronically sensitive card such as smart card. Any payment system using digitally signed instruments as a medium of exchange or store of value qualifies as digital cash. Encrypted credit card numbers are not digital cash, but the Net cheque, Net Bill, and Cyber Coin systems are digital cash.

In these systems, customers open an account in one of a specialized network of payment servers. They then authorize charges against their account. For example, in Net cheque, customers can digitally sign a payment cheque against their account. It is digitally countersigned by another account holder receiving the cheque. By definition, this represents a digital payment message bearing a digital signature which functions as a medium of exchange or store of value; therefore, these cheques are bona fide digital cash.

Notes

The electronic cash transactions take place in three distinct and independent phases. These are:

1. Phase I: Obtaining electronic cash

   The steps involved in obtaining electronic cash are:

   (a) The consumer must have an account with Central On-line bank. He requests his or her bank to transfer money to e-cash account to obtain electronic cash. The consumer uses e-cash software on the computer to generate random number against requested money.

   (b) The consumer bank transfers money from the customer's account to e-cash account.

   (c) From e-cash account money is transferred to consumer. The consumer saves the electronic cash on a hard drive or a smart card.

2. Phase II: Purchasing with electronic cash

   This phase is executed whenever the consumer desires to make a purchase with electronic cash. It can take place at any time after the consumer has obtained electronic cash from e-mint. A consumer can make purchases more than once as long as he or she does not run out of electronic cash. The steps involved are:

   (a) The consumer selects the goods and transfers the electronic cash to the merchant by means of generating random number which encrypt e-cash are known as blinded coins. This methods avoids double spending of this money.

   (b) The merchant delivers the goods to consumer.

3. Phase III: Redeeming cash by merchant

   This phase occurs whenever the merchant is ready to redeem the electronic cash. The steps involved are:

   (a) The merchant transfers the electronic cash to the e-cash account. Alternatively, the merchant may send the electronic cash to its bank and the bank in turn redeems the money from e-cash account.

   (b) E-cash account transfers money to the merchant's bank to the merchant's bank for crediting the merchant's account.

Benefits of Electronic Cash

The following are the benefits of electronic cash:

1. Electronic cash reduces the potential for fraud. When the bank receives the electronic cash and verifies the serial number, it deletes the number and takes it out of circulation forever. As such, the serial number cannot be copied and used again.
2. Merchants would prefer an electronic cash scheme, since it prevents denial by the customer or lack of funds in a customer's account. In the case of credit card or cheque payment, the customer can refuse or stop payment.
3. It can protect the customer's anonymity so that, although the merchant is assured of the payment, the merchant does not need to know the details of the customers. However, on the Internet, the merchant may require the customer's name and address to deliver the goods.

E-wallet

All the items that a person keeps in his/her wallet are credit cards, driver's licence, ATM card, insurance card, library card, photos, etc. E-wallet is a system that stores a customer's data for easy retrieval for On-line purchases. E-wallet is a software application that allows the user to store all this information on his or her handheld. E-wallet is encrypted ad password protected, and it also comes with a desktop application. The key features of E-wallet are:-

1. E-wallet supports categories: these categories can be public or password protected. These categories are user definable and might include address, bank, credit card, Internet, memberships etc. E-wallet allows different settings on a per category basis.
2. Authenticate the consumer through the use of digital certificates or other encryption methods.
3. Store and transfer value.
4. Secure the payment process from the consumer to the merchant.

The procedure for using e-wallet is:

(i) Click on an e-commerce Website to make purchases.

(ii) Download a wallet from the merchants' Website when making a purchase. That displays a special form which requires the consumer to fill out personal information i.e. address, phone number, credit card number etc. Then consumer clicks on his/her own e-wallet on the desktop and order is automatically completed.

(iii) Fill all the personal information such as name, credit card number, mailing address or simply drag the information out of your own wallet and drop it into the online form.

The major advantage of E-wallets is convenience for the consumer and lower transaction costs because order entry can be expedited. Since completing various forms as part of an e-tail transaction can be a reason for aborting a transaction, an E-wallet service can reduce this inconvenience for the consumer. E-wallet and the software can be used by the consumer to fill out the billing and shipping information. E-wallets also reduce the risk of fraud and the use of stolen credit cards. Merchants also benefit from digital wallets through lower transaction costs, expanded marketing and branding opportunities, easier customer retention and conversion of visitors into buyers, and some reduction is fraud.

Electronic Funds Transfer (EFT)

Electronic funds transfer is a generic term describing any transfer of funds between parties or financial institutions via electronic date systems. The EFT system allows banks to send money to each other electronically. Under this system, the funds are transferred electronically from the customer's bank account to the merchant's account. The best known method of electronic funds transfer is the issuing of electronic cheques. Customers pay for goods and services purchased by writing an electronic cheque that is transmitted by e-mail, fax, or phone. The 'cheque' is a message that contains all of the information that is found on the ordinary cheque, but is signed digitally; or endorsed. The digital signatures is encoded with the customer's secret key. Upon receipts, the merchant or "payee" may further endorse by encoding with a private key. When the cheque is processed, the resulting message is encoded with the bank's secret key, thus providing proof of payment. This system is useful to persons who do not have credit cards. The main disadvantage is that it is a very new technology that some perceive as being less secure than other forms of e-commerce.

