14BCE06 - E-COMMERCE

UNIT- I

Business Model

- A business model is the method of doing business by which a company can sustain itself, that is, generate revenue.
- A company produces goods or services and sells it to customers. If all goes well, the revenues from sales exceed the cost of operation and the company realizes profit. Ex: Departmental stores
- In some businesses, who makes the money and how much is not always clear at the outset. Ex: Radio and Television Broadcasting.
- A business model does not discuss about the business mission of the company.
- It deals with the marketing strategy of the company to assess the commercial viability of a business model.

E-Commerce (Definition)

E-Commerce can be defined as any form of business transaction in which the parties interact electronically.

Functions of E-Market

- Matching buyers and sellers.
- Facilitating commercial transactions.
- Providing legal infrastructure.

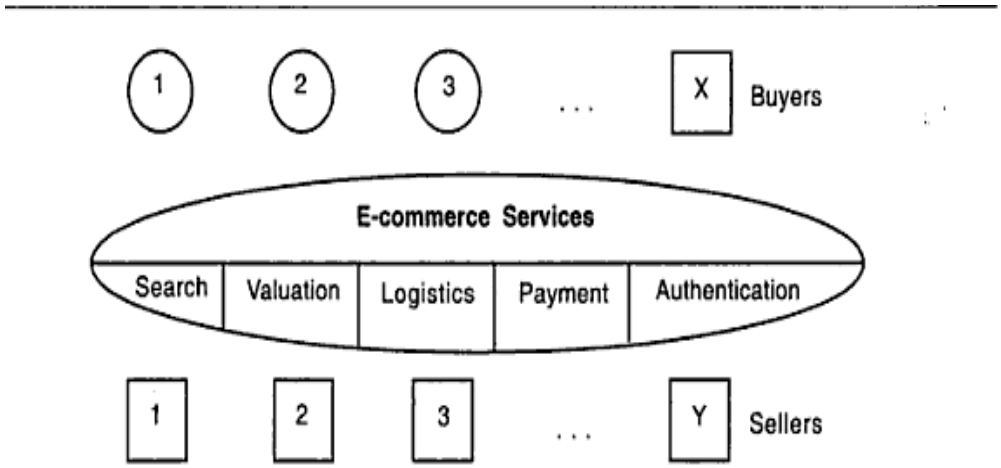


Fig. 2.1 Representation of an electronic market.

Services of E-Commerce in E-Market

- Search
- Valuation
- Logistics
- Payment
- Authentication

In Figure 2.2, many of the entities of these models have been assembled together and given the name e-commerce.

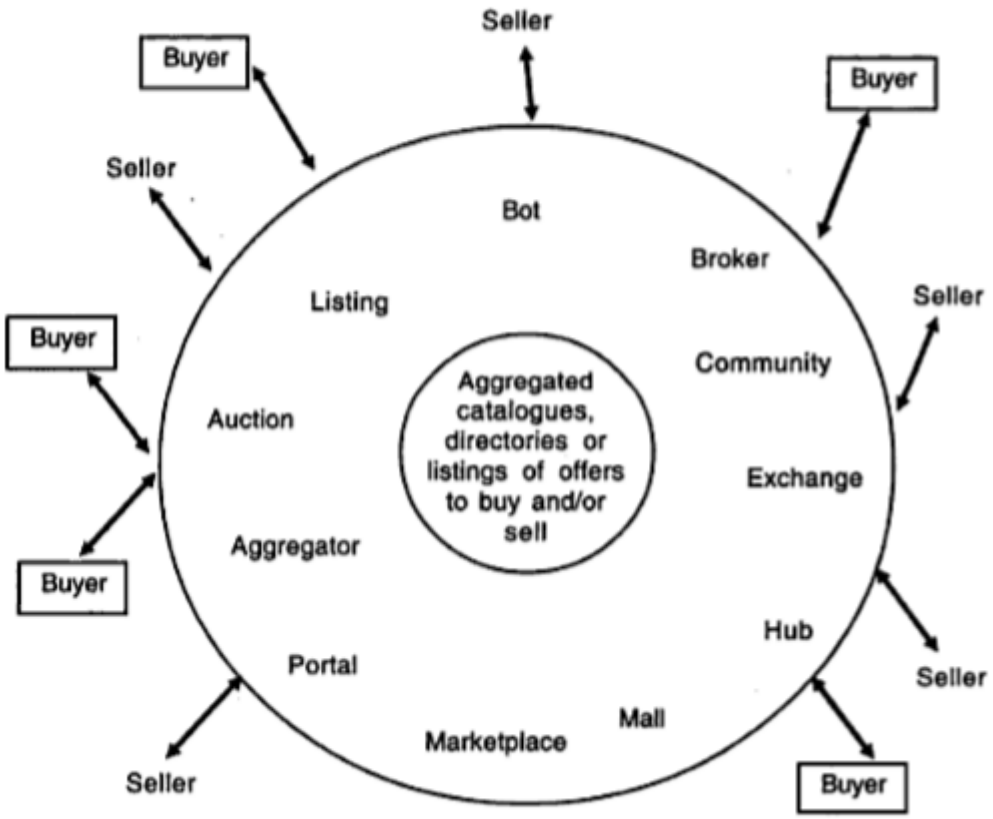


Fig. 2.2 Representation of e-commerce marketplace.

Classification of Business model

- E-Business model based on the relationship of transaction parties.
- E-Business model based on the relationship of transaction Types.
- Classification by revenue model
  - ✓ Product sales model - Charges customers directly for the products or services they buy.
  - ✓ Subscription model - Charges a fixed monthly or annual rental for the service.
  - ✓ Transaction fee model - Charges a service fee based on volume and value of transactions offer.
- Classification by distribution channel
  - Direct marketing ex: Dell, Sony.
  - Pure play e-tailers ex: Amazon, Flipkart.
  - Click-and-mortar retailers ex: Wal-Mart.

E-Business models based on the relationship of transaction parties

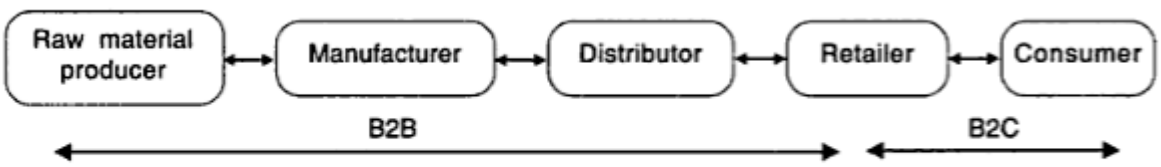


Fig. 2.3 Relation between B2B and B2C models.

E-commerce can be classified according to the transaction partners such as

- Business-to-Consumer (B2C)
- Business-to-Business (B2B)
- Business- to-Government (B2G)
- Consumer-to-Consumer (C2C)
- Consumer-to-Business (C2B)

Summary of e-business transaction models

Model	Description	Examples
B2C	Sells products or services directly to consumers.	Amazon.com Pets.com
B2B	Sells products or services to other businesses or brings multiple buyers and sellers together in a central marketplace.	Metalsite.com VerticalNet.com
B2G	Businesses selling to local, state and federal agencies.	iGov.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
B2E	Business-to-Employee (B2E) electronic commerce uses an intrabusiness network which allows companies to provide products and/or services to their employees. Typically, companies use B2E networks to automate employee related corporate processes.	Online supply requests. Special employee offers. Employee benefits reporting.

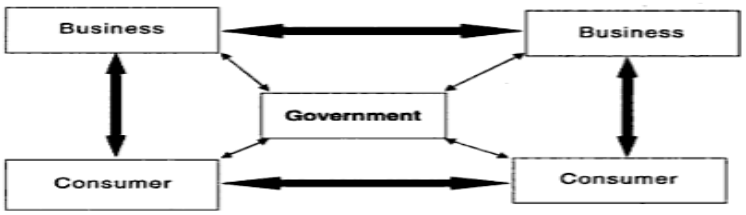


Fig. 2.4 E-business transaction model.

Business-to-Consumer (B2C)

- It include retail sales , often called e-retail or e-tail and other online purchases such as airline tickets , entertainment venue tickets , hotel rooms and shares of stock.
- Many traditional brick-and-mortar retailers such as Barnes and Noble are now e-tailers with a web store front.
- These combined brick-and-mortar/online businesses are also known as brick-and-click companies.
- Some B2C e-businesses provide i-value content to consumers for a subscription fee.
  Ex : Wall street journal (Financial new and articles), eDiets.com (nutritional counselling).
- B2C e-business models includes virtual malls which are websites that host many online merchants.
  Ex:- of virtual malls : Amazon.com , Yahoo.com.
- E-tailers that offer traditional or web-specific products or services only over the internet are sometimes called virtual merchants .
  Ex:- of virtual merchants :Avon.com (cosmetics and fragrances),
  Harry and David (gourmet food gifts)

Needs of B2C :

- **Inexpensive costs, big opportunities:** once on the internet opportunities are immense has companies can market their products to the whole world without much additional cost.
- **Globalization:** Even being in a small company, the web can make you appear to be a big player which simply means that the playing field has been levelled by e-business.
- **Reduced Operational Costs:** selling through the web means cutting down on paper costs, customer support costs, advertising costs and order processing costs.
- **Customer convenience:** searchable content, shopping carts, promotions and interactive and user-friendly interfaces facilitate customer convenience, thus generating more business.
- **Knowledge management:** through database systems and information management, you can find out who visited your site, and how to create, better value for customers.

How does B2C work?

1. **Visiting the virtual mall:** The customer visits the mall by browsing the online catalogue-a very organized manner of displaying products and their related information such as price, description and availability.

2. **Customer Registers:** The customer has to register to become part of the site's shopper registry. This allows the customer to avail of the shop's complete services.

3. **Customer Buys Products**: Through a shopping cart system, order details, shipping charges , taxes , additional charges and price totals are presented in a organized manner. The customer can even change the quantity of a certain product.

4. **Merchant Processes The Order :** the merchant then processes the order that is received from the previous stage and fills up the necessary forms

5. **Credit Card is Process:** The credit card of the customer is authenticated to a payment gateway or a bank. Other payment methods can be used as well such as debit cards, prepaid cards, or Bank-to-Bank transfers.

6. **Operations management**: When the order is passed on to logistics people, traditional business operations will still be used. Things like inventory management, total quality management, ware housing, optimization and project management should be incorporated even though it is an e-business.

7. **Shipment and Delivery:** The product is shipped to the customer . A customer can track the order/delivery as virtual malls have a delivery tracking module on the website which allows a customer to check the status of particular order.

8. **Customer Receives:** The product is received by the customer and is verified. The system should then tell the firm that the order has been fulfilled.

9. **After-Sales Service:** After the sale has been made , a firm has to make sure that it maintains a good relationship with its customers . This is done through customer relationship management or CRM.

Fig. 2.5 Processes in B2C.

Business-to-Business (B2B)

B2B is that model of e-commerce whereby a company conducts its trading and other commercial activity through the internet and the customer is another business itself.

This essentially means commercial activity between companies through the internet as a medium.

Major advantages of B2B:

1.Direct interaction with customers→This is the greatest advantage of e-business .The unknown and faceless customer including other businesses, buying the products of large MNC like say HLL or Procter and gamble through distributors, channels, shops and the like, now has a name, face , and a profile.

2. Focussed sales promotion→ This information gives authentic data about the likes , dislikes and preferences of clients and thus helps the company bring out focussed sales promotion drives which are aimed at the right audience.

3. Building customer loyalty→ It has been observed that online customers can be more loyal than other customers if they are made to feel special and their distinct identity is recognized and their concerns about privacy are respected.

4. Scalability→ This means that the web is open and offers round-the-clock access. This provides an access never known before, to the customer. This access is across locations and time zones.

5. Savings in distribution costs→ A company can make huge savings in distribution, logistical and after-sales support costs by using e-business models. Typical examples are of computer companies, airlines, and telecom companies.

Tools and Techniques at the Disposal of B2B Enterprises

1. Use of pricing as a tool → There is a wealth of research on pricing used as a tool to generate sales on the internet. The biggest e-tailer of them all, amazon.com, made it big by giving substantial discounts. Part of these heavy discounts is attributed to the distributor level commissions, which are now being passed on to the customer.

2. Use of application service provider model → Software companies are offering their packages not in CDs and boxes but through the web. The customer can log in over the internet and access the software from the web server of the company and need not download it into his PC. This goes one step further in the age of networked PCs where one need not use even a hard disk and all critical application data is kept on the web and can be accessed from anywhere in the world.

3.Use of generic models which are known for efficiency as well as personalized attention to various business customers→ The web has given rise to a new partnership between brick-and-mortar manufacturers , e-tailers , and express delivery companies like FedEx.

4. Use of comparison shopping → The internet has brought in a whole new concept of price matching and comparison-shopping. Today there are sites which will take you to hundreds of sites to find the cheapest product to suit your specifications.

COMMON ELEMENTS OF B2B EXCHANGES

Element	Benefit
Centralized marketspace	Neutral and nonaligned with either sellers or buyers.
Standardized documentation	Users are prequalified and regulated.
Price quotes, price history and after-the-sale information provided	Pricing mechanism is self-regulating.
Confidential transactions between businesses	Clearing and settlement services provided.

Business-to-Business transactions and Models

B2B interactions involve much more complexity than B2C.

B2B transactions includes the following steps:

- ✓ Review catalogues
- ✓ Identify specifications
- ✓ Define requirements
- ✓ Post request for proposals(REP)
- ✓ Review vendor reputation
- ✓ Select vendor
- ✓ Fill out purchase order(PO)
- ✓ Send PO to vendor
- ✓ Prepare invoice
- ✓ Make payment
- ✓ Arrange shipment and
- ✓ Organize product inspection and reception

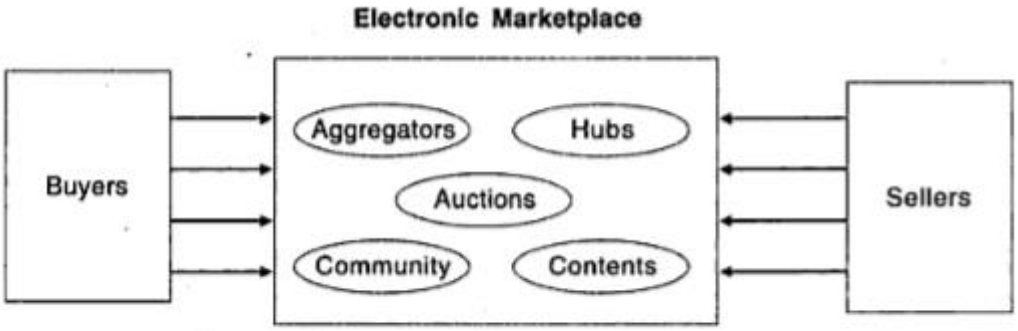


Fig. 2.6 Business-to-Business (B2B) marketplace.

The models can now be described as follows:

1. Aggregators → In the science marketplace, one company become the central buying locations for thousands of buyers to implement their own purchasing rules and obtain volume discounts. The aggregator takes the responsibility for selection and fulfilment, pricing, and marketing segmentation.

2. Hubs or process integration → Hubs have been defined as neutral internet-based intermediaries that focus on a specific industry or a specific business process. Hubs host electronic markets and create value by reducing the costs of transactions between sellers and buyers. There are examples of vertical hubs that serve a vertical market or a specific industry, such as energy, steel, telecommunications and plastic.

3. Community or alliance → In the community model, alliances are used to achieve high value integration without hierarchical control. Members and end-users play key roles as contributors and customers. Basically, communities produce knowledge with economic value, such as Linux, MP3 and Open Source.

4. Content → Content is the end product of this model of B2B commerce. It has the purpose of facilitating trading. Revenue can be generated from subscriptions, membership, or advertising.

5. Auctions or dynamic pricing markets→ Auctions (e.g. English, Dutch, Vickrey, Reverse) are dynamic and efficient mechanism for mediating and brokering in complex marketplaces, like supply-chain and procurement systems. Bundle options allow agents to bid for bundles of items and are useful for B2B applications such as automatic supply-chain or procurement.

Consumer-to-Consumer (C2C)

With the C2C e-business model, consumers sell directly to other consumers via online classified ads and auctions, or by selling personal services or expertise online. Ex: ebay.com(auction), TraderOnline.com(classified ads).

B2B SUMMARY

Type	Description	Examples
B2B storefronts	Provide businesses with purchase, order fulfilment, and other value-added services	Staples.com OfficeDepot.com
B2B vertical markets	Provide a trading community for a specific industry	HotelResouce.com
B2B aggregators	Provide a single marketplace for business purchasing from multiple suppliers	MetalSite.com
B2B trading hubs	Provide a marketspace for multiple vertical markets	VerticalNet.com
B2B post and browse markets	Provide a marketspace where participants post buy and sell opportunities	CATEX.com CreditTrade.com TechEx.com
B2B auction markets	Provide a marketspace for buyer and seller to enter competitive bids on contracts	e-STEEL.com HoustonStreet.com Altra.com FreeMarkets.com
B2B fully automated exchanges	Provide a marketspace for the automatic matching of standardized buy and sell contracts	PaperExchange.com

Consumer-to-Business (C2B)

The C2B model , also called a reverse auction or demand collection model, enables buyers to name their own price, often binding, for a specific good or service generating demand.The website collects the "demand bids" and then offers the bids to the participating sellers.

Examples of C2B e-business models: ReverseAuction.com (travel, autos, consumer electronics) and priceline.com (travel,telephone,mortgages) .

E-Business Models Based on the Relationship of Transaction Types

This business model consists of two parameters:

1. **On the basis of value addition→** value addition is the addition of value to a product or service because of the opportunities that it offers on the web.

2. **On the basis of control→** at the high end of control there is hierarchical control and the low end there is no control, so that it is self-organizing.Normally, the control is done through the policies of the website.

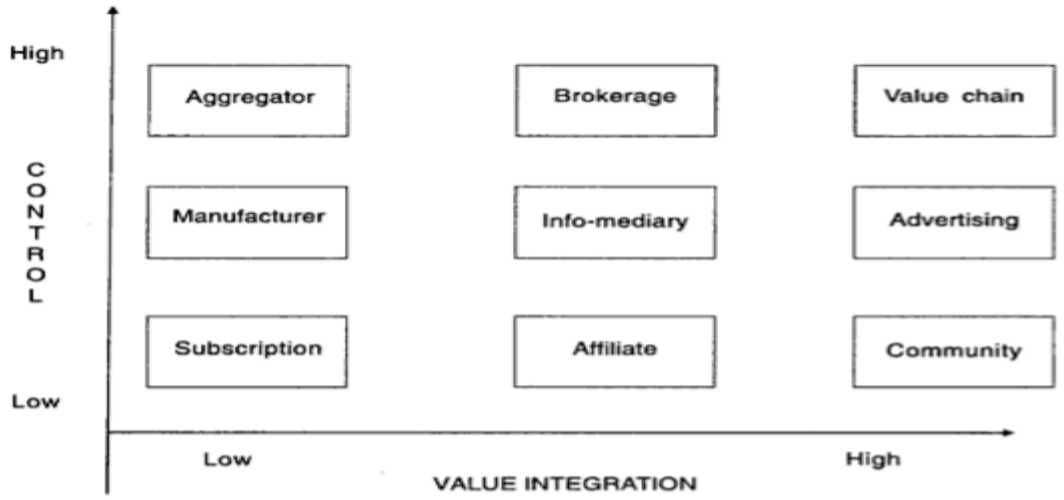


Fig. 2.7 Transaction model.

Types of transactions can be identified as:

- Brokerage
- Aggregator
- Info-mediary
- Community
- Value chain
- Subscription
- Manufacturer
- Advertising
- Affiliate

These transaction types take place in a variety of ways.

Brokerage Model

The characteristics of brokerage model:

- The price-discovery mechanism is its key-principle
- It is a meeting point for sellers and buyers
- Auctions and exchanges are the modes of transactions
- It is a 'Free Market'
- It consists of global network of buyers and sellers
- It is a virtual marketspace enabled by the internet
- It encompasses all types of organizations now

Advantages of the Brokerage Model:

- C2C trading
    a) allows buyers and sellers to trade directly bypassing intermediaries, and
    b) reduces cost for both the parties
- Global reach
- Trading convenience, which
    a) allows trading at all hours, and
    b) provides continually updated information
- sense of community through diect buyer and seller communication
- efficient access to information
- alleviation of the risks of anonymous trading

Brokerage—price Discovery mechanisms

3 kinds of price discovery mechanisms: 1.Auction 2.Reverse auction 3.Market Exchange

Examples of price discovery mechanism

- B2B
  - B2B sell side FastParts.com
  - B2B buy side FreeMarket.com
  - B2B exchanges Convisint.com
- B2C Priceline.com
- C2C ebay.com

Some Indian brokerage sites are:

www.baazee.com
www.automartindia.com
www.indiacar.com
www.steelexchangeindia.com

Auction broker

Many different auction formats have emerged since the first auction occurred in Babylon in about 500 B.C. Today, different auction formats are aggregated on certain common attributes. There are open and sealed-bid auctions. There are auctions where the auction price ascends as the auction proceeds and there are auctions where the price descends at regular intervals. There are single auctions and double auctions.

English auction

The English auction is one of the most common auction formats. It is also known as the open-outcry auction or the ascending-price auction. It is frequently used for selling art, wine, and other physical goods, which do not have a limited lifetime.

The English auction is defined in the following way: The auctioneer starts off the auction with the lowest acceptable price or the reserve price. He then receives bids from the bidders until the point from which there is no raise in the bid.

At that point, the auctioneer 'knocks down' the item, which indicates that the highest bidder will receive the item in exchange for the sum of money he bid for. Sometimes, the reserve price will not be made known to the public.

This may happen when the auctioneer is uncertain about the price expectation of the bidders and when he wishes the bidders to totally set the price level.

Winner's curses

Winner's cruses is a widespread phenomenon within the English auction format. This occurs when the bidder gets too excited in an auction and pays more for an item than this actual valuation.

Dutch auction

The Dutch auction was developed in the Netherlands to auction flowers and other products with a limited life. It is also known as the descending-price auction.

In a Dutch auction, the opening price is set extremely high. The price then descends with a predefined amount, at predefined time intervals, until a buyer claims the product to be mine. When many items of the same product are auctioned at the same time, many bidders may claim the product as mine at different points of time until no more items of the product are left. This process results in different prices for different bidders, with the first person claiming the product as mine being the one who pays the highest price.

The auction time period is often very short. This auction format is normally used for products that will perish in a short time. Besides the flower auctions in Holland, it has been used to sell fish in England and in Israel.

First-price sealed-bid auction

The first-price sealed-bid auction has the main characteristic of not being an open-cry auction, like the English or Dutch auction, and thus the individual bids are hidden from other bidders.

The auction has two different phases

- A bidding phase, in which all the bids are collected.
- A resolution phase, in which the bids are opened and the winner is determined.

During the bidding phase, each bidder submits his bid, which is based on his own valuation .The bidder is thus totally ignorant of all the other bids that have been submitted. The resolution phase works like this: all the bids are opened and stored from the highest to the lowest bid. If it is only one item that is auctioned, the highest bid will be the winning bid.

If multiple items of the same product are auctioned, the items are awarded to the highest bids until no more items are left. This is called a Discriminatory Sealed-Bid auction, since not all the bidders play the same price. The first-price sealed-bid auction is often used for refinancing credit and foreign exchange.

Vickrey auction

William Vickrey, the winner of the 1996 Nobel Prize in Economics, developed the vickrey auction. It is also called the uniformed second-price auction.

In a Vickrey auction the bids are sealed and each bidder bids from his own intuitive knowledge ignorant of all the other bids. What is different in this auction format compared to the first-price sealed-bid auction is that, the winning bidder will pay the price of the second highest bid, which is the same as the highest unsuccessful bid. Thus, the winner pays less than what he has bidden.

When the Vickrey auction is applied to include multiple units of the same item, all the winning bidders will pay the same price. This price will be the highest unsuccessful bid.

Economic Rationality Behind Auctions

Two main motives for auctions are identified from an economical point of view:

1. Auctions as a mechanism to determine a price.
2. Auctions as a distribution allocation mechanism.

1. Auctions as a mechanism to determine a price identifies auction as a procedure to establish an equilibrium market price. This may be done for products that are not traded on the traditional markets, like rare antique items, or for products with highly fluctuating prices, like stocks, currencies, and commodities

2. Auctions as a distribution allocation mechanism identifies auctions for consumer products which are difficult to sell through the ordinary market channels because they are

    - Products with limited life, such as airplane seats (which are worthless after the plane has taken off).
    - Overstocked products which need to be separated from the new incoming products.

Role of Buyer, Seller and Auctioneer

Auction group	Price discovery mechanism	Distribution allocation mechanism
Buyer	To determine an equilibrium price, to acquire rare items at a reasonable price.	To make a bargain, to acquire products at a low price.
Seller	To determine an equilibrium price, to find a customer base for rare items.	To odd load excess inventory, to sell products with limited life.
Auctioneer/Intermediary	To achieve high trading volumes, which will lead to high returns.	To achieve high trading volumes, which will lead to high returns.

Impact of the Web on Electronic Auctions

The auctioneer brings together the suppliers (sellers) and the customers (buyers or bidders) within the auction process. During the process of transaction, trade objects and a rule base are needed. The entire auction process can be executed on the World Wide Web.

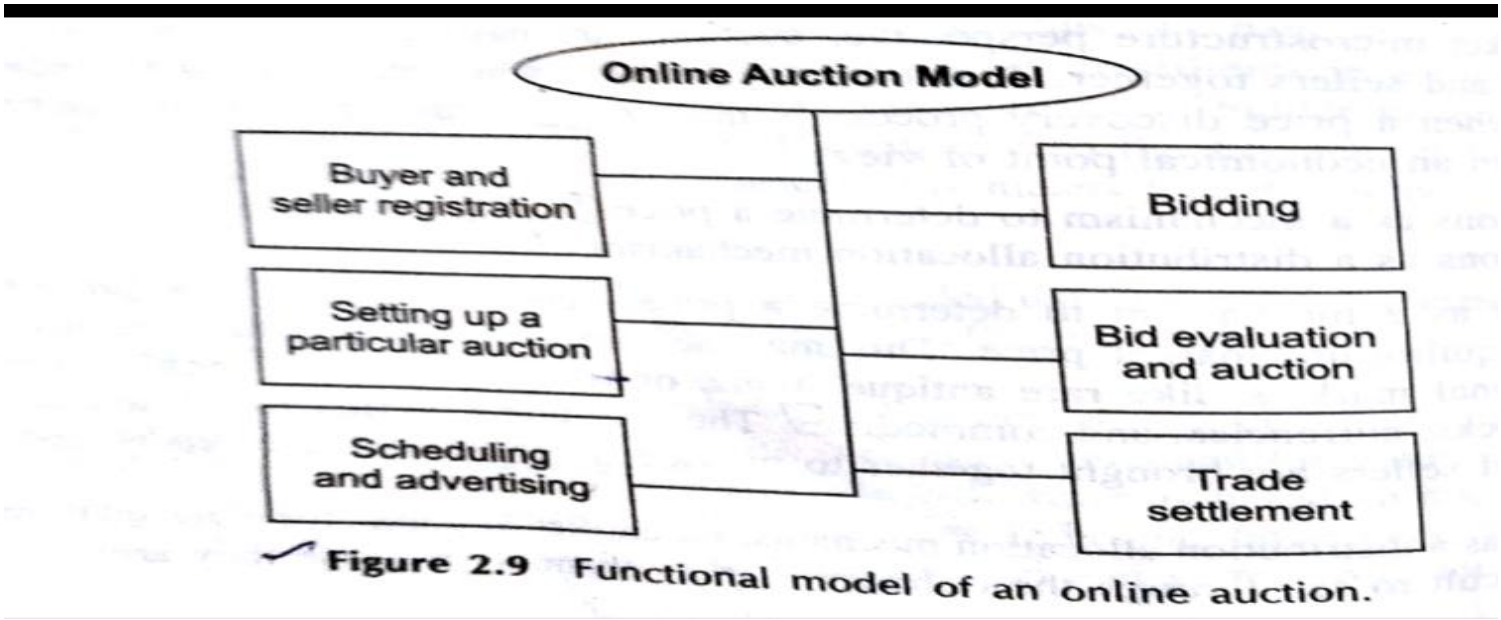


Figure 2.9 Functional model of an online auction.

The electronic auction can benefit from the following Web-related features:

1. Common infrastructure with millions of potential users, which increases the possibility of an auction to occur between potential suppliers and customers.
2. Standardized hypertext protocol for displaying the trade objects (i.e. items to be auctioned), which increases the economic feasibility of the electronic auctions.
3. Development of standardized search functions, which help suppliers and customers to find each other.
4. Standards for secure payments (e.g. SSL and SET), which encourage suppliers and customers to actually use the Web medium for trading.

Critical factors

There are four main factors that characterize electronic auctions. At least one of these factors will be present where an electronic auction appears. The four factors are:

- ✓ Perishability
- ✓ Scarcity
- ✓ Goods that may be moved electronically
- ✓ Goods that are geographically constrained

Perishability

This is a valid factor, if the value of the products to be sold at a given point in time is zero. An example of a perishable product is an airplane ticket.

Scarcity

This occurs when there is an excess demand, compared to the actual supply of a particular product. An auction market can be used to provide a price discovery mechanism for the product.

- New computer parts (e.g. the Intel Pentium III processor)
- Domain names
- IP addresses
- Collectibles: stamps, coins, wine, and so on
- Communication frequencies

Goods that may be moved electronically

These goods have a great possibility of appearing in the electronic markets. In terms of electronic auctions, securities are one of the most promising areas where an electronic auction may occur. The largest entry barriers that an electronic auction site for securities must overcome are the regulations set up by various Securities Exchange Commissions (SECs) around the world. These commissions have been established by different governments to protect the public interest in terms of company reporting criteria, inside trading rules, and so on.

Goods that are geographically constrained

These goods have better chances to be part of a successful electronic auction. This is due to the fact that if the transportation cost exceeds the customer's local search cost, the customer will not engage in an electronic auction.

E-Government

E-Government refers to the use of information and communication technology to provide and improve government services, transactions with citizens, business, and other government agencies.

E-Government Classification

The classification of e-government is as follows:

1. Government-to-Citizen (G2C) →the online non-commercial interaction between local and central governments and private individuals. Ex: IRS, FirstGov, etc.

2. Government-to-Government (G2G) →the online interaction between Government organizations, departments, and authorities and with other Government organizations, departments, and authorities. An example of a successful G2G project is the Northeast Gang Information System (NEGIS).

3. Government-to-Employees (G2E) →the online interaction between government organizations and its employees. Ex: egovonline.com.

4. Business-to-Government (B2G) or Government-to-Business (G2B) →on the Internet, business-to government (B2G) is the concept that business and government agencies can use central Web sites to exchange information and do business with each other more efficiently than they usually can off the Web. Ex:iGov.com.

CASE STUDY : eBay

eBay is the world's largest personal online trading community. eBay created a new market, an efficient one-to-one trading system in an auction format on the Web. Individuals—not big business—use eBay to buy and sell items in more than 4320 categories, including automobiles, collectibles, antiques, sports memorabilia, computers, toys, Beanie babies, dolls, figures, gemstones, and much more. Users can find the unique and the interesting—everything from chintz china to chairs, teddy bears to trains, and furniture to figurines on eBay.

Sellers are attracted to eBay to conduct business. eBay provides over 4 million new auctions and 450,000 new items every day.

The eBay community is made up of individual buyers and sellers who visit the site to do more than just buy or sell—they have fun, shop around, and get to know each other (by chatting at the eBay cafe) and much more. Through the bulletin boards, users meet and get to know each other, discuss topics of mutual interest, and petition one another for information. These bulletin boards are public forums that encourage open communication between users. eBay also encourages open and honest communication between the community and the company.

More than 60 million auctions have been completed on eBay since its inception.

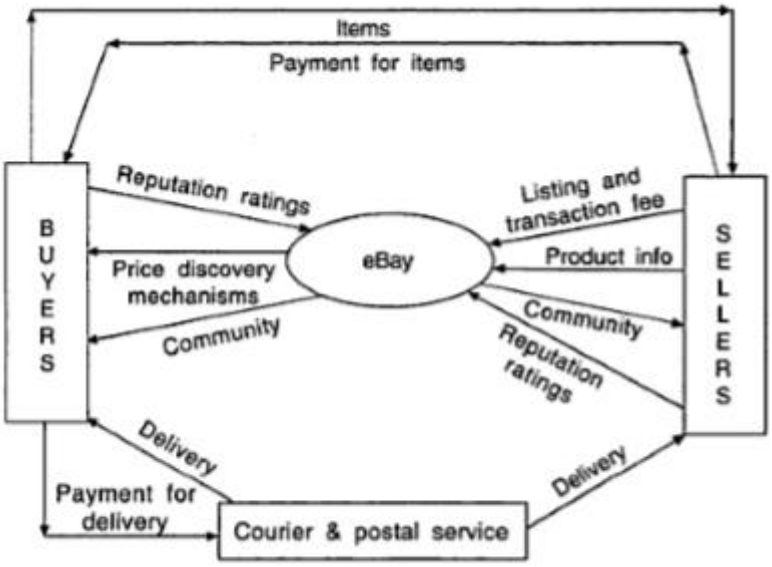


Fig. 2.9 eBay model.

The key to eBay's success is the trust between the buyers and sellers who make up the eBay community, and the trust between the user and eBay company.

How Does One Bid?

First, the user needs to register as an eBay member. The registration is free and takes only a couple of minutes. The user can then enter the auction using his id and password. The person has to carefully look for what he is bidding on. Consider, for example, an item which costs $20.00.

Enter the maximum bid in the bid box at the bottom of the page. Then click on the "Review Bid" button. eBay will now bid on behalf of the person, up to his maximum bid. The credit card should be placed on file with eBay. The seller, for his part, can sit back (after entering his id and password) and watch the auction.

Security

You can instantly check the reputation or business practices of anyone at eBay. The Feedback Forum is a place where users leave comments about each other's buying and selling experiences at eBay. A bidder checks his seller's Feedback Profile, before he places a bid, to learn about the other person's reputation with the previous buyers. If a person is a seller, he follows the same procedure with the bidders.

Every eBay purchase is covered by insurance, free of charge under the terms of eBay's program. If a person paid for an item and did not receive it eBay will reimburse buyers up to $200, less the standard $25 deductible.

Reverse Auction in Priceline.com

The reverse auction business model is described on the Priceline website, priceline.com has pioneered a unique type of e-commerce known as a "demand collection system" that enables consumers to use the Internet to save money on a wide range of products and services while enabling sellers to generate incremental revenue.

Using a simple and compelling consumer proposition—"name your price", they collect consumer demand (in the form of individual customer offers guaranteed by a credit card) for a particular product or service at a price set by the customer and communicate that demand directly to participating sellers or to their private databases.

Priceline.com was founded in October 1997. It launched its website in April 1998, trumpeting the idea of buyer-driven commerce as a way to use the Internet to secure the lowest possible price on airline fares. Patent claims have been a key factor in driving Priceline's remarkable value. Priceline.com has succeeded in part due to alliances formed with customers in areas of airline service industry, automobile industry, hotel reservation services industry, home financing services industry, adaptive marketing programs, and through website banner referra.

By creating these alliances, priceline.com has been able to capture the market in these various service areas, using their patented "name your price" business model as already explained above. With competition growing, such alliances have merely given priceline.com an advantage. Alliances formed in the automobile industry are with both new and used car dealers and with car rentals. Ford, Honda, Nissan are a few brands available on priceline.com. Some firms have allied with priceline.com for their rental car business.

Priceline.com has adaptive marketing programs with numerous companies. These programs facilitate a revenue stream based on a referral basis. There are also third-party participators who enable priceline.com to thrive. These third parties are indirect alliances. Priceline.com depends on the use of the third party's computer systems.

Priceline.com's major sources of revenue are derived from the following areas:

- Airline ticket reservation services
- Hotel ticket reservation services
- New auto purchasing
- Home financing, including mortgages, refinancing , and equity loans
- Adaptive marketing programs
- Licensing patents

Priceline's competitive advantage lies in its "name your price" business model. It is the world's first buyer-driven commerce system, and benefits both consumers and sellers by providing a unique platform where demand and supply meet. The model is fundamentally different from any other form of electronic commerce and it seems to revolutionize the way people shop for products.

Aggregator Model

E-tailers: Classic wholesalers and retailers of goods and services are referred to as e-tailers.

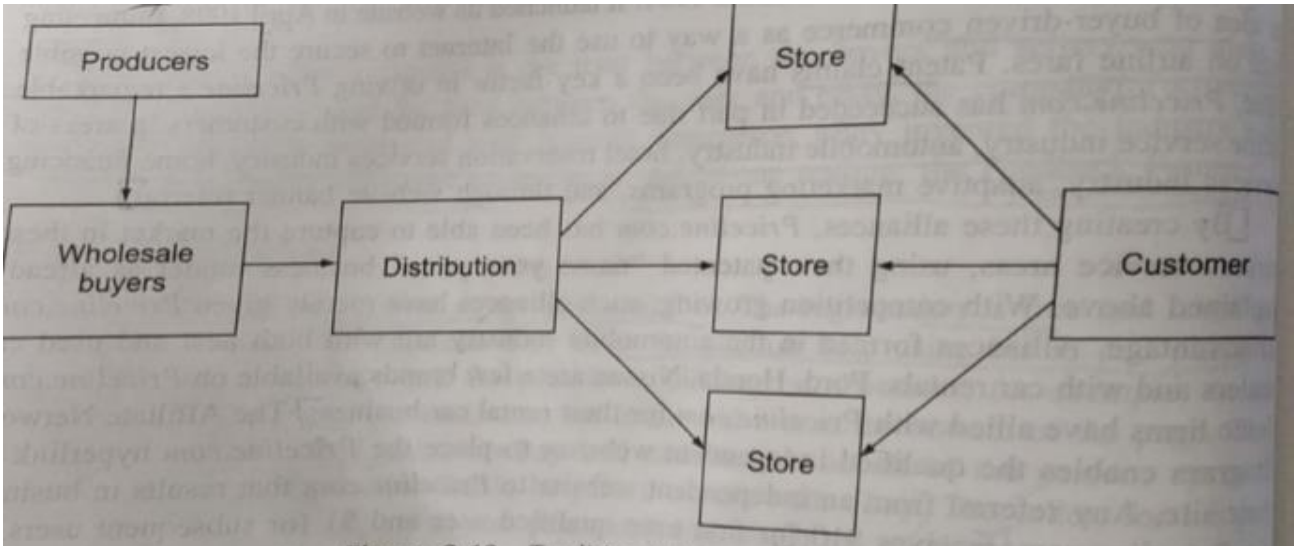


Figure 2.12 Traditional business model.

Following are some of the aggregator models:

- **Virtual Merchant:** This is a business that operates only from the Web and offers either traditional or web-specific goods and services. Ex: Facetime,amzon, eToys
- **Catalogue Merchant :** It is the migration of mail order to a web based order business Ex: Levenger
- **Surf-and-turf :** It is a traditional brick and mortar business with web storefront.
- **Bit Vendor :** It is a merchant that deals strictly in digital products and services in its purest form, conducts both sales and distribution over the web.
- **Subscription model :** The users pay for access to the site. High-value added content is essential. Ex: ConsumerReports

What do Aggregators do?

The aggregators are the connectors between the buyers and the sellers. They are involved in the overall process of selection, organization, matching the buyers requirements, fulfilment of the orders and enabling the customers to create a value about the sellers.

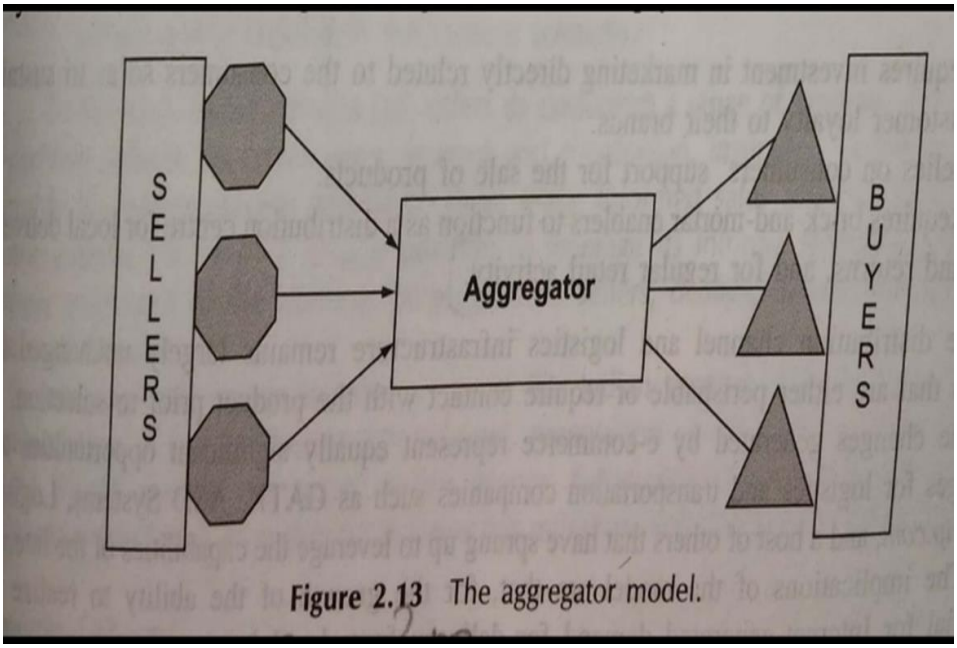


Figure 2.13 The aggregator model.

Types of Aggregators:

1. **Content Aggregators** – The basic challenge here is to ensure that the content has to be attractive enough to make the website viable. Ex: cricinfo.com, Pathfinder.com
2. **Mainstream Aggregators** – It include sites like Yahoo providing web directory and a search engine along with tools like e-mailers, home pages, reminders, etc.
3. **Event Aggregators** – Sites that provide in-depth content and tools tailored to the needs of a particular group. Ex: mortgages (loans)
4. **Shopping Aggregators** – It lets consumers through hundreds of sites and catalogues and find the best price in seconds. Ex:- compare.com and bizrate.com

Challenges and Opportunities of E-commerce:

1. Requires investment in marketing directly related to the consumers so as to sustain customer loyalty to their brands.
2. Relies on consumers' support for the sales of products.
3. Requires brick-and-mortar enablers to function as a distribution centre for local delivery and returns and for regular retail activity,

Capabilities needed for this model:

- Greater investment in the brick-and-mortar infrastructure
- Handling of inbound freight for finished goods
- Management of a more traditional distribution network with truckload
- Handling same-day delivery of goods and pickup returns.

CASE STUDY: Automartindia.com

Founded in August 1999, Automartindia Ltd. is a typical brick-and-click joint venture, floated by the Mahindra Group, Mahindra Information Technology Services Ltd (MITS), Housing Development Finance Corporation (HDFC) and the established auto dealers, Sah & Sanghi. The company is headquartered in Mumbai. The company has outlets at prime locations in Mumbai, Delhi, Bangalore, Chennai and Pune.

Automartindia Ltd lists two primary objectives:

- To simplify the process of buying and selling automobiles in the Indian Automotive space.
- To provide a high level of transparency and credibility in the used car market: virtues sorely lacking in the current scenario.

To this end, Automartindia Ltd. offers its customers a range of services- from choice of a certified vehicle, to certification, finance and registration, insurance, valuation, etc.- that simplify the entire process and helps them make informed sales and purchase decisions. Automartindia Ltd. is in a unique position to leverage its intrinsic strengths and create a unique alignment of the interests of purchasers, sellers, dealers, automobile associations, and manufacturers.

Services Offered

The services offered by Automartindia are:

1. **Used vehicles.** Automartindia has the largest online inventory of used cars from over 70 cities in India.
2. **New vehicles on the site.** Automartindia offers its users a range of new cars – from small family cars to premium sedans. This is coupled with other helpful services like online reviews and technical statistics that users can avail of on the site. They can also run a dealer search to find the dealer closest to them.

Through its “portal”, Automartindia offers:

1. C2C trading:
   Sellers put their offerings online, buyers browse for the best possible opportunities, the buyer contacts the seller and then the two close the deal offline.
2. B2C trading:

   Dealers put their offerings, both new and used cars, on the website, offering special discounts. The buyers may choose from this range as well.

3. Online store:
   The website offers accessories online through its dealer network.
4. Physical presence:

   The company has a dealer network spread across the country and company- owned outlets in 5 cities, where the buyers can physically verify the condition of the cars.

Partnerships and Tie-ups

- Hyundai Motors
- India Ltd.
- General Motors India (GMI)
- Indiatimes.com

Info-mediary Model

An organizer of virtual community is called an information intermediary or info-mediary, who helps sellers to collect, manage, and maximize the value of information about consumers. Data about consumers and their buying habits are extremely valuable, especially when that information is carefully analysed and used to target marketing campaigns.

Some firms are able to function as infao-mediaries by collecting and selling information to other businesses. An info-mediary may offer users free Internet access (e.g. NetZero) or free hardware (e.g. eMachines.com) in exchange for detailed information about their surfing and purchasing habits.

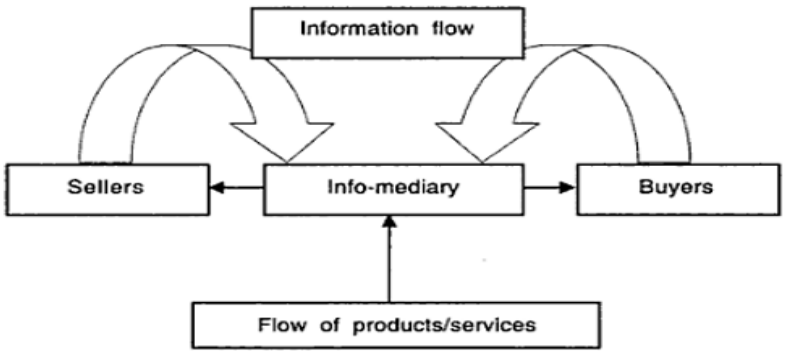


Fig. 2.12 Info-mediary model.

Value Addition

An analysis of the general info-mediary business model reveals that info-mediaries create and add value for the customer during several critical phases from the initial search of the supplier and product comparison (as to whether it fulfils the requirements) to the actual transaction and ultimate product or service delivery (sales fulfilment).

Finally, info-mediaries also provide valuable assistance to buyers to make their purchasing decisions, by offering "suitable" suggestions. This function is supported by technology for one-to-one marketing based on online customer profiling. amazon.com not only anticipates book-buyers' demands, but also facilitates the purchase decision by presenting the previous buyers' comments about the books on sale.

Classification of Info-mediaries

Info-mediaries can be classified, in terms of their relationships with sellers and buyers, into four types based on whether these relationships are open (non-proprietary, giving anyone free access) or closed (proprietary, restricting access). Closed relationships imply a certain relationship-specific investment (such as membership fee), and parties making that investment expect a return. The four types of relationships are:

1. **Specialized agents**. Entering the info-mediary's domain requires incurring cost on the part of buyers and sellers alike, usually in the form of a fee or a certificate that they satisfy a certain membership profile. These info-mediaries usually manage a specialized market.

2. **Generic agents.** These info-mediaries maintain open relationships with both buyers and suppliers and involve no relationship-specific investment. Examples include search engines Hotbot.com and Google.com that provide open search capabilities to any buyer looking for a supplier.

3. **Supplier agents.** Many info-mediaries start off in this quadrant, sponsored either by specific companies with a vested interest in selling their products or by close affiliation to the core group of sellers. Thus, they do not provide unbiased option for buyers. Major auto manufacturers, for example, host their own websites.

4. **Buyer agents.** The info-mediaries establish relationships with a core set of buyers, working on their behalf and any number of suppliers. To succeed, they must build a large base of clients, at the same time, winning their trust. However, extracting valuable information and constructing information profiles, deep and broad enough, to create substantial value for clients is a slow process.

Example of Info-mediaries

Typical of generic agents, Yahoo.com provides comprehensive search facilities for both suppliers and buyers. However, such services eventually favour buyers. For example, if you search for the Prudential Insurance Co. from Yahoo.com, you will find the company's web address. Also, you will also be linked to Yahoo's "Insurance Centre" where you can fill out a form to get quotes from insurance companies other than Prudential.

Community model

E-communities (or electronic communities) are formed when groups of people meet online to fulfil certain needs, which include personal interests, relationships, entertainment and transactions. Of course, e-communities are not confined to just individuals but businesses as well.

Customers loyalty can be achieved by building e-communities. First, visitors come and look for information. Then, they start to contribute to the website by, for instance, suggesting ways to improve the site or its services. Finally, they work inside the website by, for instance, volunteering as editors for a message board or by serving on a customer advisory board. Users make a high investment in both time and emotion on the site.

Functions of communities on the web

1. Most people long to be accepted and loved and concerned about.

2. Communities on the Internet provide information. Since they tend to revolve around a particular interest or common task or hobby, they can be the sources for sharing information, and can become deep reservoirs of technical information.
3. Communities also beget loyalty. Members develop the habit of visiting one particular site again and again. They get so used to the site, that they develop a sense of ownership, especially if they are involved in online communication.
4. Communities also build your business. Once people become used to a site, they are quite comfortable making a purchase through it rather than going into unknown territory.

Community Structures

The Internet communities can be found structured in several predictable ways as follows:

Newsletters. Newsletters, by definition, are one-way communication. They generally use listserver software that sends the same message to an entire list of people, and handles new subscribers and those who wish to unsubscribe. Listserver software (sometimes called a "listserv") is also the backbone for e-mail discussion lists.

Discussion lists. One of the best ways to build a sense of community is by e-mail discussion lists. In a typical discussion list, the listserver software allows a member to send a message to the list address, and then sends that message to all the list members, all within a few minutes.

There are three types of discussion lists:

E-mail discussion list. All messages from the members are forwarded to other members as soon as they are received. If a particular list is not active, several hundred messages could be on such a list.

E-mail discussion list digest. The digest collects all the messages sent to the list, bundles them, and e-mails them in one e-mail to subscribers, either daily or when the accumulation reaches a certain size. A digest helps control the level of e-mail.

Moderate discussion list digest. Large discussion lists are eventually forced to limit the quantity and screen the quality of messages that go out to the list members. If one member shares a problem, another will jump in with a solution that may work out well for the member.

Bulletin Boards

One of the struggles of e-mail-based communities is keeping "threads" (different topics of conversation) separate. Sure, the subject line usually includes the topic, but if you are reading 15 messages a day that are not sorted by topic, things will look disjointed. One solution to this is a Web-based bulletin board system. Their great strengths are:

1. Keeping threads separate
2. Allowing posts to be read, searched, and researched later by individuals who may not have been part of the original conversation.

Chat Rooms

Another significant type of community building tool is the chat room. This is a useful source of knowledge and information for any user. As for business people, it has a great utility value. Sometimes even people from Public relations schedule chats and interviews with famous personalities. Such chats may have overwhelming responses and may also gear up businesses.

Necessary elements for the Community Model

1. A clear focus for the community that makes sense to prospective members.
2. The requisite technical capability through your own software and hardware or a free service.
3. A proper structure, guidelines, and parameters for the discussion to keep the group on target.
4. A moderator responsible for each group or list.
5. A clear strategy on how the community will benefit your business. Since communities care a lot for maintenance, it has to achieve something to make it worth your while.

Value Chain Model

Value chain moves businesses away from discrete streams of data about the product being made to one unified pool of information-one that even extends outside the company to suppliers and customers. The goal is to develop full and seamless interaction among all members of the chain, resulting in lower inventories, higher customer satisfaction, and shorter time to the market.

How to consider AltaVista as value chain model in Generalized Portal?