Notes

A complete electronic cheque transaction may consist of several basic steps as explained below:

1. Phase I: Purchasing goods
   (a) The customer accesses the merchant server and the merchant server presents its goods to the consumer.
   (b) The consumer selects the goods and purchases them by sending an electronic cheque to the merchant.
   (c) The merchant may validate the electronic cheque with it s bank for payment authorisation.
   (d) Assuming the cheque is validated, the merchant closes the transaction with the consumer.
2. Phase II: Depositing cheques at the merchant's bank
   (a) The merchant forwards the cheques to its bank electronically. This action takes place at the discretion of the merchant.
   (b) The merchant's bank forwards the electronic cheques to the (ACH) clearing house for being cashed
   (c) The clearing house works with the customer's bank, clears the cheque and transfers money to the merchant's bank, which updates the merchant's account.
   (d) At a later stage, the customer's bank updates the customer with the withdrawal information.

Benefits of Electronic: Cheques

Electronic chequeing provides the following benefits:

1. **Time saving:** Electronic cheque can be issued without needing to fill out, mail or deliver cheques. It also saves time in processing the cheque. With electronic cheques, the merchant can forward cheques to the bank instantly and get them credited to their account. As such, e-cheques can greatly reduce the time from the moment a customer writes a cheque to the time when the merchant receives the deposit.
2. **Reduced paper handling cost:** Electronic cheques reduce the efforts of the bank employees to receive the cheques, process them and mail the cancelled cheques to the consumers.
3. **Reduction in bounced cheques:** Electronic chequeing can be designed in such a way that the merchant can get authorisation before accepting the electronic cheque.
4. Electronic cheques do not require secure storage as that required for electronic cash. However, it still requires secure storage of customer's private key.
5. Electronic cheques can be used to give gifts or make payments without the fear of being lost or stolen. If a cheque is stolen, the receiver can request the payer to stop the payment.

Automated Clearing House (ACH)

The ACH system comprises direct deposits, direct debit and electronic cheques (e-checks). ACH system allows banks to send money to each other electronically. Automated clearing house is a service used by financial institutions to exchange electronic payments drawn on one another. Total debits and credits (payments and deposits) and itemized accounting of individual items are presented. This reduces transportation expenses and simplifies the transfer of funds between customer's accounts.

SUMMARY

- Online banking, also known as internet banking, web banking or home banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank to provide customers access to banking services in place of traditional branch banking.
- E-payment is a method in which a person can make On-line payments for his purchases without physical transfer of cash or documents, irrespective of time or location. On-line payment mechanism should ensure payment security, transaction privacy, system integrity, customer authentication, etc.
- Electronic payments are financial transactions made without the use of paper documents such as cheques. For example, paying for a product with your smartcard, having your stipends credited to your account, settling your credit card dues electronically, are all considered electronic payments. Internet-based payment systems are a form of electronic payment.
- Electronic payment are financial transactions made without the use of paper documents such as cheques. E-payments are the way to e-commerce success. E-cash provides the means to transfer money between parties over a network such as the Internet.
- E-payment is an integral part of the mercantile process and prompt payment (or account settlement) is very crucial. E-money is a generic name for the exchange of money through the Internet.
- Electronic money is of two types: identified and anonymous. Identified e-money is based on general forms of signature schemes and always reveal the identity of customers. Identified schemes are the electronic analog of debit and credit cards. Anonymous e-money does not reveal the identity of customers and are based on blind signatures schemes. Anonymous schemes are the electronic analog of cash., Mobile payment is an alternative payment system where the mobile user makes payment usingthe mobile device for a wide range of ervices or goods.
- Mobile computing is a technology that allows users to perform normal computing operations, such as internet surfing, document preparation, spread sheeting, preparing PowerPoint presentations, send/receive e-mails or download MP3 audio files using portable computing devices while in transit.
- The four main models for processing payments on the Internet are: electronic currency, credit cards, debit cards and smart cards. Payment gateway is a software program which is integrated to a merchant's Website for facilitating transmission of transaction data to the credit card or net banking acquirers for settlement of payments.
- Mobile commerce is defined as performing online business transactions through mobile handheld devices. It allows buying and selling of commodities, services or information over internet with the help of mobile devices.

KEY WORDS

Electronic money: It is a generic name for the exchange of money through the Internet. Electronic money (also known as electronic cash, electronic currency, digital currency, digital money, or Internet money) refers to money which is exchanged only electronically.

E-payment: E-payment is a method in which a person can make On-line payments for his purchases without physical transfer of cash or documents, irrespective of time or location.

Net Bill: Net Bill is a micro-payment system. The Net Bill system enables consumers and merchants to communicate directly with each other, maintain accounts for both consumer and merchant, confirms and ensures security for all transactions.

Review Questions

1. What is electronic cash? Explain the three phases in which electronic cash transactions take place.
2. What do you mean by online banking?
3. What is e-money? What are the different kinds of e-money?
4. Explain Changing dynamics in banking industry.
5. How e-money systems can prevent or detect double spending?
6. What are the various properties that should be considered in money transfer?
7. Discuss the challenges emerging n mobile commerce.
8. What are the applications of mobile commerce?
9. Explain four main models for processing payments on the Internet.
10. What are the security features of Net Bill System?
11. What are the advantages to the First Virtual System?
12. What are the various electronic payment media?

FURTHER READINGS

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