AltaVista company is the premier knowledge resource on the Internet. With its strong search engine tool and patented technology, AltaVista opens up avenues in the maze of Internet to the richest and the most relevant information on any subject from any nook of the Web world, Web pages, shopping, up-to-the-minute news, live audio and video, and community resources.

1. **AltaVista search.** The world's fastest, most comprehensive search service available in 25 languages with 8 distinct search dimensions.

2. **AltaVista shopping.com**. The first Web-wide comparison-shopping service on the Internet, providing objective price and product comparison features to help users make intelligent purchasing decisions.

3. **AltaVista live**! The only real-time, customizable content source on the web, linking content channels on topics such as money, news, sports, entertainment, and more.

4. **AltaVista raging bull.** The Web's stickiest site, which has the Web's most active community of message boards, with an emphasis on finance.

5. **AltaVista free access.** One of the fastest growing ISP services in the world, with over 2 million registered users in the US and Canada.

6. **AltaVista international**. Currently over half of its traffic comes from outside the US. To further encourage this growth, AltaVista has recently created local sites in France, Germany, Italy, the Netherlands, Sweden and the UK.

AltaVista search technology:

1. Search catalogues, inventory databases, auctions, classifieds, job listings, and even suppliers.

2. Improve the success rate of incoming searches-new linguistic query processing tools let customers find products even when they do not know exact product names or model numbers.

3. Allow users to sort results by brand, price, availability, or any method.

How to consider My Yahoo as Value Chain Model in Personalized portal?

My Yahoo! Is the user's own personalized version of Yahoo! After the user gives his personal information, My Yahoo! Allows him to collect all his favourite sections of Yahoo! In one place. He can choose what he wants to surf, such as news, weather, stock price, sports scores, TV and movie listings, horoscopes, and much more. It is like having a personal secretary who would collect the favourite sections of the newspaper, give information about mail and appointments for the day, and so on.

My Yahoo! Is absolutely free. To register, just click 'Get your Own My Yahoo!' on the My Yahoo! Home page and feed in your favourite sections. My Yahoo is also completely portable, which means, a person can check My Yahoo! from work, home, school, a friend's house, or a cybercafé. These are just some of the things that makes My Yahoo! A great home page. My Yahoo! Allows the user to have two pages- a home page and another page. The important and frequently accessed information may be stored here. All secondary information may be stored on the other page.

Some of the topics that Yahoo! Offers are:

- Pick your weather cities
- Track your stock quotes
- Read your choice of news
- Find local movie showtimes
- Follow your favourite sports teams.

Manufacturer Model

The manufacturer or "direct model", is predicted on the power of the Web to allow a manufacturer (i.e. a company that creates a product or service) to reach buyers directly and thereby compress the distribution channel. The manufacturer model can be based on efficiency, improved customer service, and a better understanding of customer preferences. In this model, the manufacturer sells its products through the use of its websites.

Purchase. The sale of a product in which the right of ownership is transferred to the buyer.

Lease. In exchange for a rental fee, the buyer receives the right to use the product under a "terms of use" agreement.

License. The sale of a product that involves only the transfer of usage rights to the buyer, in accordance with a "terms of use" agreement.

Brand integrated content. In contrast to the sponsored-content approach (i.e. the advertising model), brand-integrated content is created by the manufacturer itself for the sole basis of product placement.

CASE STUDY: Tata Steel

Established in 1907 at Jamshedpur, the company is one of India's best-known symbols of industrial growth. It represents the county's single largest, integrated steel works in the private sector, with a market share of about 13 per cent. The company is India's single largest exporter of high-quality, value-added steel products. It is the producer of one of the cheapest HR coils in the world. A blue-chip company, Tata steel Ltd has successfully raised $100 million through Euro bonds.

The company offers a diverse range of products and services. These include HR/CR coils and sheets, tubes, construction bars, forging quality steel, rods, structural strips and bearings, steel plant and material handling equipment, Ferro alloys and other minerals, software for process controls, and cargo handling services. Sister companies offer tin plate wires, rolls, refractories, project management services, and material handling equipment.

The Company has technological and strategic tie-ups with world leaders such as Thyssen, Nippon steel, Hitachi, Posdata, SMS, Krupp Stahl, and McKinsey.

E-business

Tata steel establishes e-business through its website www.tatasteel.co.in.

E-sales

Building a trusting, long lasting, and mutually beneficial relationship with their customers has been Tata Steel's fundamental belief and driving force. This has formed the cornerstone of all their initiatives. In line with this, their latest offering is the self-help customer service.

E-procurement

The e-procurement site is Tata Steel's business to business(B2B) procurement platform. Among the many forward-looking initiatives being undertaken by Tata Steel to tap the tremendous opportunities offered by Information Technology, especially the Web, e-procurement is one of them being used to conduct business with suppliers.

E-auction and Tenders

The Tata Iron & Steel company was founded by the visionary Indian industrialist Jamshedji Nusserwanji Tata in 1907. Today, the company consist of steel works at Jamshedpur with its own captive collieries at Jharia and West Bokaro and ore mines and quaries at Noamundi and Joda. It has a wide product range that includes billets, structural bars, stripes, tubes and bearings, H-R coil, C-R coil, GP sheets and plates.

The Secondary Products Profit Centre focuses its attention on marketing of products which are secondary to the company's main business. It encompasses selling of steel scrap, used and rejected material, by-products, raw materials from works, under size and extra generation from their collieries and obsolete capital equipment and spares. The division has its headquarters at Jamshedpur and the marketing office at Kolkata

In order to meet the customer's demand in the best possible manner, this site has been launched for Tender Information and online quoting, which is the quickest method to serve the customers.

Advertising Model

The Web advertising model is an extension of the traditional media broadcast model. The broadcaster, in this case a website, provides content (usually, but not necessarily, for free) and services (like e-mail, chat, forums), together with advertising messages in the form of banner ads. The banner ads may be the major or sole source of revenue for the broadcaster. The broadcaster may be a content creator or a distributor of content created elsewhere. The advertising model only works when the volume of viewer traffic is large or highly specialized.

A site offers free access to something and shows advertisements on every page. When a user clicks on an advertisement, he goes to an advertiser's page. The advertiser pays the site operator for showing his advertisement (eyeballs) or for every time someone clicks on the advertisement(click-through).

Web Pricing Models

1. CPM or impression only (sets cost-per-thousands of guaranteed ad views)
2. Click-through (the advertiser pays based on the number of times the banner is clicked by a user)
3. Sponsorships (package deals of impressions and click-throughs)
4. Cost-per-lead (the advertiser pays when a viewer registers or submits personal information)
5. Cost-per-sale (agreed upon charge for the viewers who actually purchase a product or service based on the ad)

6. Straight revenue sharing deals (the publisher receives a commission which is paid upon sale from an ad)

Types of Advertising on the Internet

1. **Portals.** A search engine that may include varied content or services. Example: Yahoo!
2. **Classifieds.** Lists items for sale or wanted for purchase. Example: Monster.com.
3. **User-based registration.** Content-based sites that provide free access to users but require the user to submit demographic details by registration. Example: NYTimes Digital.
4. **Query-based paid placement.** Sells favourable link positioning (i.e. sponsored links) or advertising keyed to particular search terms in a user query. Example: Google.
5. **Contextual advertising.** Freeware developers who bundle ads with their product. Example: eZula.

Different Web Advertising Formats

1. **Banners.** An ad appearing at the top of a Web page.
2. **Vertical columns.** On a frame Web page positions alongside requested content (often as form of sponsorship).
3. **Pop-up windows.** Java script opens a browser window with an ad.
4. **Interstitials.** Full screen ads that appear on a Web browser while a page is loading.
5. **Advertorials.** Content-based advertising related to an article or other site content.
6. **Intromercials.** Animated full-screen ads placed at entry of site before a user reaches the intended content (CBS Market watch).
7. **Ultramercials.** Interactive online ads that require the user to respond intermittently in order to wade through the message before reaching the intended content.

Formats that permit more effective online ads:

1. Richer ad content through sight, sound, and motion.
2. More information (larger files)
3. More interactivity
4. Larger screen size
5. More prominent screen positions
6. Less content competition
7. Reliable measurement and reporting to enable each advertiser to determine its ad ROI-impressions, interactivity, brand sell
8. Accurate audience measurement
9. Meaningful user targeting
10. Cost-effective advertising model with rates reflecting advertiser value.

Subscription Model

Users are charged a periodic-daily, monthly, or annual-fee to subscribe to a service.

Content Services provide text, audio, or video content to users who subscribe for a fee to gain access to the service. Example: Netflix.com

Person-to-Person Networking Services are conduits for the distribution of user-submitted information, such as individuals searching for former schoolmates. Example: Classmates.com.

Trust Services come in the form of membership associations that abide by an explicit code of conduct, and in which members pay a subscription fee. Example: Truste.com

Internet Services Providers offer network connectivity and related services on a monthly subscription. Example: America Online

The organization makes money on the basis of membership/subscription.

Some popular topics of Subscription model are:

- Existing newsletter topics
- Trade associations

CASE STUDY: eGurucool.com

NIIT's vast experience in the field of education and eGurucool's expertise and in-depth understanding of the curricula have come together to make this a good site for e-education.

The salient features and benefits of the eGurucool way of learning are:

- Well structured lesson plans that generate interest, curiosity and provide clarity about the objectives that should be achieved through the lessons.

- The lesson is not overloading, and is administered step-by-step. It is built around sub-topics that highlight principles. At all times, each lesson is not just textual. It incorporates the attributes of a very good teacher who asks, stimulates, prods, cajoles and inspires.
- Technology is used wherever necessary – not to dazzle or distract but to provide greater insight through interactivity-without disrupting the flow of the lesson.

Courses offered

An array of courses from eGurucool for students and teachers, course help and test preparation modules plus value-added services that enhance the quality of education.

- CBSE Programs
- ICSE Programs
- Maharashtra Board Programs
- IIT JEE Programs

eConnect

This is a service that empowers schools by connecting students, teachers and parents 24 hours a day and 7 days a week! It includes creation and maintenance of school websites, online class notes and assignments, and performance tracking. Through eConnect, eGurucool has tie-ups with over 1600 schools across the country and is here to change the way schools look at education.

Course Structure

The program is designed to cover the entire syllabus prescribed for a class:

- The theory and concepts of each chapter are covered in detail in the class. Illustrative examples are used to reinforce concepts.
- Regular assignments and tests with 'ideal' solutions.
- Mid-course assessment is done through a set of section tests.
- A set of full-length tests that closely simulate the board pattern. A minimum of 7 tests.
- In addition to lectures, students also get printed booklets as study material.

E-services

This is a Web-based service that connects students, teachers and parents round-the-clock, 7 days a week. It allows students to access class notes and assignments prepared by teacher and track their academic performance. Besides, eConnect provides an online marking tool for multiple choice questions.

All eConnect offers:

1. eAssignments. Homework gets exciting. eAssignments give students access to their assignments wherever they are.
2. eClassnotes. Notes are just a click away. eClassnotes provide value-based synopsis and insight into the forthcoming topics.
3. Online MCQ test. Allows students to take MCQ tests online and gauge their performance instantly.
4. Performance Tracker. This allows students and their parents to access their performance graphs.
5. Online quizzes. Subject and chapter-specific quizzes are available for all students from Class IX to Class XII.

eAssignments

eAssignments allow teachers to put up their assignments for the class on the Web. So, students can access it anytime … wherever there is a computer. This makes learning exciting, and helps students learn beyond the confines of their classrooms.

In short, eAssignments are an extension of value-added information that teachers provide in classrooms. It increases pace of learning, integrates concept learning and test preparation, and undoubtedly gives a better forum for discussion.

eAssignments are supported by objective type questions which the students can answer online and get an instant evaluation. The subjective assignments can be submitted online or in class.

Benefits for students

- Assignments provide theoretical and conceptual clarity.
- Assignments integrate concept understanding and test preparation.
- Assignment facilitate avenues for self-assessment by providing instant evaluation of objective questions.

Benefits for Teachers

- Assignments facilitate effective classroom discussions.
- Assignments allow closer interaction among the teachers and students.
- Automated checking of objective questions saves time.

Benefits for Parents

- Makes it easy for their wards to access reference material.
- Objective and Subjective questions provide easy testing facility at home.
- Parents can keep track of what is taught in the class and also follow up on their wards' performance.

eClassnotes

eClassnotes are a compilation of notes. A value-based synopsis, eClassnotes also offer students an insight into the forthcoming topics. The notes are also archived to facilitate revision. Prepared by school teachers, these notes are password protected and can be accessed at a convenient time.

Online MCQ Test

This allows students to take MCQ tests online. Not only this, an automated in-built tool does an instant evaluation. Students get a fare idea of their preparation as both the questions and the answers are provided by their school teachers.

Performance Tracker

An automated, user-friendly and efficient online system, the Performance Tracker keeps track of a student's academic performance throughout the year.

It generates descriptive report cards-class, student, test and subject-wise- and provides information on a student's individual performance. Besides, it provides a comparative analysis vis-à-vis the class for all the exams and class tests conducted in a year. The Performance Tracker archives all the marks saved.

Course Activation

Course activation is a one-time process. Once you have activated your course, you can access it straightaway from the 'My Account' area.

Enter the Order Number and Course Code for the course given in your Starter kit. Enter Course Activation Pin and then click SUBMIT.

Affiliate Model

Affiliate model provides purchase opportunities wherever people may be surfing by offering financial incentives (in the form of a percentage of revenue) to affiliated partner sites. The affiliates provide purchase-point click-through to the merchant. It is a pay-for-performance model-if an affiliate does not generate sales, it represents no cost to the merchant. The affiliate model is inherently well-suited to the Web, which explains its popularity. Variations include banner exchange, pay-per-click, and revenue-sharing programs.

Banner exchange. It trades banner placement among a network of affiliated sites.

Pay-per-click. It is the site that pays affiliates for a user click-through.

Revenue sharing. It offers a per cent-of-sale commission based on a user click-through in which the user subsequently purchases a product.

Cdnow.com and amazon.com were two of the first companies to create successful affiliate programs on the Web. CDnow's Web Buy program, which includes more than 250,000 affiliates, is one of CDnow's main sources for new customers. The amazon.com program has over 400,000 affiliated sites.

Most of these affiliate sites are devoted to a specific issue, hobby or other interest. Affiliate sites choose books or other items that are related to their visitors' interest and include links to the seller's site on their Web pages.

Affiliate marketing supports charitable organizations. When visitors click a link on the affiliate's web page, a donation is made by sponsoring company.

In *The Hunger Site* web page, when a visitor clicks a button a group of sponsoring advertisers donates food to a hungry person and a page appears in the visitors browser with ads for the sponsors.

UNIT II

TRADITIONAL MARKETING

If marketing is whatever you do to promote the sale of your products or services, then it should include:

1. Market Research from competitive information gathering to industry awareness to soliciting customer opinions and preferences.
2. Publicity from press releases to the positioning of your company and its offerings in the market place.
3. Advertising that it is text based and graphic based.
4. Sales, including distribution and merchandising.
5. Customer service and customer support.

Drawbacks of traditional marketing

1. Traditional marketing is often expensive. It can cost a lot of money to produce and print brochures, product sheets and catalogues.
2. Traditional marketing can be a very time consuming process.
3. Traditional marketing is often has a “hit and miss” quality. Marketers often send out bulk of mails to customers and yet receive a tiny response.

IDENTIFYING WEB PRESENCE GOALS

A website can have images, and can activate them by animation, thus making a customers feel and enjoy its presence. It can serve as a brochures, a product showroom, a financial report, an employment ad or a customer contact point. Each entity that establishes a web presence should decide which tasks the website must accomplish, and which tasks are more important and need to be included for promoting their business.

Different firms, even those in similar business, may establish different web presence goals. For example, Coca-Cola and Pepsi are two companies that have established a very strong brand images are in the same business, but have developed very different Web presences.

The Coca-Cola page usually includes its corporate image such as the Coke bottle, while the Pepsi pages usually filled with hyperlinks to a variety of activities and product-related information.

Coca-Cola is maintaining its long-drawn traditional position, and Pepsi, as the upstart product favoured by the younger generation.

Achieving Web Presence Goals

The objectives of Web Presence Goals include:

1. Attracting visitors to the websites.
2. Making the site interesting enough so that visitors stay and explore.
3. Convincing visitors to follow the sites links to obtain information.
4. Creating an impression consistent with the organizations decide image.
5. Building a trusting relationship with visitors.
6. Reinforcing positive images that the visitor might already have about the organization.
7. Encouraging visitors to return to the site.

Fig. 4.1 The Pepsi website.

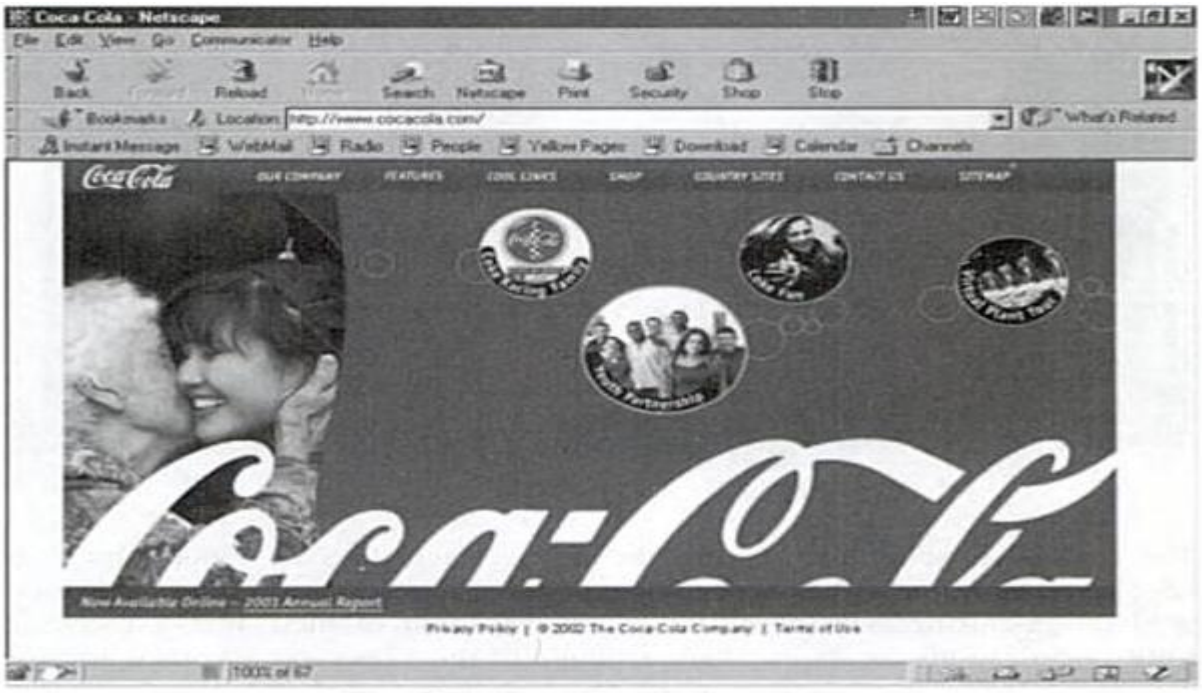


Fig. 4.2 The Coca-Cola website.

The Uniqueness of the Web

Most of the websites that are designed to create an organization's presence in the web medium include links to a fairly standard information set.

The sites give visitors easy access to its history, statements about its objectives or mission, or information about its product or services offered, financial information, and means of communication with the organization.

Such sites achieve varying levels of success, depending largely on how they convey these information. Presentation is important, so also is realizing the fact that the Web is an interactive medium.

Meeting the Needs of Website Visitors

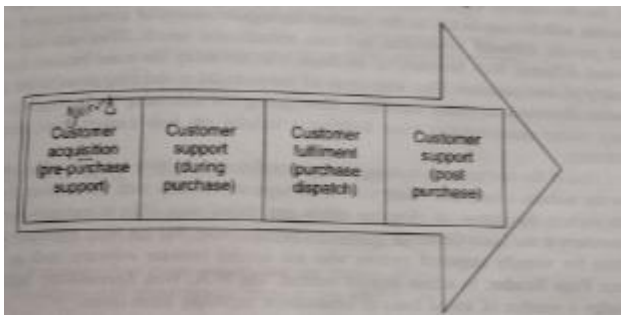
Businesses that are successful on the Web realize that every visitor to their website is a potential customer.

Need of Website visitors

- Learning about products or services that the company offers.
- Buying the products or services that the company offers.
- Obtaining information about warranties or service and repair policies for products they have purchased.
- Obtaining general information about the company or organization.
- Obtaining financial information for making an investment or credit granting decision.
- Identifying the people who manage the company or organization.
- Obtaining contact information of a person or a department in the organization.

E-marketing Value Chain

E-marketing thrives with the maintenance of strong relationship between the company and the customer. It is like a chain-the company acquires customers, fulfils their needs and offers support, and gains their confidence so that they return to it again. Thus the customer value is upheld.



Site Adhesion: Content, Format, and Access

Content

A customer accesses a website for the content of that site. Initially a customer will want to navigate quickly to gain a clear understanding of the site's progression to more detailed information.

Format

The format of an organization's site is important with respect to the customer's technical sophistication. Vendors need to create a balance between information provision and information delivery speed.

Access

Online data access depends on the bandwidth requirement.

To be successful in conveying an integrated image and offering information to potential customers, businesses should try to meet the following goals when constructing their websites:

- Convey an integrated image of the organization.
- Offer easily accessible facts about the organization.
- Allow visitors to experience the site in different ways and at different levels.
- Provide visitors with a meaningful two-way communication link with the organization.
- Sustain visitor attention and encourage return visits.
- Offer easily accessible information about products and services and how to use them.

Metrics Defining Internet Units of Measurement

The e-commerce world has, since inception been attempting to measure parameters associated with the Web and websites in order to assess two things:

1. Advertising-how many people saw our banner ad?
2. Visitation-how many people came out of site?

In software metrics theory, one problem is the separation of direct and indirect metrics or measurement. Direct measurement of an attribute is the measurement that does not depend on the measurement of any other attribute. Indirect measurement of an attribute is the measurement that involves the measurement of one or more other attributes.

Table 4.1 Examples of Direct metrics

- Number of individual, authenticated user sessions
- Authenticated user sessions by location
- Authenticated user profile by region
- Top ‘entry’ and ‘exit’ pages by authenticated users
- Most-downloaded files
- Advertising ‘captures’
- Most active, authenticated organizations accessing the site
- Most active countries, states, cities, and regions by authenticated users
- Organizational breakdown of site access by authenticated users
- Maximal, minimal average number of authenticated users per period
- Most-used browsers
- Spiders or bot activity
- Most-used platforms
- Successful form submissions
- Failed form submissions
- Server error log (404 errors and the like)
- Top referencing sites

Table 4.2 Examples of Indirect Metrics

- Number of hits per page
- Number of successful hits per page
- Number of hits for total sites
- Number of hits per page, per session, per individual user
- Average user session time in seconds
- Most-accessed segments
- Top paths through site
- View of banners
- Hits by user groups
- Total hits
- Cached hits
- Successful hits
- Failed hits

Limitations of Metrics

1. **Click through captures.** How many users click, through to the next stage in the customer acquisition process?
2. **Time spent.** How long did the viewer stay at the site and which items, pages or routes did the viewer select to navigate through the site?
3. **Time spent searching.** Did the viewer use the 'site map' or 'search' feature, and if so for what and for how long?
4. **Time spent before click-through.** How long did a viewer linger in the opening stages of the interaction and where?
5. **E-mails and telephone calls.** How many e-mails or calls did this section generate and on what issues?
6. **Registered users.** If the site has a registration facility, what is the rate?

THE BROWSING BEHAVIOUR MODEL

Customers of an e-commerce site interact with it through a series of consecutive and related requests made during a single visit called session. Within a session, customers can issue requests of different types, such as login, browse, search, add to shopping cart, or pay.

Different customers may exhibit different patterns of navigation through an e-commerce site and therefore may invoke the different functions provided by the site in different ways and in different frequencies.

Some customers may be heavy buyers while others may be occasional buyers who do extensive searching and browsing, but very rarely buy from the site.

The customer's behaviour while interacting with an e-commerce site has impacts on the IT resources of the site and on the revenue of the e-store. Thus, it is important to be able to characterize the behaviour of customers or group of customers of an e-commerce site.

Browsing Behaviour Model of an Online Video Store

Consider an online video store in which customers can perform the following functions:

1. Connect to the home page and browse the site by following links to best seller videos and promotions of the week per video category.
2. Search for titles according to various criteria including keywords and titles.
3. Select one of the videos that results from a search and view additional information such as a brief description of the product/products, price, shipping time, ranking and reviews.
4. Register as an new customer of the virtual video store. This allows the user to provide a user name and a password, payment information, mailing address and email address for notification of order status and videos of interest.
5. Login with the user name and password.
6. Add items to the shopping cart.
7. Pay for the items added to the shopping cart.

The given model is in the form of a graph and is called Browser Behaviour Model Graph(BBMG). The nodes of the BBMG, represented by rectangles, depict the states a customer is in during a visit to the e-commerce site. Arrows connecting the states indicate possible transitions between them.

Entry

This is a special state that immediately precedes a customer's entry to the online store.

Home

This is the state a customer is in, after selecting the URL for the site's home page.

Login

A customer moves to this state after requesting a login to the site. Sometimes, even a home page may ask him to login.

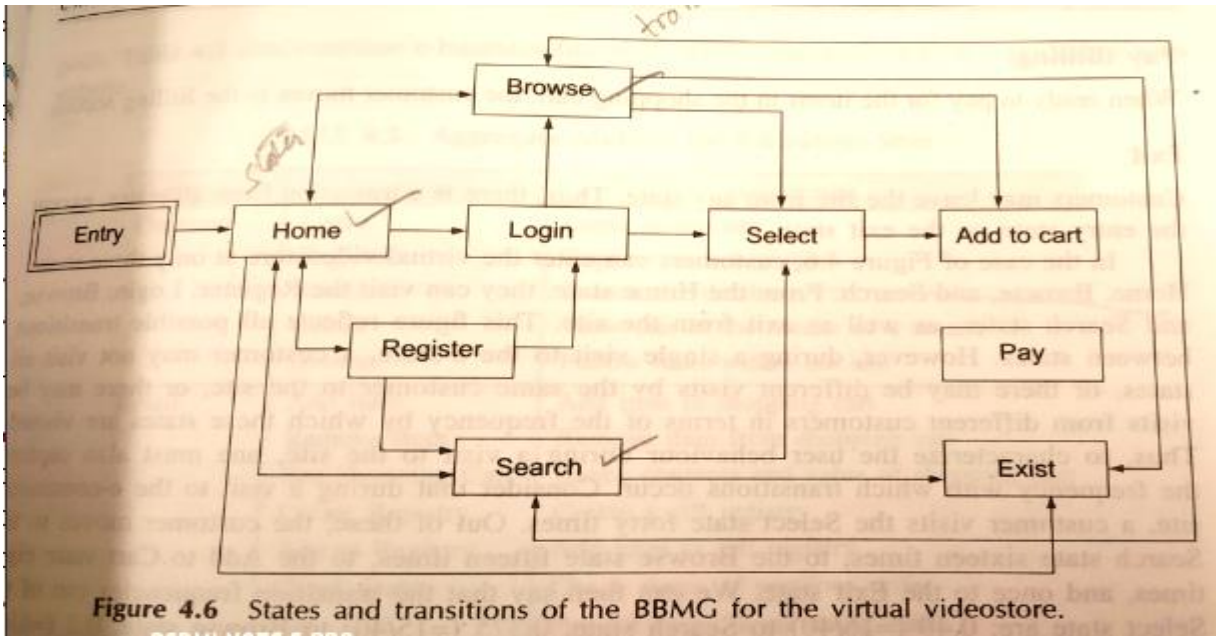


Figure 4.6 States and transitions of the BBMG for the virtual videostore.

Register

To have an account created by registering with the online video store, the customer selects the proper link for the registration page, thus making a transition to the register state.

Search

A customer goes to this section after issuing a search request.

Browse

This is the state reached after a customer selects one of the links available at the site to visit any of the pages of the site. These links include the list of best sellers and weekly promotions.

Select

A search returns a list of zero or more links to videos. By selecting one of these links, customer moves to this state.

Add to Cart

A computer moves to this state upon selecting the button that adds a selected video to the shopping cart.

Pay (Billing)

When ready to pay for the items in the shopping cart, the customer moves to the billing selection.

Exit

Customers may be leave the site from any state. Thus, there is a transition from all states, except the entry state, to the exit state.

Aggregate Metrics for E-business Sites

Category	Function	Description
Common	Login Register Search Select Browse	Login to the site Register as a new user Search site database View one of the results of a search Follow links within the site
Retail	Add item Remove item See Shopping cart Create registry Add to registry Check status Pay	Add item to shopping cart Remove item from shopping cart Check contents and value of shopping cart Create a gift registry Add item to gift registry Check status of previous order Pay for items in shopping cart
Information	Download Subscribe Listen Watch	Download software/report/music Subscribe to regular downloads Listen to real time audio eg:lecture Watch real time movie

Hits/Second

This measures the number of request for objects served in each second by a website.

Page views/Day

This reflects the number of individual pages served per day.

Click-throughs

This measures the percentage of users who not only view an online ad but also click on it to get to the Web page behind it.

Unique visitors

This indicates how many different people visited a website during a certain period of time.

Revenue Throughput

This is a business-oriented metric that measures the number of dollars/sec derived from sales from an e-commerce site. This measures implicitly represents customer and site behaviour.

Potential Loss Throughput

This is another business-oriented metric that measures the amount of money in customers shopping carts that is not converted into sales because the customer leaves the site due to poor performance or other reasons.

ONLINE MARKETING

Online marketing means using the power of online networks, computer communications and digital interactive media to reach your marketing objectives. Online marketing will not replace traditional forms of marketing anyway.

Instead it will both add to and subtract from today's marketing mix. It will add more interactive but it will subtract costs. It will add more customer choices. But it will remove marketing's dependence on paper. It will add more "information value" to products and services. But it will take away barriers to starting a business or extending a business into international markets.

Cyberbuyers

These are professionals who spend a good deal of time online, mainly at their places of business. These professionals often have to make complex purchasing decisions that require reams of data and difficult to locate sources of supply, all within a tight time frame.

Cyberconsumers

These are the home computer users wired up to commercial online services and the Internet. This group represents the pot of gold, and marketers simply need to find ways to make it more attractive to shop and buy online than to go to the local store.

Cybersurfers

They use online technology to expand their horizons, challenge their abilities, and for fun. This segment is typically younger, and possess shorter attention spans.

How Should Buyers Pay Online?

1. The consumer, responding to net-based marketing presentation, sends in a cheque, or calls and verbally transmits a credit card number, over the merchant's telephone.
2. The consumer

a) Sets up an account with a merchant or a third party organization
b) Leaves his or her credit card number by means other than the Internet and
c) Gives the merchant the authorisation to bill the account, whenever the consumer chooses to buy something.

3. The consumer leaves his or her credit card number on an unsecure online order form.
4. The customer uses a secure client software program to transfer his or her encrypted credit card number to a secure merchant server.
5. The consumer exchanges traditional currency for some form of digital currency, and then spends units of that currency whenever and wherever he or she likes.

Advantages of Online Marketing

1. Online marketing offers bottom-line benefits that tie in directly to the demands placed on the organization.
2. Online marketing can save money and help you stretch your marketing budget. Electronic versions of catalogues, brochures, and specification sheets do not have to be printed, packaged, stored, or shipped.
3. Online marketing can save time and cut steps from the marketing process. Marketers no longer have to wait for one of their sales representatives to give them the desired information.
4. Online marketing gives customer another way to buy, while enabling them to take control of the purchasing process.
5. Online marketing can be information-rich and interactive. It appeals to information hungry buyers and analytical buyers. It allows buyers and current customers to search and locate the information they need quickly.
6. Online marketing can be continuously available. One of the best attributes of an online information server is that it is always on the job, twenty four hours a day, 365 days a year.

Various Businesses that can flourish on the Internet

1. Banking
2. Databanks
3. Music
4. Retailing

E-ADVERTISING

Web-based advertising has become an important part of a company's media mix.

Numerous companies are committing large advertising budgets to the Internet.

Following are the reasons for the growing importance of e-advertisements:

1. People increasingly prefer to surf the Internet rather than watch TV
2. The target audience goes to the advertisement, rather than the other way around.

3. Development of business search engines by companies such as C2B Technologies, which aim to link buyers with online bargain sites for over a million products for comparison-shopping purposes.
4. Yahoo! Has a business unit which offers contests and prizes to online participants, which drive players to the websites of different clients.
5. The growth of e-business. Dell Computers, for example, estimates that by 2005, 85 per cent of its sales will be through the Internet.
6. The Internet is not geographically restricted.

Various means of Advertising

E-mail

E-mail is emerging as a marketing channel that affords cost-effective implementation and better, quicker response rates than other advertising channels.

Banners

As you surf your way through the information superhighway, banners are everywhere. The smaller the file size, the quicker it gets loaded. Typically, a banner contains a short text or a graphical message to promote a product. A major advantage of using banners is the ability to customize them to the target audience.

Skyscrapers

These are the extra-long skinny ads running down the right or left side of a website.

Banner swapping

Banner swapping is nothing but a direct exchange of links between websites. To be precise, company A may agree to display a banner (in the form of a link) of company B in exchange for company B displaying company A's banner.

Screaming Video and Audio

Companies and networks including RealNetworks , NetRadio, and MusicVision, insert ads for marketers into music and video clips as consumers listen to them.

Effectiveness Tracking

This is an upstart DynamicLogic designed by a pioneering service to help traditional advertisers gauge the impact of their marketing by placing tiny files, called cookies, on viewers computers. This helps them track where people go after seeing their ads.

Mini-sites, Pop-ups

These ads burst upon the screens, allowing companies such as Volvo and SmithKline Beechm's Oxy acne medicine to dish up games and product information. Mini-sites allow advertisers to market without sending people away from the site they are visiting. This type of advertising also gets higher click rates. Sometimes, these can be intrusive and annoying.

Interstitials

Visit the railway site (www.indianrail.gov.in). When the site uploads, a new window will open in your browser from Citibank, asking you to apply for a loan. These windows are called

interstitials, and they demand your attention because you must click on them, even if only to close the window.

Sponsorships

The advantage of sponsorship is that they can help to build a sponsor's brand by presenting it within the context of the sponsored site and by creating value for visitors to that site.

Coupons

Coupons can be an attractive marketing mechanism because they encourage product trial, and they are a way of selectively discounting prices to the most price sensitive customers.

Pay Per Advertising View

Companies such as CyberGold "pay" customers to view advertisements. The approach uses the accountability of the Web to reward consumers for processing the "right" kind of information.

Loyalty programs

Companies such as click rewards (www.clickrewards.com) offer their members the chance to earn a currency, such as airline miles, by shopping at their network of partner sites. The economics of customer retention are well known.

Partnerships

While many offline companies arrange partnerships, the use of partnerships is more pervasive in the New Economy. Web companies often partner with complementary sites to quickly provide a more value-enhanced service to site visitors.

Innovative Customer Acquisition

One form of innovative marketing is to ally with groups (or associations) and provide a complementary service that benefits the group's membership. By creating such an alliance, a new site can launch with a large customer base without incurring expensive and risky marketing fees.

Providing Information

The Web allows sites to instantly offer information that is relevant to their customer base. Many sites provide instantly accessible information to their consumers as a form of marketing and product differentiation.

PERSONALIZED ONLINE COMMUNICATIONS

We categorize personalized marketing into five primary forms

I. Permission marketing
II. Personalized recommendations
III. Personalized advertisements
IV. Personalized web pages
V. Personalized e-commerce stores.

1. **Permission marketing**

Seth Godin coined the term permission marketing to describe how successful e-mail campaigns can result from creating relationships with customers.

Once customers initiate this relationships, they anticipate e-mail messages because they know that these messages will be on relevant topics. By using the permission marketing philosophy, online firms create a valuable database of customers who have given the firm the permission to market to them and are receptive to market to the and are receptive to marketing messages.

Permission marketing e-mails must be relevant to the consumer. Relevance can range from general interest to very specific interest. Response rates and trust can increase by sending permission marketing e-mails that are highly specific to customers interests.

2. Personalized recommendations

Many e-commerce sites have personalized services that make specific merchandise recommendations for each user based on past purchases, web pages viewed, and survey information that the user has provided.

3. Personalized advertisements

Websites increasingly are using personalized technology software to determine dynamically, in real time, which Web advertisements should be exposed to viewers.

4. Personalized Web pages

Many portals and e-commerce sites allow users to create their own personalized Web page. This allows users to create a Web page that caters exactly to their interests. Personalization encourages users to return more often and increases the users familiarity and trust with the web page. This leads to users spending more time on the website, thereby increasing advertising exposure time.

5. Personalized e-commerce stores

One of the goals of online merchants is to use Internet technology and their knowledge about individual consumers to tailor their products and services for each of their customers.

CONDUCTING ONLINE MARKET RESEARCH

The Internet based market research is often done in an interactive manner by allowing personal contact with customers, and it provides marketing organizations with greater ability to understand the customer, market, and the competition.

It also tells a management when a product or a service is no longer popular. To learn more on market research on the web, see the tutorials at Webmonkey.com.

Online Market/Research Process and Results

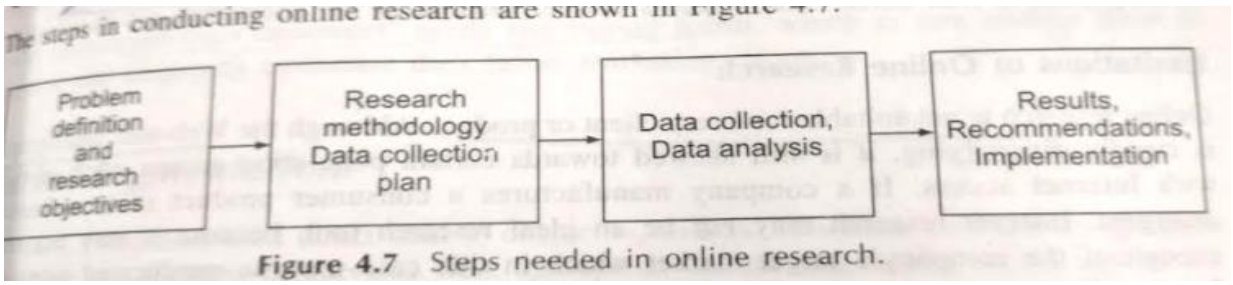


Figure 4.7 Steps needed in online research.

Steps in collecting Market Research Data

1. Define the research issue and the target market.
2. Identify newsgroups and Internet communities to study.
3. Identify specific topics for discussion.
4. Subscribe to the pertinent groups; register in communities.
5. Search discussion group topic and content lists to find the target market.
6. Search e-mail discussion group lists.
7. Subscribe to filtering services that monitor groups.
8. Enter chat rooms, whenever possible.

Content of the research Instrument

1. Post strategic queries to groups.
2. Post surveys on your website. Offer rewards for participation.
3. Post strategic queries on your website.
4. Post relevant content to groups with a pointer to your website survey.
5. Post a detailed survey in special e-mail questionnaires.
6. Create a chat room and try to build a community of consumers.

Target Audience of the Study

1. Compare your audience with the target population.
2. Determine your editorial focus
3. Determine your content
4. Determine what Web services to create.

Limitations of Online Research

- Online research is not suitable for every client or product.
- It is still skewed towards certain population groups, such as those with Internet access.
- If a company manufacturers a consumer product such as laundry detergent, Internet research may not be an ideal research tool, because it may not reach enough of the company's target market which in this case may be uneducated women in Indian villages.

Consumer market segmentation in India

Segmentation	**Descriptors**
Geographic	Region and states Size of state, city, district, village Statistical area Population density climate
Demographic	Age Occupation Gender Education Family size Religion Family lifecycle

	Caste Income Linguistic groups
Psychosocial	Social classes Life styles Personality
Cognitive, affective, behavioural	Attitudes Benefits sought Loyalty status Readiness stage Usage rate Perceived risk User status Innovativeness Usage situation Involvement

DATA MINING AND MARKETING RESEARCH

Defn. :- Data mining derives its name from the similarities between searching for valuable business information in a large database and mining a mountain for a vein of valuable ore.

Data mining technology can generate new business opportunities by providing these capabilities.

Automated prediction of trends and behaviours: data mining automates the process of finding predictive information in large databases.

Automated discovery of previously unknown patterns: data mining tools identify previously hidden patterns.

The following are the major characteristics and objectives of data mining:

1. Relevant data are often difficult to locate in very large databases.
2. Data mining tools help remove the information buried in corporate files or archived in public records.
3. "Striking it rich" often involves finding unexpected, valuable results.
4. Data mining tools are easily combined with spread sheets and other end-user software development tools; therefore, the mined data can be analyzed and processed quickly and easily.
5. Data mining yields five types of information:
    - Association
    - Sequences
    - Classifications
    - Clusters
    - Forecasting

Data miners can use several tools and techniques. The most well-known tools of data mining are:

- **Neutral computing.** Neutral computing is a machine learning approach by which historical data can be examined for patterns.
- **Intelligent agents.** One of the most promising approaches to retrieving information from the internet or from intranet-based databases is through the use of intelligent agents.
- **Association analysis.** This approach uses a specialized set of algorithms that sorts through large data sets and expresses statistical rules among items.

Web mining is the application of data mining techniques to discover actionable and meaningful patterns, profiles, and trends from the web resources.

The term web mining is being used in two different ways:

- Content mining
- Web usage mining

Data Mining Applications

Industry	**Applications**
Retailing and sales distribution	Predicting sales, determining inventory levels and schedules.
Banking	Forecasting levels of bad loans and fraudulent credit card use, predicting credit card spending by new customers, predicting customer response to offers
Airlines	Capturing data on where customers are flying and the ultimate destination of passengers who change carriers in mid-flight; thus, airlines can identify popular locations that they do not service and check the feasibility of adding routes to capture lost business.
Broadcasting	Predicting what is best to air during prime time and how to maximize returns by interjecting advertisements
Marketing	Classifying customer demographics that can be used to predict which customers will respond to a mailing or buy a particular product.

Intelligent agents in marketing and customer-related applications

As the number of customers, products, vendors, and information increases, it becomes uneconomical, or even impossible, to match customers products and consider all relevant information.

The practical solution to handle the information overload is to use intelligent and software agents.

Agents are used to support many tasks. One of the primary reasons for using such agents is to overcome the tremendous amount of information overload. When going through the

purchasing decision process described earlier, for example, a customer must examine large numbers of alternatives, each of which is surrounded by considerable amounts of information.

A search engine is a computer program that can automatically contact other network resources on the Internet, search for specific information or keywords, and report the results.

Search engine deliver answers economically and efficiently by matching questions with FAQ templates.

Unlike search engines, an intelligent agent can do more than just "search and E-match"

Need Identification

Agents can assist the buyer with need identification by providing product information and stimuli. for example, *amazon.com* provides its customers with an agent that continuously monitors sets of data and notifies customers when a book in there are of interest arrives. Similar agents watch for stocks to go below or above a certain level, sending the customer an e-mail when that level is reached.

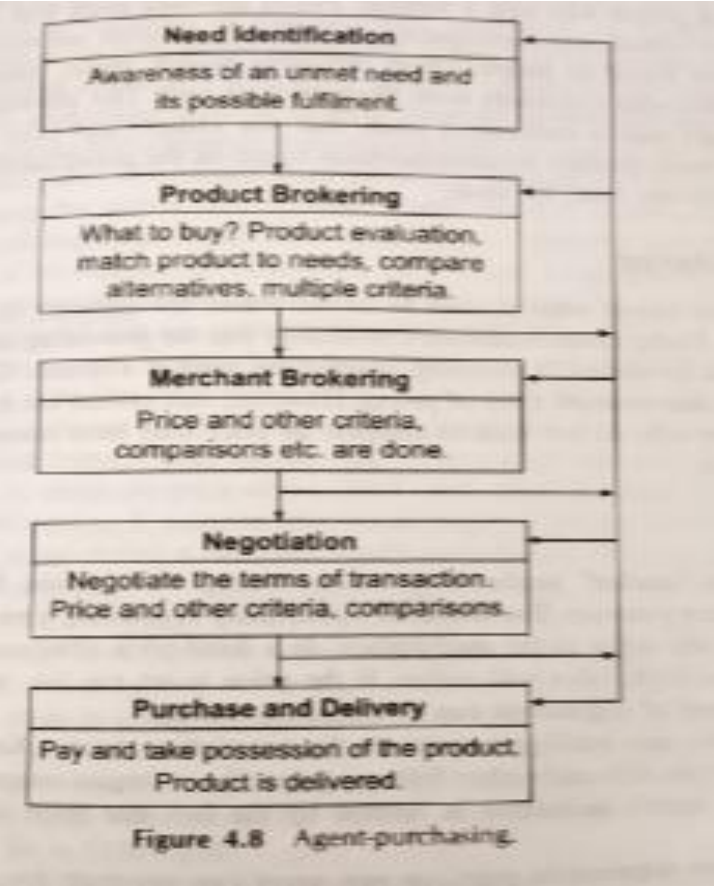


Figure 4.8 Agent-purchasing.

Product Brokering

Once a need is established, customer search for a product that will satisfy this need. Several agents are available to assist customer with this task.

Merchant Brokering

Once a customer knows what product he/she wants, the customer needs to find where to buy it. Bargain finder was a pioneering agent in this category. The agent, used in online CD shopping, queried the price of a specific CD from a number of online vendors and returned a list of prices.

Negotiation

The concept of "market" implies negotiation, mostly about prices. In B2B transactions, negotiation is very common. The benefits of dynamically negotiating a price is that the decision is shifted from the seller to market place.

In a fixed-price situation, if the seller fixes a price that is too high, sales will suffer. If the price is set too low profits will be lower. Electronic support of negotiation can be extremely useful.

Purchase and Delivery

Agents are used extensively during the actual purchase, including arranging payment and delivery with the customer. For example, if a customer makes a mistake when completing an electronic order form, an agent will point it out immediately.

Measuring the effectiveness of E-advertising

Mass media efforts are measured by estimates of audience, circulation or number of addresses. When a company purchases a mass-media advertising it pays a dollar amount for each thousand persons in the estimated audience. This pricing metric is called cost per thousand or cost per metric, and is often abbreviated as CPM in short for cost per thousand impressions.

In reality, measuring wen audiences is more complicated because of the web interactivity and also because the value of the visitor to an advertiser depends on how much information the site gathers from the visitor.

When a visitor requests a page from the website, it is counted as one visit. The first time a particular visitor loads the web site page is called a **trail visit;** subsequent page loads are called **repeat visits.**

Each page loaded by a visitor counts as a page view. If the page contain an ads, the page load is called an **add view.** Some web pages have banner ads that continue to load and reload as long as the page is open in the visitor's Web browser. Each time the banner ad loads is called **impression,** and if the visitor clicks the banner ad to open the advertiser's page, that action is called a **click or a click-through**.

Internet Marketing Trends

Technology-enabled Relationship Management

Dimensions	**Technology enabled relationship management (E-CRM)**	**Traditional relationship with customers (CRM)**
Advertising	provide information in response to specific customer inquiries.	"Push and sell" a uniform message to all customers.
Targeting	Identifying and responding to specific customer behaviour and preferences.	Market segmentation.

Promotions and discounts offered	Individually tailored to customer	Same for all customers
Distribution channels	Direct or through intermediaries; customer's choice	Through intermediaries chosen by the seller
Pricing of products or services	Negotiated with each customer	Set by the seller for all customers
New product features	Created in response to customer demands	Determined by the seller based on research and development.
Measurements used to manage the customer relationship	Customer retention; total value of the individual customer relationship	Market share; profit

This table compares technology-enabled relationship management with traditional seller-customer interactions in seven dimensions.

E-BRANDING

A known and respected brand name can present to potential customers, a powerful statement of quality value and other desirable qualities in one recognizable element. Branded product are easier to advertise and promote, because each product carries the reputation of the brand name.

Consumer brand such as Ivory soap, Walt Disney entertainment, Maytag Appliances, and Ford automobiles have been developed over many years with the expenditure of tremendous amounts of money.

Elements of Branding

The key elements of a brand are differentiation, relevance, perceived value.

Example:

Books:Amazon.com(56%)

Music: CDNow(24%)

Computer software: Microsoft(30%)

Computer hardware: Dell(20%)

Clothing: TheGap(12%)

Travel: AOL,Yahoo!,Travelocity(each 8%)

Autos: Yahoo!(6%)

Element	**Meaning to the customer**
Differentiation	In what significant ways is this product are service unlike its competitors?
Relevance	How does this products are serviced fit into my life?
Perceived value	Is this product are service good?

Spiral Branding

The advent of internet sites and mailings make possible a new form of marketing called spiral branding.

The words “spiral” describes the accelerating benefits of the positive feedback loop.

Bill Gates, for instance, often talks about the upward spiral of his windows business.

The keys to spiral branding are:

Use each media for its best purpose (for instance, don’t try to create a television experience on the web)

Do it fast (get something up now and fine-tune as you go along)

Iterate constantly (make improvements each time around the spiral)

Affiliate networks

“Affiliate networks” which typically reward referring to sites with the commission or bounty based on click-throughs, sales leads or completed transactions-are generally much more cost-effective than standard cost-per-thousand banner campaigns.

Advocacy Marketing

Enlist their customers as marketing advocates to their friends-a strategy often referred to as “viral marketing” by online marketers.

Permission E-mail

Savvy Internet marketers have realized that “e-mail marketing” does not need to be synonymous with “span”. Instead, a range of strategies such as customer relationship e-mail, corporate e-mail newsletters, reminder services, permission networks, sponsored independent newsletters, discussion lists, and partner co-marketing can drive online traffic and enhance brand equity.

Personalization and Mass Customizations

Marketers can dramatically enhance customers’ online experience by personalizing their web presence and allowing customers to configure products and services (enabled by mass-customized back-end processes)

E-care

A key component of any brand experience is the quality of customer service and support.

With the proper allocation of resources, however, companies can experience brand-positive efficiencies, delivering quality customer service more efficiently online than through traditional channels.

E-branding is immediate. It is not based on the promise; it is based on that dynamic flow of information or the transactions at hand. E-branding is the experience of the words, images, and applications available on your site.

MARKETING STRATEGIES

Permission-marketing strategies

The practice of sending e-mail messages to people who have requested information on a particular topic or about a specific product is called opt-in e-mail and is part of a marketing strategy called permission-marketing.

Thus, a marketing strategy that only sends the products or service being promoted should be more successful than a marketing strategy that sends general promotional messages through the mass media. One website that offers opt-in e-mail services is yesmail.com.

Brand leveraging strategies

Rational branding is not the only way to build brands on the web. One method that is working for well-established websites is to extend their dominant positions to other products and services. Yahoo! is an excellent example of this strategy.

Yahoo! was one of the first directories on the web. It added a search engine function early in its development and has continued to parlay its leading position by acquiring other web businesses and expanding its existing offerings. Then, yahoo! acquired *GeoCities* and *Broadcast.com,* and entered into an extensive cross-promotion partnership with the number of Fox Entertainment and Media companies.

Affiliate-marketing strategies

A tool that many new, low-budget websites are using to generate revenue is affiliate marketing. In affiliate marketing, one firms websites include descriptions, reviews, ratings, or other information about a product that is linked to another firm's site that offers the item for sale.

For every visitor who follows a link from the affiliate's site to the seller's site, the affiliate site receives a commission. The affiliate site also obtains the benefit of the selling sites brand in exchange for the referral.

Viral-marketing strategies

Viral marketing relies on existing customers to tell other persons-the company's prospective customers-about the products or services they have enjoyed using. Much as affiliated marketing uses websites to spread the word about a company, viral marketing approaches individual customer to do a same thing. The number of customers increases much as a virus multiplies, thus the name.

Social media marketing

Social media marketing is a fantastic way to interact and communicate with potential buyers. Get connected to a potential customers through interactive platforms like Facebook, Twitter, LinkedIn and get the desired attention for the services and the products.

Although social media can be beneficial for connecting with clients and prospective customer, do not underestimate its utility for bringing employees together as well.

Content marketing

Content marketing is a marketing technique of creating and distributing relevant and valuable content to attract, acquire and engage a clearly defined and understood target audience, with the objective of driving profitable customer action.

Content marketing is the art of communicating with your customers and prospects without selling. It is non-interruption marketing. And they do. Content marketing is being used by some of the greatest marketing organizations in the world, including P&G, Microsoft and Cisco Systems.

Marketing strategies for the web

Strategy	**Rules**
Brands	Your website becomes your most important brand
Change	Keep in mind that the marketing rules on the internet are constantly changing.
Conciseness	Keep your pages short, and spread information on several pages
Content	Content is the king and so make it interesting
Dynamic sites	Create dynamic sites that use new technologies to adapt information based on user profiles
Finances	Try new markets with low advertising pricing schemes
Free giveaways	Create free offerings for your loyal customers
Global village	Think global, but localize
Live events	Online events create quick awareness
Niche markets	The internet is a series of niche markets and mass markets.
Promotion	Promote your site everywhere
Syndication	Co-brand your services and products
Technology	Use internet technology to maximize your marketing objectives

CASE STUDY: THE TIMES OF INDIA

Till 2002, the Times of India was just another newspaper competing to make its mark and increase its readership. But today the newspaper has transformed from what was once a plain-looking national newspaper into a global one, which anybody in any part of the world can access with just a click of the mouse.

It integrated the hardcopy of the newspaper with the online edition. They made the website a place where people came for more than just news. They introduced the following online features:

- Classified advertisements: There is an option of online search. Since there is no restriction like in the print, more ads can be accommodated. This is also integrated with the printed version.

- Hot Links: They provide links to the e-paper that makes the local paper globally available for a subscription, and other favourite links like Bollywood, NRI news, etc.,
- News items: Links to the regular sections of the newspaper are also provided, like India, sports, world, weather, entertainment, etc.,
- Opinion sections: In this section, the views of the various columnists, editor and people on the various current affairs are given.
- Online copies of all supplements.
- Online shopping, games, chats, e-mails.
- Lots of pictures and graphics to make it interesting.
- They also have links to other sites powered by the Times Group, thereby promoting those as well.

Advantages of the Online Edition

- Accessibility- People from Bangalore to Boston, Hyderabad to Houston can all have access to TOI.
- Hourly Updates- Any breaking news can be easily found on the website, and people need not wait for the next morning.
- Caters to a wide range of interests and needs –Current affairs, finances, shopping, entertainment, astrology, travel bookings, etc.,
- Platform to voice opinions- Opinion poles, letters to the editors, views of columnists and editor.
- Show customers that they too are modern and on par with the changing trends.
- Incorporate features that keep bringing people back to their site- offering the customers more than just news.

All of this and more add up to the brand-The Times of India.

REDIFF.COM

Founded in 1996, Rediff.com India Ltd., is one of the India's leading Internet, communications and media companies, serving Indians globally, both online and offline. Through its online and offline product and service offerings,Rediff.com offers interest specific channels, local language editions, sophisticated search capabilities, online shopping, long distance calling cards and Internet based telephony services. Its new publication, India Abroad is one of the oldest and largest south Asian weekly newspaper, serving the Indian American community in the United States. The company also provides users extensive Internet community offerings, all tailored to the interests of Indians worldwide. Rediff.com has officers in New York, Chicago, New Delhi and is headquartered in Mumbai, India.

At **rediff.com**, you can do almost anything that you would like to do on the Internet.

You could…

- Communicate better
- Find useful information
- Have fun
- Enhance your career
- Simplify your routine work
- Plan your life

- Stay informed
- Buy and sell

You can begin communicating by exploring any of the several ways in which **rediff.com** can help you communicate better.

- Send and receive e-mail
- Chat with people
- Send an instant message
- Send greetings
- Build your own home page
- Voice your opinions
- Send e-mail from your mobile.

Rediffmail is a free e-mail service. **Rediffmail** also allows you to send e-mail in most Indian languages. E-cards or electronic cards are the Internet's version of regular paper greeting cards e-cards can be sent to anyone with an e-mail address.

UNIT-III - E-Payment systems

E-BANKING AT ICICI BANK – CASE STUDY

Internet banking or E-banking means any user with a personal computer and a browser can get connected to his bank-s website to perform in any of the virtual banking functions. In the internet banking system the bank has a centralized database that is web enabled.

The internet banking is changing the banking industry and is having the major effects on banking relationships. Internet banking involves use of internet for delivery of banking products and services.

It falls into four main categories, from level 1- minimum functionality sites that offer only access to deposit account data- to level 4 sites-highly sophisticated offerings enabling integrated sales of additional products and access to other financial services- such as investments and insurance.

A successful internet banking solution offers

- ✓ Exceptional rates on savings, CDs, IRAs.
- ✓ Checking with no monthly fee, free bill payment and rebates on ATM surcharges.
- ✓ Credit cards with low rates.
- ✓ Easy online applications for all accounts, including personal loans and mortgages.
- ✓ 24-hour account access.
- ✓ Quality customer service with personal attention.

ICICI Bank is India's second-largest bank with total assets of Rs. 3,446.58 billion for fiscal 2007.The bank has a network of about 950 branches and 3,300 ATMs in India and presence in 17 countries.

ICICI bank offers a wide range of banking products and financial services to corporate and retail customers through a variety of delivery channels and through its specialized subsidiaries and affiliates in the areas of investment banking, life and non-life insurance, venture capital and asset management. The bank currently has subsidiaries in several other countries.

ICICI bank was originally promoted in 1994 by ICIC Limited, an Indian financial institution, and was its wholly-owned subsidiary. ICIC was formed in 1995 at the initiative of the World Bank, the government of India and representatives of Indian industry. The principal objective was to create a development financial institution for providing medium-term and long-term project financing to Indian businesses.

In the 1990s, ICICI transformed its business from a development financial institution offering only project finance to a diversified financial services group offering a wide variety of

products and services, both directly and through a number of subsidiaries and affiliates like ICIC Bank. In 1999, ICICI become the first Indian company and the first bank or financial institution from non-japan Asia to be listed on the NYSE.

Automated Teller Machine (ATM)

ATM is designed to perform the most important function of bank. It is operated by plastic card with its special features. The plastic card is replacing cheque, personal attendance of the customer, banking hours restrictions and paper based verification. There are debit cards. ATMs used as spring board for Electronic Fund Transfer.

ATM itself can provide information about customer account also receive instructions from customers-ATM cardholders. An ATM is an Electronic Fund Transfer terminal capable of handling cash deposits, transfer between accounts, balance enquires, cash withdrawals and pay bills. It may be online or offline. The online ATM enables the customer to avail banking facilities from anywhere.

Credit cards/Debit cards

The Credit Card holder is empowered to spend wherever and whenever he wants with his credit card within the limits fixed by his bank. Credit card is a post-paid card. Debit card, on the other hand, is a pre-paid card with some stored value. Every time a person uses this card, the internet banking house gets money transferred to its account from the bank of the buyer. The buyers account is debited with exact amount of purchases. An individual has to open an account with issuing bank which gives debit card with a personal identification number (PIN).

ICICI bank Corporate Internet Banking (CID) is a one stop shop for all your online banking needs. It gives you the power to execute critical bank transactions instantly from your office location with no time lags and hence is an indispensable tool in today's 24 *7 high speed business world.

Non-Transaction services

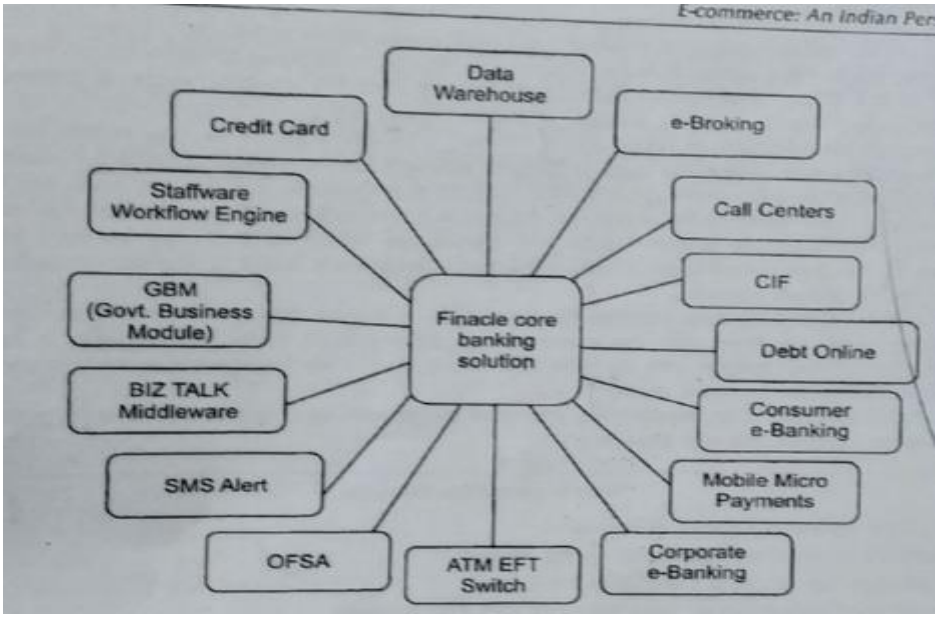
- ✓ Real time account balance information.
- ✓ Download of account statements in six formats.
- ✓ Subscription for account statements by E-mail.
- ✓ Request for cheque book, stop payment and FD opening.
- ✓ Trade MIS to view all your trade-related banking information.

Transaction services

- ✓ Transfer funds within own ICICI account. (self-account transfer)
- ✓ Transfer funds to channel partners ICICI account (own to external transfer).
- ✓ Transfer funds from channel partners ICICI account (external to own).
- ✓ Transfer funds to non-ICICI bank accounts using EFT/NEFT/RTGS.
- ✓ Utility bill payments to more than 85 billers across india.
- ✓ Online tax payment facility.
- ✓ e-payment gateways.

Mobile Banking

Now with ICICI banks secured mobile banking service you can access your bank accounts and carry out transactions through your mobile. Get alerts and remainders at the right moment and more. Our secured mobile banking service answers your business needs, all through the push of few buttons.



MAIN CONCERNS IN INTERNET BANKING

There is a dual requirement to protect customer's privacy and protect against fraud. Banking securely: online banking via the world wide web provides an overview of internet commerce and how one company handles secure banking for its financial institution clients and their customer. Some basic information on transmission of confidential data is presented in security and encryption on the web. A multi-layered security architecture comprising firewalls, filtering routers, encryption and digital certification ensures that your account information is protected from unauthorized access.

- ✓ Firewalls and filtering routers ensures that only the legitimate internet users are allowed to access the system.
- ✓ Encryption techniques used by the bank ensures that privacy of data flowing between the browser and the infinity system is protected.
- ✓ Digital certification procedures provide the assurance that the data you receive is from the infinity system.

The growth of e-commerce is dependent, among other factors on the existence of secure, user friendly and cost-effective payment systems. Handling payments is a costly process that has been a central part of bank business for the past century. However , it is now being transformed by technological development and in particular, the internet.

E-commerce may be classified as either electronic money (e-money) or electronic access products. The difference between them is that whereas electronic access products basically provide internet access to traditional products (credit card payments, bank transfers, and the like), e-money is a new concept and in particular is considered to be "private money not depending on central bank reserves.

Consolidated method of payment used for distance selling mostly at national level , such as cheque, cash-on-delivery and credit-transfer mechanisms, have proven easy to adopt to electronic transactions.

E-payment systems are becoming central to e-commerce as companies look for ways to serve customers faster and at lower cost. Emerging innovations in the payment for goods and services in electronic commerce promise to offer a wide range of new business opportunities.

DIGITAL PAYMENT REQUIREMENTS

For any digital payment system to succeed, the criteria given in Table 6.1 ought to be satisfied.

TABLE 6.1 Digital Payment Requirements

Acceptability	Payment infrastructure needs to be widely accepted.
Anonymity	Identity of the customers should be protected.
Convertibility	Digital money should be convertible to any type of fund.
Efficiency	Cost per transaction should be near zero.
Integration	Interfaces should be created to support the existing system.
Scalability	Infrastructure should not breakdown if new customers and merchants join.
Security	Should allow financial transactions over open networks.
Reliability	Should avoid single points of failure.
Usability	Payment should be as easy as in the real world.

Online Payment Categories

TABLE 6.2 Online Payment Categories

Category	Description
Micropayment	Transaction value less than 5 euros or dollars. Transaction costs are nearly zero.
Consumer payments	Transaction value between 5 and 500 euros or dollars. Payments are executed by credit card transactions.
Business payments	Transaction value more than 500 euros or dollars. Debit cards or invoices are appropriate solutions in this system.

EFT-Electronic Funds Transfer

EFT is 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 fine new institution to debit or credit on account.

DIGITAL TOKEN BASED E-PAYMENT SYSTEMS

The development of modern electronic payment network took an important step forward in the mid-1970s, with the creation of global joint venture that would eventually be known as visa. Through shared investment, the VISA association created a global system to authorise transaction, clear and settle electronic payment, codify operating regulations to protect consumer and merchants alike, and set interoperability standard to ensure that unlike cash and cheques, a visa card could be used anywhere in the world.

Two development in the 1990s further broadened the utility of electronic payments. Debit cards, a popular "pay now" product allowed consumer to access fund in a demand deposit account to conduct transaction at the point of sale; and e-commerce emerged as mainstream business channel, both relying on and stimulating electronic payments.

VISA describes this new range of payment choices as "u-commerce" or universal commerce-the ability to conduct commerce anywhere, anytime or anyway.

Benefits to buyers:

- Convenience of global acceptance and enhanced financial management
- Enhanced security and reduced liability
- Consumer protection through an established system
- Convenient and immediate access to fund on deposit via debit card
- Accessibility to immediate credit

Benefits to sellers:

- Speed and security of transaction processing chain from verification
- Freedom from more costly labour, materials and accounting services
- Better management of cash flow, inventory and financial planning
- Incremental purchasing power
- Cost and risk savings by eliminating the need to run in-house credit facility

Credit card as e-payment system:

The credit cards have proved popular for a number if reason as the following,

i. The system is familiar to user and was widely used
ii. Transaction costs are hidden from user
iii. Payment is simple anywhere and in any currency
iv. The credit-issuing company shares the transactions risk; helping overcome consumer fear and reluctance to buy goods they have not actually seen.

Disadvantages of credit cards:

- ❖ The relatively high transaction cost makes them impractical for small value payment.
- ❖ They cannot be used directly by individuals to make payment to other individuals.
- ❖ Protecting the security of transactions is vital, especially in the virtual world where there is no payment guarantee to merchant by a bank.

Debit cards as e-payment systems

A debit card is plastic cards issued to customers by banks and debit cards companies. It allows the cardholder to purchase products or services directly from their savings account that come from checking machines.

Funds used are prepaid and exists in the bank account prior to any transaction made using the card. Debit cards, which are also known as bank card or check card, are significant when making purchases or while travelling.

Having debit cards on hand means that buyers do not have to bring huge amounts of cash in their pockets since numerous establishments accept these cards as mode of payments. Almost all stores like shopping centres, restaurants, hotels, airlines, and malls have made their point-of-sale terminals capable of receiving payment from prepaid cards.

Disadvantages of debit Cards

- Debit cards offer lower levels of security protection than credit cards, theft of the users' PIN using skimming devices can be accomplished mush easily with a PIN input than with a signature-based credit transaction. Unlike a credit card, debit card transactions give you no grace period.
- They can make balancing your account tricky if you are not fastidious about keeping receipts and recording transactions in a timely fashion.
- Some ATM machines charge a fee for their use and then your bank adds another foreign ATM charge.

E-payments in India

The reserve bank of India started promoting automation in the banking industry in the 1990s. The RBI initially set up an electronic clearing service (ECS) to clear low-value, large-volume payments such as direct credits and debits within four days.

The RBI also built out the national EFT system for a special EFT (SEFT) system to act as a key component of India's e-payment system and to resolve last-mile connectivity issues between entities, according to FinanceAsia.com.

Once the RBI rolls out its real-time gross settlement system (RTGS), India's banks and business will be better able to use the internet to realize the value of e-payment to their operations. For greater automation in India's payment system, the RBI has also linked clearing houses via INFINET (Indian Financial Network, a telecom network), set up a Centralized Funds Management System (CFMS), and centralized the payments and settlement systems.

Encryption and Credit Cards

To make a credit card transaction truly secure and non-refutable, the following sequence of steps must occur before actual goods, services, or funds flow:

1. A customer presents his or her credit card information (along with an authenticity signature, or other information such as mother's maiden name) securely to the merchant.
2. The merchant validates the customer's identity as the owner of the card account.
3. The merchant relays the credit card charge information and signature to its bank or online credit card processors.
4. The bank or processing party relays the information to the customer's bank for authorization approval.
5. The customer's bank returns the credit card data, charge authentication, and authorization to the merchant.

The mobile payments

Mobile payments is a mode of payment using mobile phones. Instead of using methods like cash, cheque, and credit card, a customer can use a mobile phone to transfer money or to pay for goods and services. A customer can transfer money r pay for goods and services by sending an SMS, using a java application over GPRS, a WAP service, over IVR or other mobile communication technologies.

In India, this service is bank-led. Customer wishing to avail themselves of this service is being offered by several major banks and is expected to grow further. Mobile Payment Forum of India (MPFI) is the umbrella organization which is responsible for deploying mobile payments in India.

Ezetap is not the only startup trying to help an increasingly mobile Indian consumer make transactions on the fly. A new league startups are trying to make mobile payments easier in India, a country where are more than 886 million mobile subscribes. Despite many failures in the past, this time around things seems to be looking up as the country's mobile infrastructure improves and investors pump in money.

Besides Ezetap, Noida based Paytm, Mumbai based Mswipe and Citrus Pay are entering the market. As consumers slowly grow comfortable with electronic cash, mobile wallet providers are tripping over each other to acquire these potential customers.

In India, the model for the delivery of IMPS will be bank-linked; which implies that customers wishing to a avail themselves of this service should have:

- Initially, a registered mobile phone account with any network operator in the country, and
- A bank account,
- Register for the mobile payment service with the bank.

CLASSIFICATION OF NEW PAYMENT SYSTEMS

For, the time being, the New Payment System can be roughly divided into 2 groups: one, using smart cards, and the other using the Internet. Traditional payment instructions such as cash, cheques, credit cards, EFT/POS, and account transfer have strong points-convenience and ease of circulation-but they are weak due to their high handling costs.

The methods to be used by the New Payment Systems can be classified in the following manner:

1. Cash substitution
2. Cheque substitution
3. Credit card substitution
4. Account transfer substitution system.

Smart card cash payment system

Smart cards are credit and debit cards and other card products enhanced with microprocessor, capable of holding more information than the traditional magnetic stripe. The chip, at its current state of development, can store significantly greater amount of data, estimated to be 80 times more than a magnetic stripe.

The smart card technology is widely used in countries such as France, Germany, Japan and Singapore to pay for public phone calls, transportation and shopper loyalty programmes. The idea has taken longer to catch on in the United States, since a highly reliable and fairly inexpensive telecommunications system has favoured the use of credit card and debit cards.

Smart cards are basically of two types: relationship-based credit cards and electronic purses. Electronic purses, which replace money, are also known as debit and electronic money.

The benefits of smart cards will relay on the ubiquity of devices called smart card readers that can communicate with the chip in a smart card. In addition to reading form and writing to smart cards, these devices can also support a variety of key management method. Some smart card readers combine elements of a personal computer, a point of scale terminal, and a phone to allow consumers to quickly conduct financial transaction without leaving their homes.

To promote smart card usage, a smart card forum—a group of about 130 business and government agencies—is drawing up common specifications to promote the use of multiple applications smart card usable for every kind of payments.

Micropayment System

A micropayment is a financial transaction involving a very small sum of money and usually one that occurs online.

Here is one scheme for micropayment: The user and seller each establish an account with a third party service provider who monitors, collects and distributes micropayment. The seller encodes per-fee links inside a web page. When the user initiates a transaction, payment goes through an internet wallet account managed by the service provider. Micropayments accumulate until they are collected as single, larger payments. Such a system is helpful when a user wants to make one-time micropayments to multiple seller. Seller-based accounts are more common for repeat business with an individual enterprise.

ELECTRONIC CASH (E-CASH)

There are many ways of implementing an e-cash system. Specifically, e-cash must have the following four properties: monetary value, interoperability, retrievability, and security.

E-cash must have a monetary value; it must be backed by either cash (currency), a bank-authorized credit, or a bank-certified cashier's cheque. When e-cash created by one bank is accepted by others, reconciliation must occur without any problems.

E-cash must be interoperable, that is, exchangeable as payment for other e-cash, paper cash, goods or services, lines of credit, deposits in banking accounts, bank notes or obligations, electronic benefits transfers, and the like.

E-cash must be storable and retrievable. Remote storage and retrieval (e.g. from a telephone or a personal communications device) would allow users to exchange e-cash (e.g. withdraw from and deposit into banking accounts), from home or office or while travelling. The cash could be stored on a remote computer's memory, in smart cards, or in other easily transported standard or special-purpose devices.

E-cash should not be easy to copy or tamper with while being exchanged. This includes preventing or detecting duplication and double-spending.

Types of Electronic Money

Electronic money can either be centralized, where there is a central point of control over the money supply, or decentralized, where the control over the money supply can come from various sources. Electronic money that is decentralized is also known as digital currencies.

Digital Wallet

A digital wallet refers to an electronic device that allows a person to make e-commerce transactions. By using a digital wallet, users can complete purchases easily and quickly with near-field

communications technology. Digital wallets can be used in conjunction with mobile payment systems that allow customers to pay for purchases with their smart phones. They can also so be used to store loyalty card information and digital coupons.

Google's Wallet service lets users put cash on their phone to spend in-store as well as online.

The traditional leather wallet is a storage mechanism for consumers' cash, credit, debit and loyalty cards and coupons. The first generation digital wallet, starting in the late 1990s with PayPal and eBay, was a software solution that provided convenient way to store cards for repeat online purchases.

BITCOIN-AS A CRYPTOCURRENCY

Bitcoin is a form of money that uses cryptography to control its creation and management. Bitcoins are used for electronic purchases and transfers. It is a new form of currency that was created by an unknown person using the alias Satoshi Nakamoto. Transactions are made with no middle men-meaning, no banks! There are no transaction fees and no need to give your real name.

Bitcoin is not an institution, organization, or any sort of centralized entity. The special characteristic of Bitcoin is that there is no central authority. It is literally a network of users-known as peers-who simply decide to buy and sell goods and services through a mode of virtual currency. Bitcoins are not printed. It is decentralized. They are ‘mined’ using computing power in a distributed network. According to protocol, only 21 million Bitcoins can be created by miners. So, the main characteristics of Bitcoins are:

1. It is a decentralized currency.
2. It is easy to setup.
3. It is anonymous.
4. It is completely transparent.
5. There is no transaction fee when you buy goods or services using Bitcoins.
6. It is fast.
7. It is non-repudiable.

Every single purchase of Bitcoin is immediately logged digitally on a transaction log that tracks the time of purchase and who owns how many Bitcoins. This digital transaction log is called blockchain. The blockchain, records every single transaction and the ownership of every single bitcoin in circulation. Each time a bitcoin changes ownership from seller to buyer, the two parties need to agree on its price. There is no ‘fixed’ price. Usually, it’s the seller’s responsibility to give a fair price to the buyer based on what rate bitcoins are being traded in elsewhere.

The difference between bitcoins and other currencies is that there is no centralized bank that prints the currency and sets relative values. Through transactions, the value of bitcoin fluctuates through supply and demand. Several marketplaces called bitcoin exchanges allow people to buy or sell bitcoins using different currencies. Mt. Gox is the largest bitcoin exchange. More than $1.5 billion worth of bitcoins are currently in circulation around the world.

A bitcoin user can freely share his public address with everybody. His private address is kept secret. This is what allows Bitcoin to be a secure payment system. However, hackers were able to break into the system, though these bugs were fixed.

Theft of Bitcoin has been documented on numerous occasions. At other times, bitcoins exchanges have shut down, taking their clients' bitcoins with them. Since, there is complete anonymity about the private address of the owners of transactions, Bitcoins can be used for money laundering, illegal activities and crimes. Due to these factors, many countries and institutions do not accept it as a legal tender.

RISK AND E-PAYMENT SYSTEMS

There are three major risks:

1. Data Protection-The abuse of data related to users
2. Data reliability-The authentication of parties involved
3. Taxation-Issues related to tax.

Electronic commerce is difficult to regulate for two main reasons:

1. The scope of electronic commerce, and the technology involved changes rapidly.
2. The very nature of the technology involved means that it is transnational. This leads to problems as to which legal systems has jurisdiction over e-commerce transactions.

Data Protection

Although the number of businesses on the Internet has grown, many of these organizations are simply maintaining a 'Web presence' by providing information about themselves and their products, and have not yet undertaken Internet-based transactions. This inertia is probably due to concern about the security of transactions and user authorization.

Technologies concerned with authorization include firewalls, password access, smart cards and biometrics fingerprinting. However, in order to provide secure electronic transactions (SET), encryption technologies are used. Encryption technologies, which are supported by the appropriate legal mechanisms, have the potential to allow global electronic commerce to develop.

One essential challenge of e-commerce is risk management. Operation of e-payment systems incurs **three major risks: fraud or mistake, privacy issues, and credit risk**. Preventing mistakes might require improvements in the legal framework.

Dealing with privacy and fraud issues requires improvements in the security framework. Curtailing credit risk requires devising procedures to constrict or moderate credit and reduce float in the market.

Risks From Mistake And Disputes: Consumer Protection

Virtually, all e-payment systems need some ability to keep automatic records, for obvious reasons. From a technical standpoint, this is not a problem for electronic systems. Credit and debit cards have them, and even the paper-based cheque creates an automatic record. Once information has been captured electronically, it is easy and inexpensive to keep (it might even cost more to throw it away than to keep it. For example, in many transaction processing systems, old or blocked accounts are never purged and old transaction histories can be kept forever on magnetic tape.

Given the intangible nature of electronic transactions and dispute resolution relying solely on records, a general law of payment dynamics and banking technology might be that no data need ever be discarded. The record feature is an after-the-fact transcription of what happened, created without any explicit effort by the transaction parties.

Features of these automatic records include: (i) permanent storage, (ii) accessibility and traceability, (iii) a payment system database, and (iv) data transfer to payment maker, bank, or monetary authorities.

Managing Information Privacy

The e-payment system must ensure and maintain privacy. Every time one purchases goods using a credit card, subscribes to a magazine, or accesses a server, that information goes into the database. Furthermore, all these records can be linked so that they constitute in effect, a single dossier. This dossier would reflect what items were bought, and where and when. This violates the unspoken law of doing business, that privacy of customers should be protected as much as possible.

Managing Credit Risk

Credit or systemic risk is a major concern in net settlement systems, because a bank's failure to settle its net position could lead to a chain reaction of bank failures. The digital central bank must develop policies to deal with this possibility.

A digital central bank guarantee on settlement removes the insolvency test from the system because banks will more readily assume credit risks from other banks.

DESIGNING E-PAYMENT SYSTEMS

Despite cost and efficiency gains, many hurdles need to be overcome for the spread of e-payment systems. These include several factors, mostly non-technical in nature, that must be addressed before any new payment method is made successful. They are as follows:

1. Privacy :- A user expects trustworthiness of a secure system; just as telephone.
2. Security:- A secure system verifies the identity of two-party transactions through "user authentication", and reserves flexibility to restrict information/services through access control.
3. Intuitive interfaces:- The payment interface must be as easy to use as a telephone.
4. Database integration:- The databases should be tied together and allow customers access to any of them while keeping the data up-to-date and error-free.
5. Brokers:- A "network banker"-someone to broker goods and services, settle conflicts, and facilitate financial transactions electronically-must be in place.
6. Pricing:- One fundamental issue is how to price payment system services. For example, should subsidies be used to encourage users to shift from one form of payment to another-

from cash to bank payments, from paper based to e-cash? The problem with subsidies is the potential waste of resources, as money may be invested in systems that will not be used.

7. Standards:- Without standards, the welding of different payment users into different networks and different systems is impossible. Standards enable interoperability.

THE KEY TO SECURITY: CRYPTOGRAPHY

Cryptography relies on two basic components: an algorithm (or cryptographic methodology), and a key. Algorithm is the method used to encrypt the message, and key is the object used to decrypt the message.

Cryptosystems are being increasingly used in encryption, authentication, integrity, non-repudiation, and management of other crypto systems like key management.

EXAMPLES OF ENCRYPTION TECHNOLOGIES

Caesar's Method

This is one of the oldest known techniques of encryption. It traces its history back to Roman times. It is a really simple method of encrypting a message. It involves shifting each letter of the message to a letter that appears k letters after it.

So, if k=3, starting with ABCDEFGHIJKLMNOPQRSTUVWXYZ and sliding everything up by 3, you get DEFGHIJKLMNOPQRSTUVWXYZABC where D=A, E=B, F=C and so on.

Letter Pairing

Here, instead of shifting each letter to some places to its right, letters are paired off with each other in a random manner. For example, consider the pairing AxZ, BxY, CxX and so on.

The method outcomes the limitation of Caesar's method and cannot be encrypted even by using various values of k. Yet, this is not safe method at all, and it can easily be decrypted by using techniques such as frequency analysis.

If a large enough message is intercepted, then by counting the number of times a letter appears, the third party can judge which letter stands for which. For example, we know that 'E' is the most often used letter, and hence the most repeated letter would probably stand for 'E'.

RSA

RSA stands for Rivest, Shamir and Adleman-the three cryptographers who invented the first practical commercial public key cryptosystem. Today it is used in Web browsers, e-mail programs, mobile phones, virtual private networks, secure shells, and many other places. The use of RSA was very much restricted by patent and export laws. RSA encryption uses large prime numbers for its purpose.

RSA uses two large prime numbers. Numbers must be quite large in length, 100 to 300 bits and must have prime value. Only the person who wants to decrypt the message should know this.

Using these, a mathematical algorithm is developed which produces a public key. Anyone who wants to encrypt a message uses this algorithm. The key is based on the two large primes used, and is known only to the person who has developed the particular algorithm.

RSA seems to be reliable and a faster algorithm, but the serious persisting flaws consist of the hiding of two individual numbers chosen from the IP table. Once discovered. Intruders can use these numbers to reconstruct the message and keys.

DES

This is an example of a widely used secret key encryption system. In 1972, the National Institute of Standards and Technology (NIST) decided that a strong cryptographic algorithm was needed to protect non-classified information. The algorithm was required to be cheap, widely available and very secure.

In 1974, IBM submitted the Lucifer algorithm, which appear to meet most of NIST's design requirements. The modified Lucifer algorithm was adopted by NIST as a federal standard on November 23, 1976. Later its name was changed to Data Encryption Standard (DES). The algorithm specification was published in January 1977, and with the official backing of the government it become a very widely employed algorithm in a short time.

DES encrypts and decrypts data in 64-bit blocks, using a 64-bit key (although the effective key strength is only 56-bit, as explained below). It takes a 64-bit blocks of plain text as input, and outputs a 64-bit block of cipher text. It always operates on blocks of equal size, and it uses both permutations and substitutions in the algorithm.

NIST abandoned their official endorsement of DES in 1997 and began work on a replacement, to be called the Advanced Encryption Standard (ADS). Despite the growing concerns about its vulnerability, DES is still widely used by financial services and other industries worldwide to protect sensitive online applications.

ATTACKS ON CRYPTO SYSTEMS

There are basically two types of crypto systems:

Symmetric Key Crypto System

Two types of Symmetric Key Crypto System: 'stream' ciphers are used in mobile communication, and 'bock' ciphers are used for encryption/authentication. Examples of some block ciphers are Data Encryption Standard (DES), International Data Encryption Algorithm (IDEA), and SAFER. Symmetric systems are built by repeatedly using simple mathematical operation involving the key.

Asymmetric Key Crypto Systems

This is also known as Public Key System. The key for the underlying mathematical function cannot be easily used to reverse the mathematical function. A separate key is required to do this (hence the name 'asymmetric'). Participants in such a system will have a key pair-public and private key.

DIGITAL SIGNATURE

Digital Signatures provide data integrity, thereby allowing the data to remain in the same state in which it was transmitted. The identity of the sender can also be authenticated by third parties. The most widely used type of cryptography is public key cryptography, where the sender is assigned two keys-one public, one private.

The original message is encrypted using the public key while the recipient of the message requires the private key to decrypt the message. The recipient can then determine whether the data has been altered. However, although this system guarantees the integrity of the message, it does not guarantee the identity of the sender (public key owner). In order to remedy this, a Certificate Authority is required.

A Certification Authority (CA) perform the task of managing key pairs, while the verification of the person or entity bound to that key pair is initially ascertained at the time of application by the registration authority. A certificate is issued by a CA and links an individual or entity to its public key, and in some cases to its private key.

Legal Position of Digital Signatures

Developments are also taking place at a global level. Bodies such as the Internet Engineering Task Force (IETF), the International Organization for Standardization (ISO), and W3C are currently working on standardization of digital signatures. The OECD has issued ‘Guidelines for Cryptology Policy’, which includes a guide for states on the creation of legislation governing the use of digital signatures. UNCITRAL has also released draft legislation of electronic commerce, including guidelines for digital signatures.

Signatures And The Law

A signature is not a part of the substance of a transaction, but rather its representation or form.

Evidence

A signature authenticates the writing by identifying the signee with the signed document. When the signer makes a mark in a distinctive manner, the writing becomes attributable to the signer.

Legality

The act of signing a document calls to the signer’s attention, the legal significance of the signer’s act, and thereby helps prevent “inconsiderate” engagements.

Approval

In certain contexts, defined by law or custom, a signature expresses the signer’s approval or authorization of the writing, or the signer’s claim that it has legal validity.

Efficiency and Logistics

A signature on a written document often imparts a sense of clarity and finality to the transaction, and may lessen the subsequent need to inquire beyond the face of a document.

Authenticity

Signer Authentication: A signature should indicate who signed a document, a message or a record, and should be difficult for another person to produce without authorization.

Document authentication: A signature should identify what is signed, making it impracticable to falsify or alter either the signed matter or the signature without detection.

Signer authentication and document authentication are tools used to exclude impersonators and forgers, and are essential ingredients of what is often called a “non-repudiation service” in the terminology of information security profession.

A non-repudiation service provides assurance of the origin or delivery of data in order to protect the sender against false denial by the recipient that the data has been received, or to protect the recipient against false denial by the sender that the data has been sent. Thus, a non-repudiation service provides evidence to prevent a person from unilaterally modifying or terminating legal obligations arising out of a transaction effected by computer-based means.

Affirmation

The affixing of the signature should be an affirmative act, which serves the ceremonial and approval functions of a signature and establishes the sense of having legally consummated a transaction.

How Digital Signature Technology Works?

Digital signatures are created and verified by cryptography. Digital signatures use public key cryptography, which employs an algorithm using two different but mathematically related “keys”: one for creating a digital signature or transforming data into a seemingly unintelligible form, and another key for verifying a digital signature or returning the message to its original form. Computer equipment and software utilizing two such keys are often collectively termed as “asymmetric crypto system”.

Another fundamental process, termed hash function, is used in both creating and verifying digital signature. A hash function is an algorithm which creates a digital representation or “fingerprint” in the form of a “hash value” or “hash result” of a standard length which is usually much smaller than the message but nevertheless substantially unique to it. Any change to the message invariably produces a different hash result when the same hash function is used. In the case of a secure hash function, sometimes termed as a “one-way hash function”, it is computationally infeasible to derive the original message from the knowledge of its hash value. Hash functions therefore enable the software to create digital signatures to operate on smaller and predictable amounts of data, while still providing robust evidentiary correlation to the original message content, thereby efficiently providing assurance that there has been no modification of the message since it was digitally signed.

Thus, the use of digital signatures usually involves two processes-one performed by the signer, and the other by the receiver of the digital signature. They can be discussed as follows:

Digital Signature Creation

This uses a hash result derived from and unique to both the signed message and a given private key.

Digital Signature Verification

This is the process of checking the digital signature by reference to the original message and the given public key, thereby determining whether the digital signature was created for that same message using the private key corresponding to the referenced public key.

To sign a document or any other item of information, the signer first delimits precisely the borders of what is to be signed. The delimited information to be signed is termed "message" in these guidelines. Then a hash function in the signer's software computes a hash result unique (for all practical purposes) to the message. The signer's software then transforms the hash result into a digital signature using the signer's private key. The resulting digital signature is thus unique to both the message and the private key used to create it.

The verification software will confirm the digital signature as "verified" if: (i) the signer's private key was used to digitally sign the message, which is known to be the case if the signer's public key was used to verify the signature because the signer's public key will verify only a digital signature created with the signer's private key, and (ii) the message was unaltered, which is known to be the case if the hash result computed by the verifier is identical to the hash result extracted from the digital signature during the verification process.

Signature Authentication

If a public and a private key pair is associated with an identified signer, the digital signature attributes the message to the signer.

Message Authentication

The digital signature also identifies the signed message, typically with far greater certainty and precision than paper signatures.

Affirmative Act

Creating a digital signature requires the signer to use the signer's private key.

Assurance

The processes of creating and verifying a digital signature provide a high level of assurance that the digital signature is genuinely the signer's. As with the case of modern Electronic Data Interchange (EDI), the creation and verification processes are capable of complete automation (sometimes referred to as machinable), with human interaction required only in exceptional cases.

Digital Signatures and Indian Websites

Some of the websites which use digital signatures are given in Table 6.5.

TABLE 6.5 Indian Websites that use Digital Signature

Shopping and Auction sites	SifyMall

	Bazee
	Fabmall
	Rediff
Bookings and Reservations	All major airlines
	Indian Railways
Service Companies e-payments	Cellular Providers
	ISPs
Net Banking	ICICI
	HDFC

The Secure e-Payment Process Method

There are two common standards used for secure e-Payments-SSL and SET. Secure Socket Layer (SSL) and Secure Electronic Transactions (SET) are two major players in the secured payment transaction market. Both use RSA public-key cryptography for encryption and authentication, but SSL and SET are very different protocols to approach payment transaction security.

SSL

SSL is a secured socket layer between HTTP and TCP on a Web server. It is a transport layer security protocol. SSL provides a simple encrypted connection between the client's computer and merchant's server over Internet. It also provides authentication for the merchant's server with its digital certificate from a certificate authority.

This is a secured connection for cyber shoppers to send payment information to e-tailor's Web shop. It can be used as a simple order form including payment information on the Web. But it does not include the payment process protocol with credit card company and issuing banks.

SSL provides secured connection with encryption with encryption and authentication between two computers over the Internet. SSL provides a secure handshake in which the client and server computers exchange a brief burst of messages. In these messages, they agree upon the level of security they will use to exchange digital certificates and perform other tasks. Each computer unfailingly identifies the other. It is not a problem if the client does not have a certificate, because the client is the one who is sending sensitive information. On the other hand, the server with whom the client is doing business ought to have a valid certificate. Otherwise, you (the client) cannot be certain that the commerce site actually belongs to the one whom it refers to. After identification, the SSL encrypts and decrypts information flowing between the two computers.

All communication between SSL-enabled clients and servers is encoded. When SSL encodes everything flowing between the client and the server, an eavesdropper will receive only the unintelligible information.

Is SSL really secure? Yes, SSL indeed provides the secured connection for payment transaction between customers and merchants. It is more secure than phone and postal mail delivery. But the security ends at the merchant's site. It does not keep the credit card numbers after the transaction is complete.

SET

SET is a messaging protocol designed by VISA and MasterCard for securing credit card transactions over open networks, such as the Internet.

In the SET protocol, a transaction has three players-the customer, the merchant and the merchant's bank. SET protocol has three principal features as listed in the following:

- All sensitive information sent within the three parties are encrypted.
- All three parties are required to authenticate themselves with certificates from the SET certificate authority.
- The merchant never sees the customer's card number in plain text.

ONLINE FINANCIAL SERVICES IN INDIA

Web-based banks eliminates physical branches, tellers, and banker's hours, they could slash costs and offer customers higher interest rates and more convenience.

Online banks have also learned that convenience means more than just twenty-four-hour banking. Online banks maintain that they still run more efficiently than traditional banks because of practices such as online account managers, loan officers and so on.

Online banking is also known as cyber banking, home banking, virtual banking, and includes various banking activities that can be conducted from anywhere instead of at a physical bank location. Consumers can use e-banking to pay bills online or to secure a loan electronically. Electronic banking saves a lot of time and money for users. For banks, it offers an inexpensive alternative to branch banking and a chance to enlist remote users. Many physical banks offer home banking services, and EC is used as a major competitive strategy. Online banking is growing in India.

Features of e-Banking in India

1. Can access current account balances at any time.
2. Can obtain charge and credit cards statements.
3. Can pay bills online.
4. Can download account transactions.
5. Can transfer money between accounts.
6. Can keep a track of accounts online.
7. Can send e-mails to the bank.
8. Customers have a flexible schedule.
9. Can also use additional services like free phone banking, ATM withdrawals, bill paying.

Personal Finance Online

Often electronic banking and portfolio management are combined with personal finance. However, specialized personal finance vendors offer more diversified services, with features like:

1. Bill tracking
2. Tracking of bank accounts, expenditures and credit cards
3. Portfolio management, including reports and capital gain (losses) computations
4. Investment tracking and monitoring of securities

5. Stock quotes
6. Personal budget organization
7. Record keeping of cash flow, and profit and loss computations
8. Tax computations and preparations
9. Retirement goals, planning, and budgeting.

Online Billing and Bill Paying

People prefer to pay monthly bills like telephone, utility, electricity etc., online. More so, the recipients of such payments are even more eager to receive money online, as the processing costs are lower! In India, banks like ICICI and SBI make it easier with a facility of paying bills from online accounts.

ICICI provides this feature absolutely free of cost and offers customers to view the bill, status checks, and queries. For certain billers, one can see the bill online and pay immediately or schedule the payment of bills.

SBI on the other hand also provides a feature called Autopay. One can set up AutoPay instructions with an upper limit to ensure that bills are paid automatically whenever they are due. The upper limit ensures that only bills within the specified limit are paid automatically, thereby providing the customer complete control over these payments.

Auxiliary Services

ICICI offers a few auxiliary services online as part of their online services, apart from bill payment and e-banking.

Online shopping: using the Internet banking ID and transaction password, one can visit affiliated shopping sites online and make online transactions.

Online Trading: one of the most popular features of ICICI is their online trading feature. Their products and services offer the following features:

1. Trading in shares
2. Trade in derivatives
3. Investing in mutual funds
4. IPOs and bonds online
5. Personal finance and portfolio, risk management
6. Customer servicing.

Mutual Funds Online

Mutual funds online are very useful in providing financial assistance and predictions, offering services like

1. Funds fact sheet
2. New launches of public Offerings
3. Portfolio Trackers and Fund Monitors

These services are available online and provide useful advice on fund management and investments.

While online services are useful and easy to handle, they are definitely not risk free. They are repeated cases of fraud, carding cash, and liquidity risks, etc.

ONLINE STOCK TRADING: THE HIGH-SPEED ALTERNATIVE

One can now buy and sell shares online with speeds comparable and at times better than NSE's NEAT Terminal. This speed and reliability comes only with perseverance of a pioneer backed by huge investment in technology! Intra-day price alerts that you can set, customized market watch screen, intra-day tick-buy-tick time and price data with chart, for any number of scripts. Technical experts make live calls, the news desk supplying you with the fastest information updates.

No More Paper Hassles

Enter a world of safe, secure and convenient buying, selling and transacting without suffering endless paper work and delays. Convert your securities to electronic format with demat account. It is as easy as opening a bank account.

e-Banking for Funds Transfer

Buying and selling of shares online can now be done with the help of Internet Banking e-banking in India is guided by the Information Technology Act, 2000.

The act provides legal recognition to electronic records, electronic contracts and digital signature. Specifically, the Act says "subject to the provisions of this section, any subscriber may authenticate an electronic record by affixing his digital signature".

Features Offered While Trading in Stocks Online

Several features offered while trading in stocks are enumerated below:

1. View positions online. The customer can view the status of all his orders online.

2. View transaction history online. Transaction details for all the trades done are available online. The customer can also check his statements online.

3. Online quotes, streaming quotes and ticker. The customer gets free online quotes for all his favourite stocks. Quotes are real time to make sure he receives the best quote for his trades. He can also access the streaming quotes, which would give him a feel of the online update of stock prices of his choice.

4. Online news analysis. This gets the latest news affecting the markets. ICICI direct research team will analyze the news and explain its impact on the market and stocks.

5. Follow the market. This gets the latest stock trends by accessing its market centre. All news and events affecting markets and companies are analyzed and presented in a form which you can understand easily.

6. IPO centre. It tells about all the latest IPOs (Initial Public Offerings) which are about to hit the market and our analysis on this. IPO calendars, recent IPOs listings, prospectus/offer Documents,

and IPO analysis are few of the features which help the customer keep on the top of the IPO markets.

A unique e-Brokering Service

This is unique model, while combines the rates of a discount brokerage and the service of a boutique house. They ensure independence and integrity as they do not trade on their account, and all employees have to adhere to strict compliance guidelines. Besides high-quality investment advice from an experienced research team, the site offers real time stock quotes, market news, and multiple tools for technical analysis. They have implemented world class security systems to prevent any possibility of misuse, fraud, or data pilferage. They have successfully emerged as one of the leading providers of E-broking services in India.

How Does Online Stock Trading Occur?

Selling of shares is just a click away. Its powerful 3-in-1 concept enables its customer to tie in his saving bank account and hid demat account to his brokerage account electronically. This integration ensures that money is transferred to/from the bank account and the shares are transferred from/to the DEMAT account automatically without any paperwork.

The Advantages

The advantages of opening a Demat Account are many, and a few of them are as follows:

- Shorter settlements, thereby enhancing liquidity.
- No stamp duties on transfer of securities held in Demat form.
- No concept of Market Lots.

How to transact?

Some of the transactions which take place in a Demat account are: Credit transactions, Debit transactions, and Pledgng of dematerialized securities.

Credit transactions can take place in your Demat account by way of:

- Transfer of securities from the account of a clearing member (market transaction).
- Transfer of securities from the account of another beneficiary (off-market transaction).
- Allotment on public issues directly in your Demat account.
- Credit of non-cash benefits like bonus, rights etc., directly in your Demat account.

Debit transactions can take place in your Demat account by:

- Transfer of securities to the account of a clearing member (market transaction).
- Transfer of securities to the account of another beneficiary (off-market transaction).

Pledging of Dematerialized Securities

- Pledger is the entity who wants to mark a lien on securities owned by him
- Pledgee is the entity in whose favour the lien is marked.

The process for marking pledges works briefly as follows:

1. Pledgor and the pledgee must have depository accounts.
2. Pledgor must initiate the pledge by submitting to use the details of the securities to be pledged in standard format.
3. The pledgee should confirm this request through his DP.
4. On completion of above processes, a pledge is created on securities.

Share Price Chart

Perhaps in the current business environment the most important parameter of business is the stocks and shares. Indiainfoline is one of the numerous dedicated sites in this field and provides the necessary information about them. Some of the information provided absolutely free on the site is:

- Stock: Buy/sell recommendations.
- Real time: News/stories, prices, Commentary, Gainer/Losers, New IPO prices Arbitrage.
- Stock statistics: Winners/Losers, Circuit hitters, 52 week high/lows, Most active advance/deadlines, Momentum line, FII investment, MF investment, Long/short position, The arbitrageur, Badla statistics, All India turnover, BSE turnover, Settlement program, Sectoral indices, Sectoral returns, Pivotal performance, Top 200 performance, Book closure, Board meetings, Debt instruments.

  There is also a facility to download prices as in BSE, NSE, GDR, and Odd lot.

Stock ideas

- Daily round-up
- Investment ideas
- Punter's diary
- Bargain hunter
- Wake-up call
- Runaway stocks
- Irate investor
- IPO line
- Grape line.

UNIT-IV

SUPPLY CHAIN

A supply chain refers to the complex network of relationships that organizations maintain with trading partners to source, manufacture and deliver products.

In the old way of doing things, the following seven processes were not integrated.

1.Procurement planning
2.Production planning
3.Demand planning
4.Inbound logistics
5.Capacity utilization
6.Distribution of products
7.Customer service.

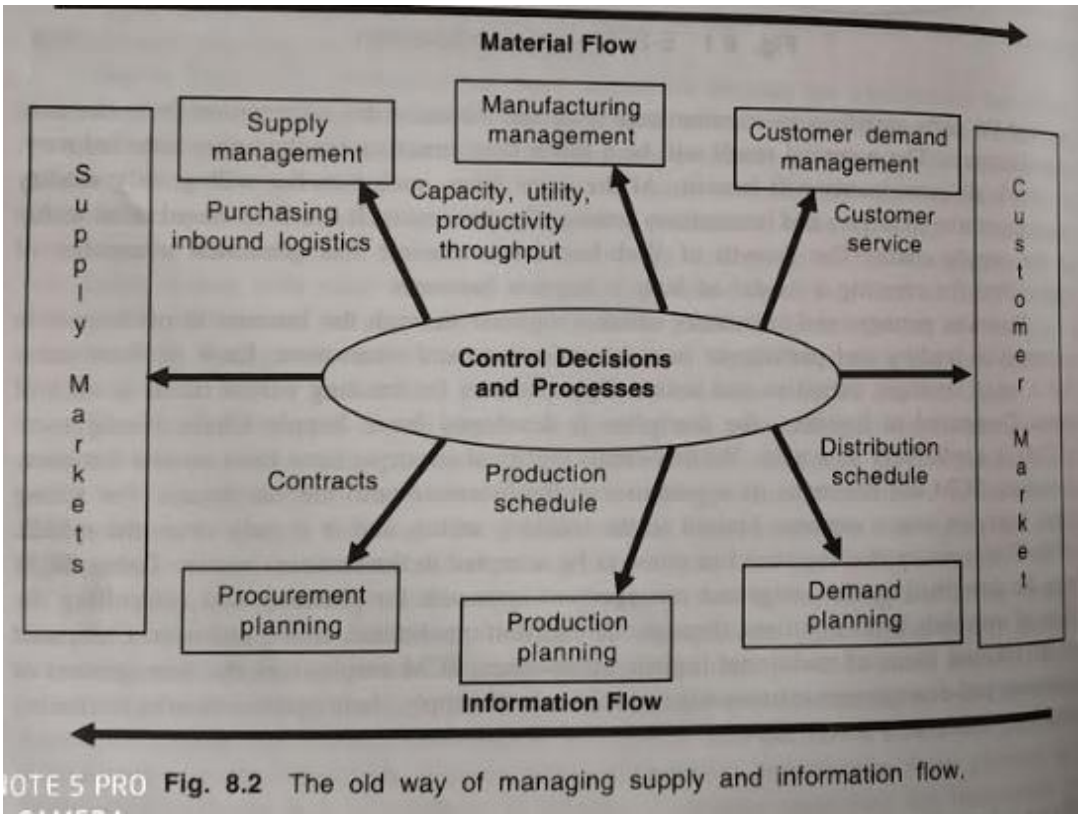


Fig. 8.2 The old way of managing supply and information flow.

The New Way

The flow of materials and information through a business, from the initial purchasing function through the operation and eventually to the customers, is known as the supply chain.

The concept of supply SCM is a holistic view of coordinating functions that transfer data and material resources from the suppliers to consumers in the finished form to make the process efficient and cost effective.

If high speed, low cost, communication and collaboration with customers and suppliers are critical success factors for effective SCM, then the e-chain is the future.

The very essence of SCM is its effective collaboration throughout a network of customers and suppliers. The potentials in productivity, cost reduction and customer service are enormous.

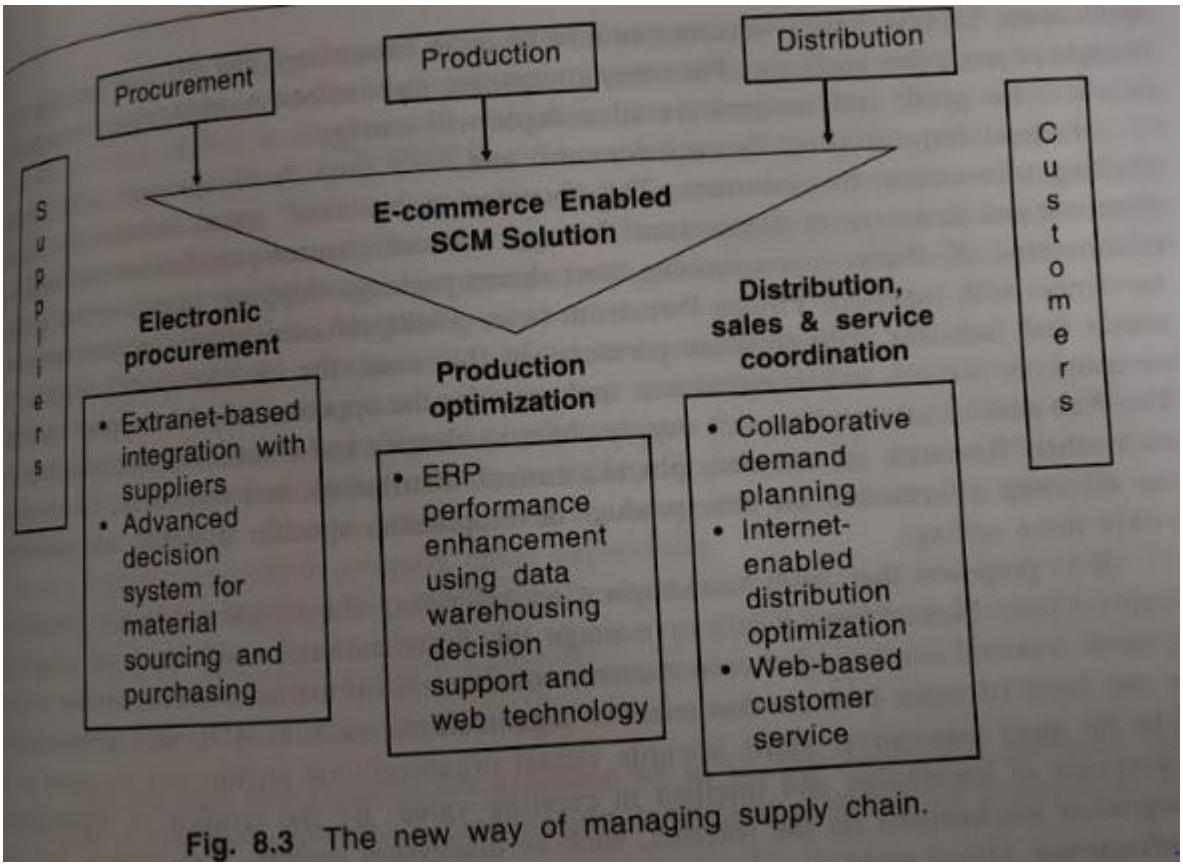


Fig. 8.3 The new way of managing supply chain.

Good supply chain practitioners know that information should be passed on only to those who need to know it, and in the form in which they should receive the information.

For example, demand information, inventory positions, order-fulfilment, supply management and a whole host of other information exchange activities will change how we sell products, supply products, and make and receive payments for goods and services.

The e-supply chain will have customers and suppliers seamlessly linked together, throughout the world, exchanging information almost instantly.

Three types of 'Nets' are used to support the e-supply chain. One of them is the Intranet. An Intranet is an internal network maintained within the boundaries of a company. The second type of Net is the Extranet, which connects participating companies, be they customers or suppliers. Here, a customer could have access to the ERP system to know, for instance, his order status, while the supplier could access inventory data to the support the automatic replenishment process. The third type of Net is the Internet, which is open to the general public. Using the Internet, a company could publicize its products or services and also accept online orders from its customers.

A company perform the common leap into the latest technology without getting thorough and appropriate answers to questions such as the following:

1. What business opportunities are available for us to improve market presence, sales, cost of operation, service, communication, cycle time, supply-base management, and so on?
2. Do we know and understand our supply chain priorities?
3. How should we structure Web-enabled linkages with our customers and suppliers for pre-eminent supply chain performance?
4. What e-supply chain approaches can we appropriately invest in for near and longer-term business performance gains?

5. Do we have an executive-level champion providing the necessary linkage to top management for effective implementation of each e-supply chain management?
6. Have we carefully defined an action plan for pre-implementation preparation activities?
7. What are the missing technical links in our current system or our choice of software?
8. What planning and implementation tasks will be accomplished and when?
9. Do we understand the real benefits of an e-supply chain versus the cost to develop?
10. What e-supply chain strategy will give us the leverage to transform ourselves into marketplace leaders?

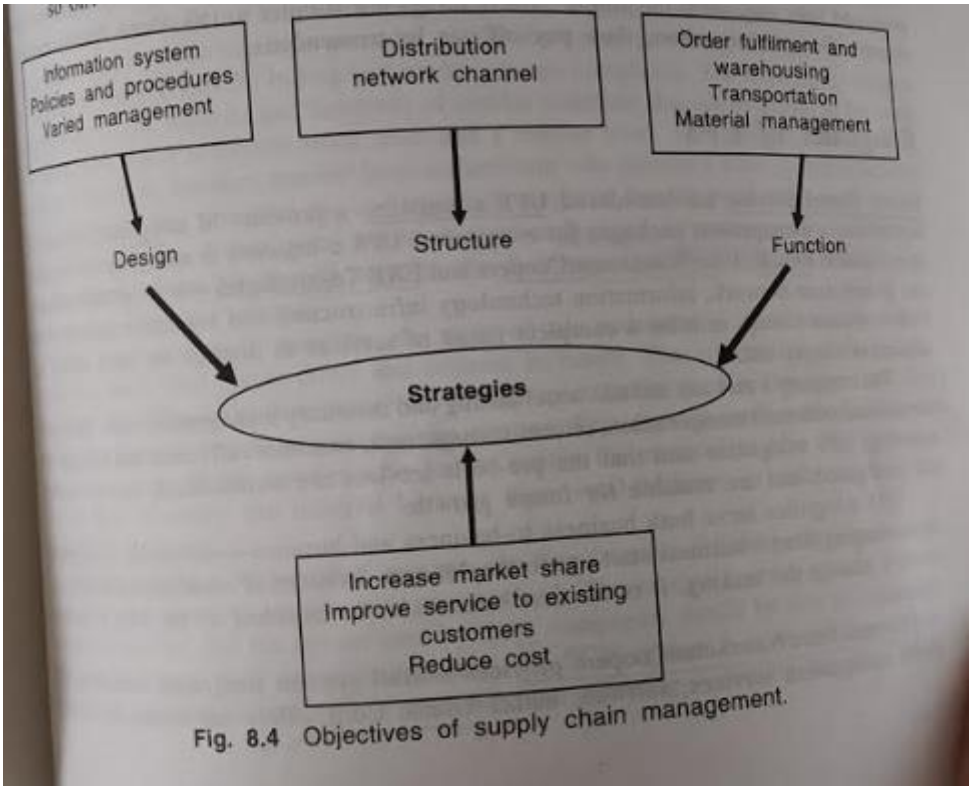


Fig. 8.4 Objectives of supply chain management.

e-logistics of UPS

United Parcel Service has introduced UPS e-logistics, a provider of integrated, end-to-end supply chain management packages for e-business.

UPS e-logistics serve both business-to-business and business-to-consumer e-commerce clients, ranging from e-business start-ups to the dot-com divisions of established corporations.

Partners PriceWaterhouseCoopers provides overall systems integration consulting and project management services; software maker Oracle corp. offers full enterprise resource planning with integral order management and advanced planning and scheduling functionality. EXE Technologies, a leading provider of multi-channel fulfilment, warehouse and distribution software, provides warehouse management systems at all UPS e-logistics distribution centres.

Supply Chain Management-It is all about Fulfilling Customers' Needs

Supply Chain Management 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 organizations have to fight hard to maintain their bottom line, optimizing these steps become a necessity.

The manufacturer had procured the raw materials required for the production from one or many of his suppliers. A third-party transport and warehousing infrastructure was utilized to ship the material from the manufacturer to the distributor and from the distributor to the store that you have just entered.

After your purchase is complete, the point-of-sale updates this information 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 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 stock-outs or overstocking. The solution spans across the different companies involved, and the system used by these companies should be able to talk to each other and understand each other's requirement.

An SCM system is a combination of many applications—demand, inventory and transportation planning—covering the stages of the supply chain.

Smart Chains, Smarter Gains

Managing logistics is a nightmare for all company executives in the sales and purchase departments. Handling logistics not only adds cost to the business but also increases the number of business processes and involves lot of resources.

The logistics chain starts from the supplier end, and continues to the customer end involving members in surface, air, sea express couriers, brokers, customs, excise, etc. This is for the sales part. Later it will also include similar contacts for the after sales support, repair and maintenance. Many of the companies cannot take up this load and outsource these activities to experts, and many companies manage his efficiently and make huge profits.

Technology in logistics has been advancing in three phases. The first phase is to monitor the logistics chain. Herein, technology helps companies monitor orders, inventory and shipments with all parties.

The second phase of maturing technology adoption focusses on management capabilities in which the technology must provide the data and intelligence gathering tools necessary to manage the flow of goods and establish business rules to manage exceptions.

The final phase of technology in logistics is that of optimization, wherein discrete parts of the chain as well as entire chain is mathematically optimized to suggest actions which will lead to achievement of present objectives within constraints.

SUPPLY CHAIN MANAGEMENT IN WAL-MART WORLD – CASE STUDY

Wal-Mart is an ultimate example of Supply Chain Management implementation. Here, vendors have joined hands with Wal-Mart to establish a strong supply chain management that would maximize Wal-Mart's internal profits.

Wal-Mart, starting with P&G, has incorporated vendor-managed inventory, category management, and other inter-company innovations. In order to build this strong SCM infrastructure, Wal-Mart entered into an alliance with P&G and in return got a dedicated account team representing key P&G functions of sales/marketing, distribution/supply chain management, IT and Finance. P&G had one Vice President dedicated for this project, who made the CFO of Wal-Mart as his customer. Customer value maximization was their only drive.

Over the past decade, Wal-Mart has invited more of its major suppliers to jointly develop powerful supply chain partnerships. These are designed to increase product flow efficiency and consequently, Wal-Mart's profitability.

The problem, however, is that developing Wal-Mart-like supply chain partnerships requires a lot of resources and management attention. It also requires willing, innovative partners. Pursuing this approach too widely would be both costly and frustrating. In the past, suppliers to the retail trade typically had rather monolithic supply chains.

The order fulfilment process was designed with a "one size fits all" approach. Customers generally received the same list price, regardless of ordering efficiency. There was very little effective forecasting. Some inventory priority was given to major customers in the event of allocations. Products were delivered in the manner that customer requested, regardless of the inefficiency entailed.

But today, the retailers themselves are changing dramatically. There is very visible consolidation, with the top ten retailers expected to comprise about half of the industry's revenues in a few years. Retailers have very different degrees of willingness to innovate, and the innovators are growing fast.

Most retailers were used to having significant buyer power, and many are still very focussed on exerting price pressure on their suppliers rather than seeking increased profitability through process innovations. At the same time, the leading retailers are consolidating their supplier bases. They are looking more and more to major suppliers for supply chain innovations and prioritization, and in return, they are giving them increasing shelf space.

SCM AT DELL – CASE STUDY

Dell Computers is the US-based PC manufacturer. The company publicizes its products through the Internet. Any customer can order a PC of a configuration of his choice and pay for it online, using his credit card. Once the order is registered, the e-supply chain takes control of the execution.

The system triggers three actions simultaneously—one to Dell's suppliers in Taiwan for providing parts, second to its assembly shop in Singapore, and third to its courier company, with all the data being transferred through the extranet. The intranet takes care of internal transactions relating to realization of collections from customers and effecting payments to the suppliers /service providers. Dell's success lies in reducing costs and improving customer satisfaction.

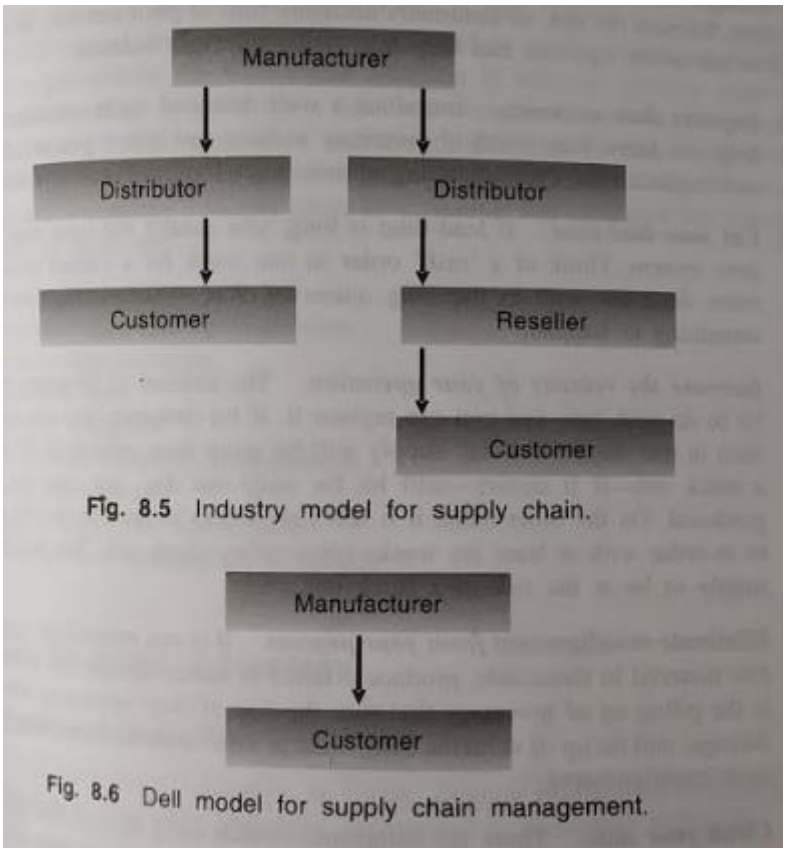


Fig. 8.5 Industry model for supply chain.

Fig. 8.6 Dell model for supply chain management.

The Pay-off

Every company aims at reducing costs and cycle time and increasing revenue. E-supply chain supports these objectives. Companies find that enterprise integration leads to a new level of relationship, be it with its customers or suppliers. Customers can quite literally check the status of their orders, and suppliers can gain access to inventory levels to find out whether they need to replenish stock, all through the extranet.

The benefits of reduced cycle time provide measurable competitive advantage in terms of both cost and performance. When we speak of cycle time, we refer to the time it takes to react to a new demand from the customers. The faster we move a critical data through the Internet, the quicker we can react and deliver the end product to the customer. This leads to enhanced customer satisfaction and promotes revenue growth.

Seven Ways to Reduce Inventory

Here are seven tips that can help him strike the right balance.

1. **Improve data accuracy:** Introduce a well-designed cycle counting system. It will help you know how much of inventory to have and where you are.
2. **Cut your lead time:** If lead-time is long, you cannot have more inventories in your system. Think of a ‘rush’ order in one week for a valued customer.
3. **Increase the velocity of your operation:** The amount of inventory you have has a lot to do with how fast you can replace it.
4. **Eliminate misalignment from your process:** It is not unusual for companies to buy raw material in thousands, produce product in hundreds, and sell in units.
5. **Clean your attic:** There are companies, which carry an item that typically may be ordered once a year, if at all.

6. **Eliminate variation:** Erratic vendors may have product quality related problems on the shop floor, which can cause unnecessary inventory to pile up.
7. **Replenish based on market demand:** Forecasts may seem advantageous but it must be remembered that many are no more than informed guesses.

e-SCM provides "Real-time" Benefits

- Some of these are:
- Global trading capabilities
- Mass personalization and customization
- Global knowledge exchange
- Global communities
- Collaborative workflow
- Industry specific (vertical) marketplaces
- Horizontal marketplaces
- Enterprise-to-Enterprise connectivity
- E-marketplace –to-E-marketplace connectivity

e-SCM—The Strategic Advantage

Benefits

Some of the benefits of e-SCM are enumerated below:

1. It is Web-based (client and server), not Web-enabled;
2. It incorporates broadcast and active messaging to proactively notify an individual of a condition that requires attention;
3. It supports the exchange of "real-time" information through trading communities such as employees, customers, suppliers, distributors and manufacturers;
4. It has open Internet Application Architecture which allows for rapid deployment and scalability, combining unlimited internal/ external users in a "real-time" environment;
5. It has an interface capability with any third party software;
6. It is platform independent;
7. It is fully integrated system;
8. It has Web visibility and processing capability—24*7;
9. It is rules-based.

E-SUPPLY CHAIN COMPONENTS

The components of e-supply chain are as follows:

Advanced scheduling and manufacturing planning programme

This automated programme provides detailed coordination of all manufacturing and supply efforts based on individual customer orders. Scheduling is based on real-time analysis of changing constraints throughout the process, from equipment malfunctioning to supply interruption.

Demand Forecasting Programme

This module supports a range of statistical tools and business forecasting techniques.

Transportation Logistics Programme

This programme facilitates resource allocation and execution to ensure that materials and finished goods are delivered at the right time and at the right place, according to the planning schedule, at minimal cost.

Distribution Planning Programme

This is integrated with demand forecasting, manufacturing schedules and transportation logistics to reach the customers.

Order commitment

Order commitment is linked to all the other modules so that accurate delivery of goods and services can be guaranteed.

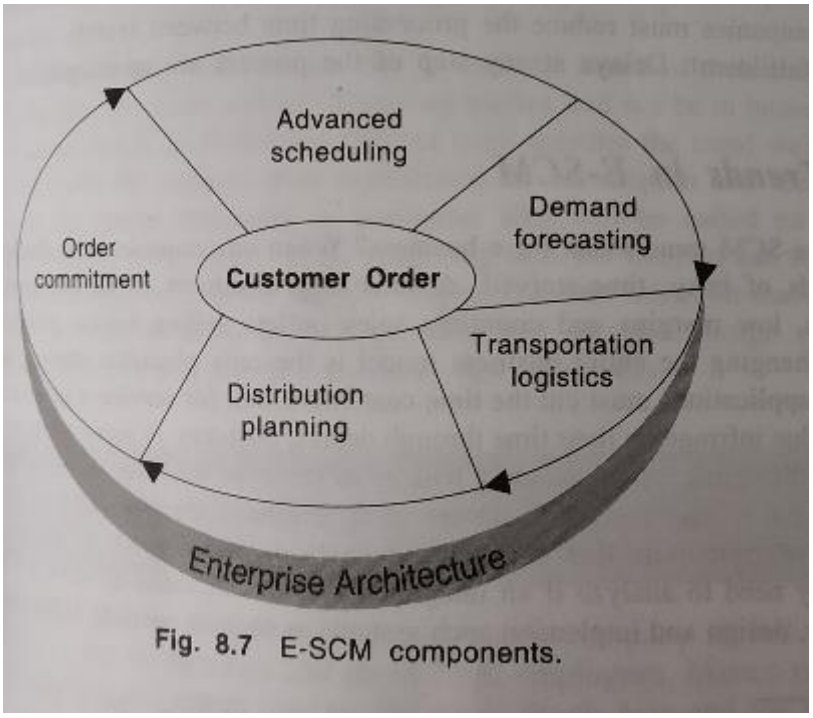


Fig. 8.7 E-SCM components.

e- Supply Chain Architecture

Historically, the elements in the supply chain have consisted largely of separate legacy applications at the headquarters, factory, store and distribution levels. These applications have targeted only distinct levels of supply chain and not the entire supply chain levels.

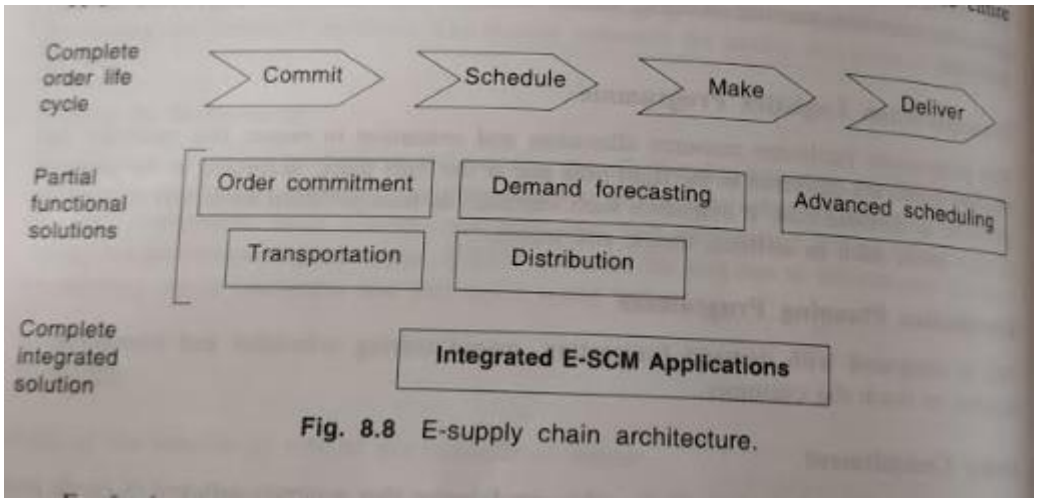


Fig. 8.8 E-supply chain architecture.

There are two main types of SCM software:

Planning applications: Planning applications use advanced algorithms to determine the best way to fill an order.

Execution applications: Execution applications track the physical status of goods, the management of materials, and financial information involving all parties.

Major trends in e-SCM

Trends	Characteristics
Consumer trends	Speed of service.
	Self-service.
	Integrated solutions, not piecemeal products.
Service/ process trends	Convergence of sales and services: customization and integration.
	Ease of use: making service consistent and reliable.
	Flexible and convenient service delivery.
	Streamlining the supply chain.
Organizational trends	Contract manufacturing: becoming brand-intensive, not capital-intensive.
	Business process outsourcing: retain the core, outsource the rest.
	Increasing process transparency and visibility.
	Constant innovation and employee retention.
Enterprise technology trends	Enterprise applications: connect the corporations.
	Infrastructure convergence: increase melding of voice, data and video.
	Multichannel integration: computer telephony integration and voice recognition wireless applications.
	Leveraging legacy investments: the rise of middleware for application integration.

SUPPLY CHAIN MANAGEMENT AT MARICO INDUSTRIES LIMITED – CASE STUDY

Marico Industries Limited is a leading consumer goods company of India, with sales of Rs.6.96 billion. It has six factories and above 1000 employees. Marico offers a range of products to the local and export markets (primarily South Asia and the middle East), including refined edible oils, food products such as jams and sauces, niche fabric care products, and hair oils. Marico's distribution network is key to ensuring that its product reaches about 100 million people throughout India each month.

It stores products at 32 warehouses and sells to 3500 distributors. These distributors in turn provide products to 1.6 million retail outlets. Marico's peer companies in other countries recognized its strength in distribution; consequently, Marico has secured a distribution alliance/agreement with Nissin foods and Procter& Gamble.

Strategic Goals

- Enhance long term value of company brands by achieving excellence in distribution performance.
- Maintain market share growth in a competitive environment with much larger, offshore rivals.
- Scale supply chain operations to sustain customer services as the business grows.
- Reduce total delivery cost.

Results

- Decreased stock-outs associated with distributor sales to retailers by 33 per cent.
- Reduced cost sales due to stock-outs by 28 per cent, thereby improving total revenue by 1.5 per cent.
- Lowered excess distributor inventory by 33 per cent.
- Reduced late deliveries to distributors by 37.5 per cent.
- Reduced costs associated to supply chain exceptions by 25 per cent (for example, intra company stock transfers, truck detention costs).
- Positioned the company for a vendor-managed inventory implementation and further performance improvements.

Approach

Marico shortened its planning cycle from 30 days to about 15 days; revised its demand planning process to forecast "sales out" (shipment from distributors to retailers); and implemented and improved process to replenish its distributors.

This approach was enabled by mySAP.com supply chain management software, which includes demand planning and supply network planning capabilities couples with SAP Business Information Warehouse.

SUPPLY CHAIN MANAGEMENT AT MAHINDRA & MAHINDRA LTD. – CASE E STUDY

Mahindra & Mahindra Limited (M&M) is a Rs.39.2 billion company, employing 12,000 people. It is a flagship of the Mahindra Group, one of the top-ranking private sector companies in India. The company has been the market leader in farm equipment machinery in the highly competitive Indian market since 1986. M&M has about 400 dealers and 800 suppliers who interact daily with the sales and procurement divisions.

Strategic Goals

- Link all plans and decide which plan should make what, when and for which global market.
- Enable a pull-based replenishment system to optimize logistics and manufacturing operations.
- Reduce inventory by 30 per cent and bring down replenishment lead times to 19 days.

Results

- Dealer stock of 12,000 and company stock of 7,000 units of tractors reduced to 6,000 and 3,500 respectively on implementation of pull-based replenishment system.
- Anticipated additional inventory reduced by 30 per cent.
- Ability to measure crucial metrics of the as the supply chain operates, e.g. the company will measure the production schedule adherence across daily and weekly buckets, inventory at each node of the supply chain.
- Units actually supplied against what was required to be supplied as per demand from the central stockyard or area stockyard or from the supplier, and cost per tractor.

M&M articulated clear objectives for this global competitiveness initiative enabled by mySAP SCM: reduce inventories across the supply chain by aligning the company's business processes for IT-enabled supply chain management and ensure availability of tractors as per sales requirement-right model, right place, right time at minimum cost.

In 2002-2003, they reduced supply chain inventory by more than 50 per cent. In the current year, they expect to reduce inventory by another 30 per cent. Replenishment lead times, which include planning and execution lead times, were around 52 days before the

implementation of SCM. These times have been reduced considerably, and it is expected to reduce to 19 days or lower with the full mySAP SCM implementation.

Private websites for our 400 dealers were developed to collect sales information and for 800 suppliers to post mySAP SCM planning information and material requirements planning(MRP) schedules. With the full implementation of mySAP SCM, it will be possible to further reduce dealer inventory from 6000 to 4000 tractors and company stock from 3500 to 2000 units, while maintaining excellent customer delivery response times.

M&M is experimenting with mounting of global positioning systems (GPS) on the trucks that carry raw material/components and interfacing them with mySAP SCM. This way they will be able to plan their production schedule based on actual material in transit rather than vendor commitment.

SUPPLY CHAIN MANAGEMENT AT AMUL DAIRY – CASE STUDY

It was started in December 1946, with a group of farmers keen to free themselves from intermediaries, gain access to markets and thereby ensure maximum returns for their efforts.

Based in the village of Anand, the Kaira district milk cooperative union (better known as Amul) expanded exponentially. It joined hands with other milk cooperatives, and the Gujarat network now covers 2.12 million farmers, 10,411 village level milk collection centres and 14 district level plans (Unions) under the overall supervision of GCMMF.

Amul and GCMMF acknowledged that development and growth could not be left to market forces and that proactive intervention was required.

Two key requirements were identified

The first, that sustained growth for the long term would depend on matching supply and demand. It would need heavy investment in the simultaneous development of suppliers and consumers.

Second, that effective management of the network and commercial viability would require professional managers and technocrats.

Managing this supply chain efficiently is critical as GCMMF's competitive position is driven by low consumer prices supported by a low cost system.

Developing demand. At the time Amul was formed, consumers had limited purchasing power, and modest consumption levels of milk and other dairy products. Thus, Amul adopted a low-cost price strategy to make its products affordable and attractive to consumers by guaranteeing them value for money.

Introducing higher value products. Beginning with liquid milk, GCMMF enhanced the product mix through the progressive addition of higher value products while maintaining the desired growth in existing products.

The distribution network. Amul products are available in over 5,00,000 retail outlets across India through its network of over 3500 distributors. There are 47 depots with dry and cold warehouses to buffer inventory of the entire range of products. GCMMF transacts on an advance demand draft basis from its wholesale dealers instead of the cheque system adopted by other major FMCG companies. This practice is consistent with GCMMF's philosophy of maintaining cash transactions throughout the supply chain and it also minimizes dumping.

Umbrella brand. The network follows an umbrella branding strategy. Amul is the common brand for most product categories produced by various unions: liquid milk, milk powders, butter, ghee, cheese, cocoa products, sweets, ice-cream and condensed milk.

Amul's sub-brands include variants such as Amulspray, Amulspree, Amulya and Nutramul. The edible oil products are grouped around Dhara and Lokdhara, mineral water is sold under the Jal Dhara brand while fruit drinks bear the Safal name. By insisting on an umbrella brand, GCMMF not only skilfully avoided inter-union conflicts but also created an opportunity for the union members to cooperate in developing products.

Managing the supply chain. Even though the cooperative was formed to bring together farmers, it was recognized that professional managers and technocrats would be required to manage the network effectively and make it commercially viable.

Coordination

Given the large number of organizations and entities in the supply chain and decentralized responsibility for various activities, effective coordination is critical for efficiency and cost control. GCMMF and the unions play a major role in this process and jointly achieve the desired degree of control. Buy-in from the unions is assured as the plans are approved by GCMMF's board. The board is drawn from the heads of all the unions, and the boards of the unions comprise farmers elected through village societies, thereby creating a situation of interlocking control.

Managing third party service providers. From the beginning, it was recognized that the unions core activity lay in milk processing and the production of dairy products. Accordingly, marketing efforts (including brand developments) were assumed by GCMMF. All other activities were entrusted to third parties. These include logistics of milk collection, distribution of dairy products, sale of products through dealers and retail stores, provision of animal feed, and veterinary services.

VIRTUAL VALUE CHAIN

Information can be captured at all stages of the physical value chain. Such information can be used to improve performance at each stages of the physical value chain and to coordinate across it. However, it can also be analyzed and repackaged to build content-based products or to create new lines of business. Thus, insurance companies, for example, are becoming adept at analyzing customer and claims information and then tele-selling both financial and physical products.

As digital technologies converge, the whole concept of physical value chain undergoes a change. Today the focus is on the virtual value chain, which can be seen in fig 9.11

And while entrepreneurs are often adept at collecting and processing information about threats and opportunities—by networking, observing and getting about—many look to information and IT as their source of new products and services. The entrepreneurs of the future are "infopreneurs".

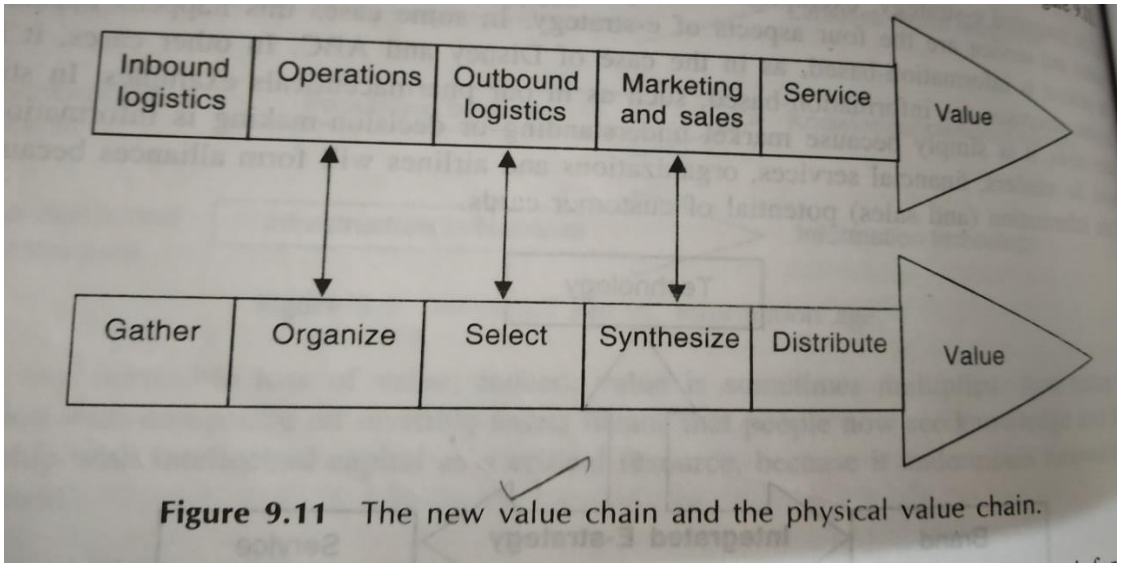


Figure 9.11 The new value chain and the physical value chain.

Fig 9.13 is a conceptual framework which distinguishes Information System (IS) strategy from IT strategy. IT, which was about the "how" –the technology infrastructure or platform –often seemed to distract attention from IS, which was the "what" –the identification and prioritization of systems or applications for development.

Then comes information management strategy, which was about the "who" – the all important question of roles and responsibilities in the delivery, support and strategic development of IS and IT. All these were influenced by the business or organizational strategy, which was concerned with strategic intent ("why") and organizational architecture. In perfect world, corporations strove for good fit between these four domains.

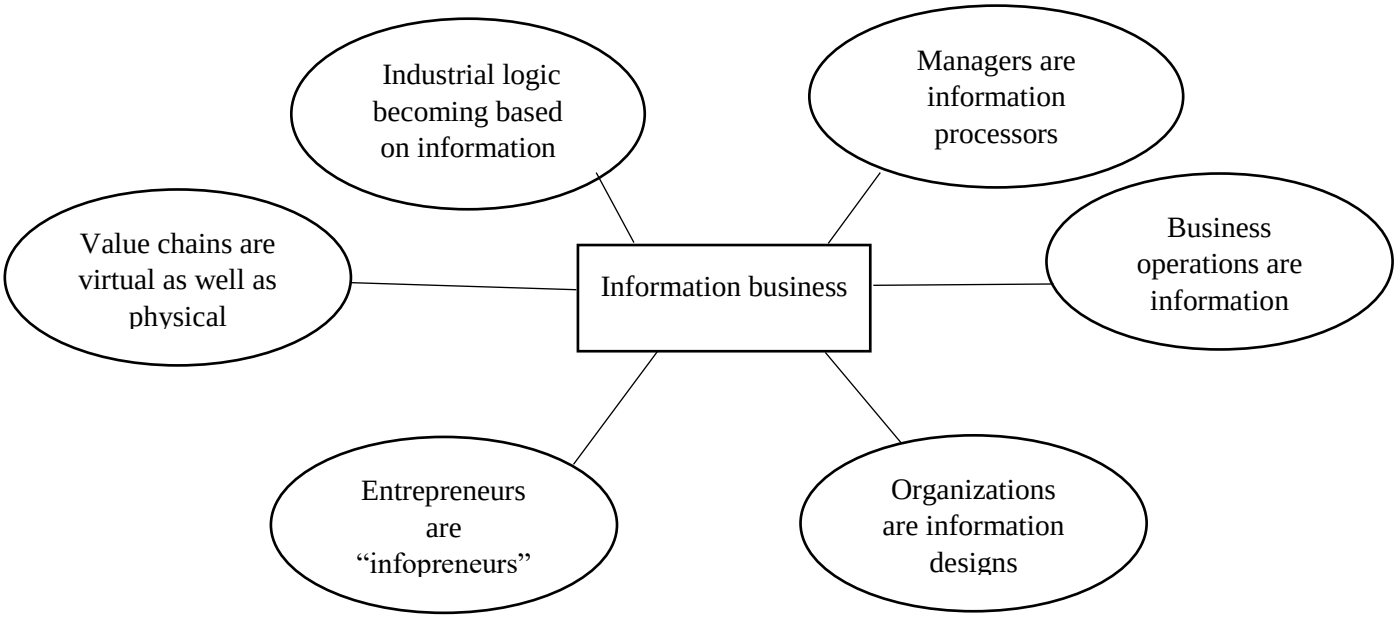


Fig 9.12 Every business is an information business

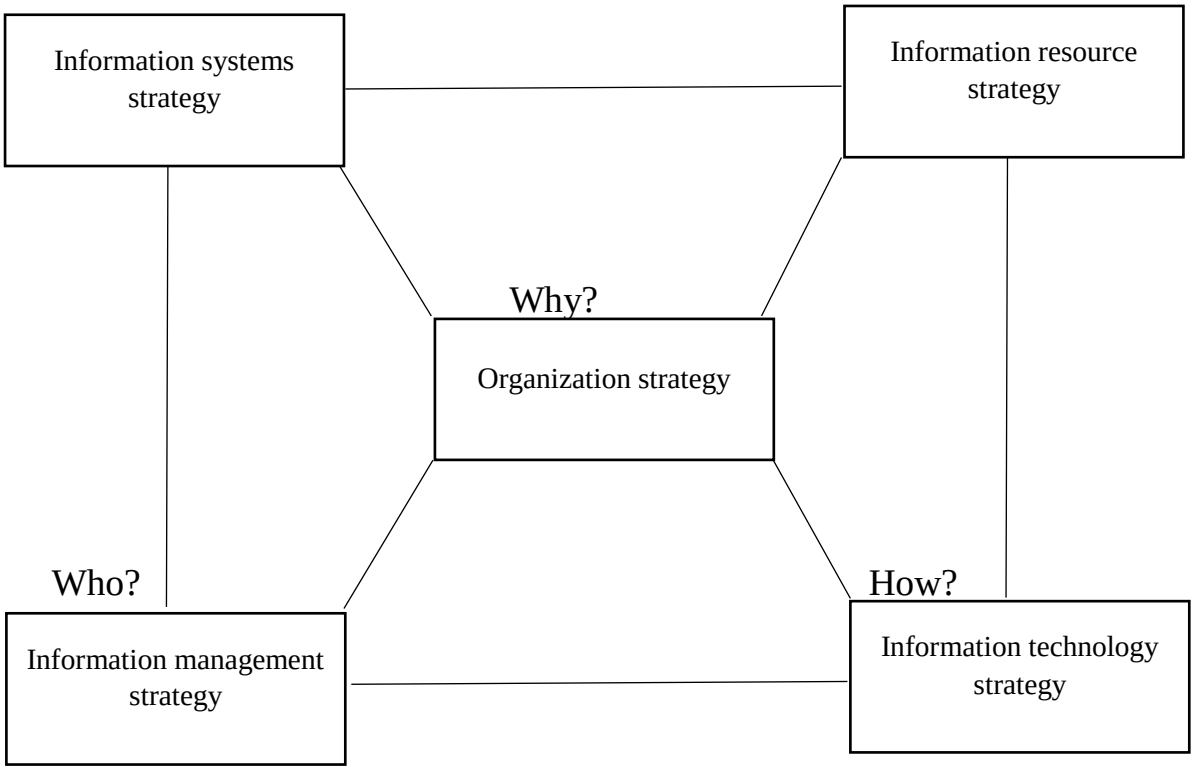


Fig 9.13 Information strategy framework

Now we can see that a fifth domain is missing—one we still find difficult to formalize but in which companies increasingly have objectives, principles and policies. The fifth domain is the domain of information as a resource, or of Information Resource (IR) strategy. It is perhaps the "where" question: where are we going? Much value creation can come from information, but it is not always clear what the end result will look like.

One aspect of IR strategy is the increasing interest in the distinction among data, information and knowledge.

Fig 9.14 FROM DATA TO KNOWLEDGE

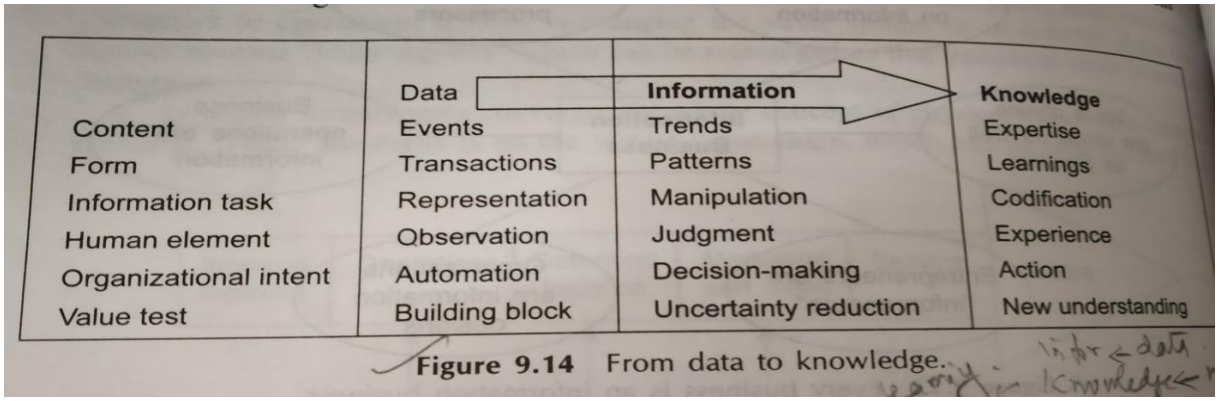


Figure 9.14 From data to knowledge.

1. Information is derived from data, and knowledge from information, and thus we are reminded that data has enormous potential

2. Information has characteristics, particularly of human interpretation , above and beyond data. Knowledge has something more than information ,perhaps learning.

3. Knowledge processing is much more of a human activity.

SEVEN DIMENSIONS OF e-COMMERCE STRATEGY

In order to understand the process of e-commerce strategy, systematic examination of the strategic factors involved has to be considered. Looking at the most successful e-commerce companies, we see a strategy emerging, which is modelled in fig 9.15.

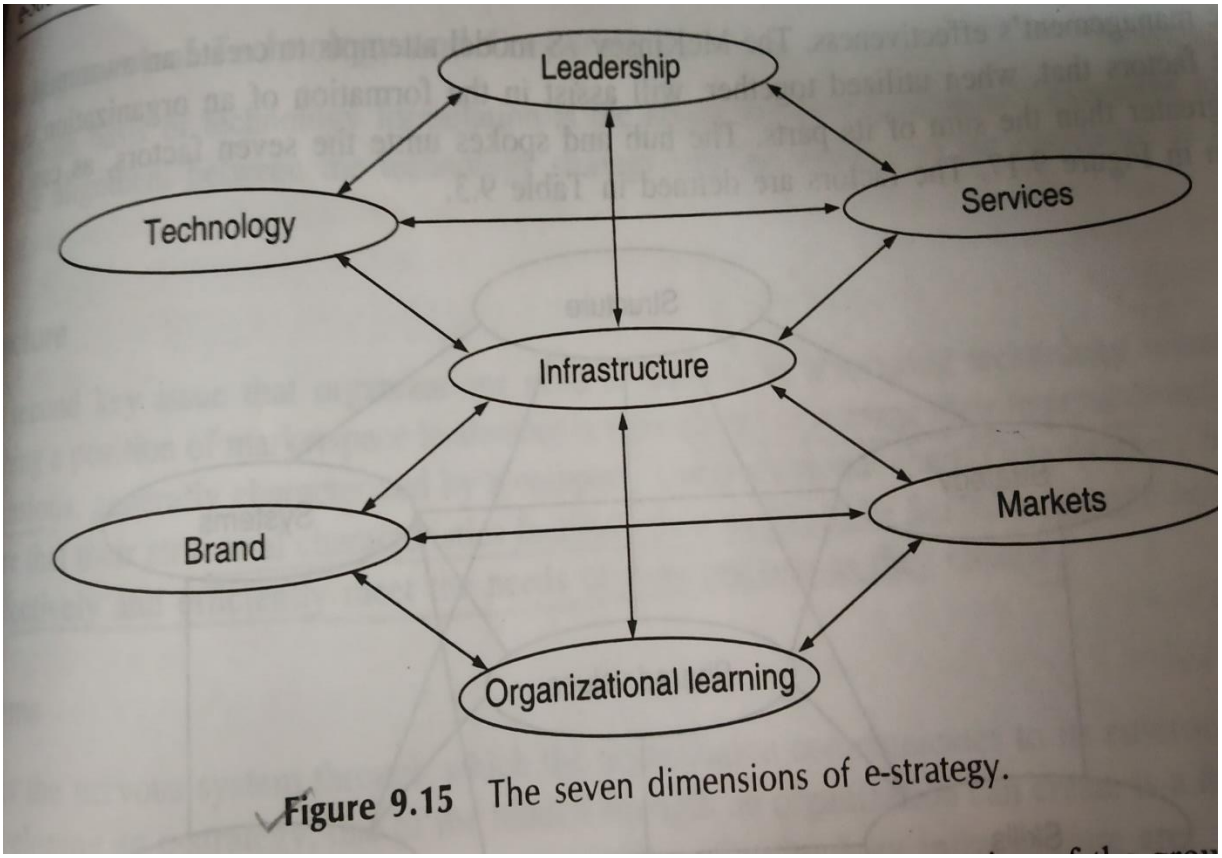


Figure 9.15 The seven dimensions of e-strategy.

It can be argued that this model can be applied to all forms of organizations in the traditional sectors. However, this model is specially applicable to assisting the needs of e-commerce strategies. The bonds of an e-strategy lie in the preparation of the ground before the functional issues are addressed. Leadership, organizational learning , and the infrastructure form the bonds as shown in fig 9.16. Clearly , there is a strong interaction among these three components.

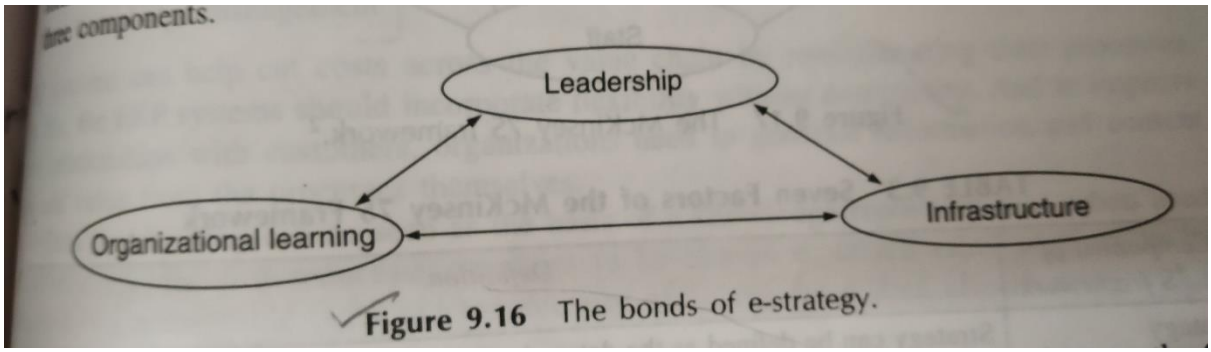


Figure 9.16 The bonds of e-strategy.

The primary drivers and the creators of strategic vision in an organization are the CEO and the senior executives.

Once the need to develop e-strategy is identified, the single most important issue facing the executives is the IT infrastructure. This spans the technology spectrum from a single Internet file server connected to an ISP to the information-intense online transaction processing. Leadership with vision facilities, encourages and allows an environment to develop within the organization, where institutional learning and memory thrive.

INTERNAL TECHNOLOGY LEADERSHIP: THE 7S FRAMEWORK

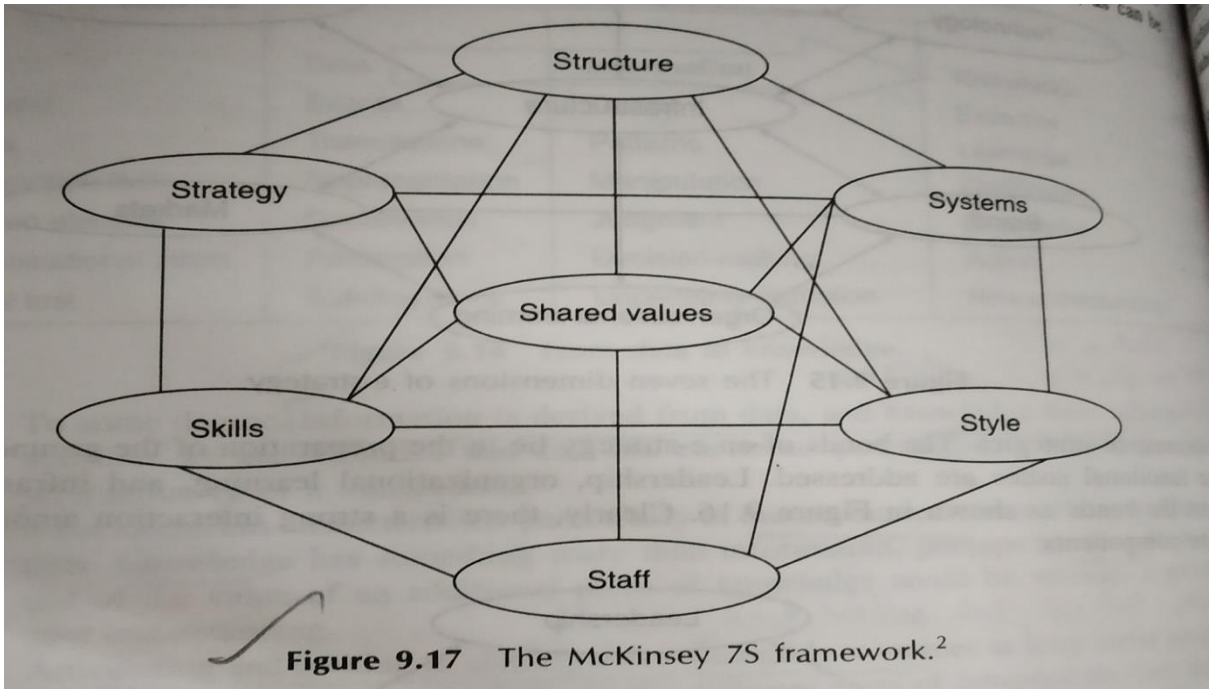


Figure 9.17 The McKinsey 7S framework.[2]

SEVEN FACTORS OF THE McKinsey 7S FRAMEWORK

Component of the 7S framework	Definition
Strategy	Strategy can be defined as the determination of a course of action to be followed in order to achieve a desired goal, position or vision.
Structure	An organization's structure is the interrelationship of processes and human capital in order to fulfil the enterprise's strategic objectives.
Systems	The organization's information systems and infrastructure.
Staff	Human resources management.
Style	Corporate style in a synthesis of the leadership philosophy of executive management, the internal corporate culture generated,

	and the orientation the organization adopts to its markets, customers, and competitors.
Skills	The unique or distinctive characteristics associated with an organization's human capital.
Shared values	The concepts that an organization utilizes to drive towards a common goal through common objectives and a common value set.

Structure:

Organizations must ensure that their structural characteristics facilitate their ability to be flexible and agile enough to effectively and efficiently meet the needs of their markets as they change.

Systems

The three major dimensions of technology infrastructure are:

- Enterprise Resource Planning (ERP) systems
- Data warehousing
- Knowledge management

Staffing

The two skills that form the pillars between which information systems structure is supported are the technical skills and relationship management skills.

Style

Style can be defined as characterization of how key managers behave in achieving the organization's goals, and also cultural style of the organization.

The bottom line for every effective manager is to deliver results. Since management is also an art, every manager has a personalized way of doing things.

Shared values

Shared values can be defined as the significant meanings or concepts that an organization utilizes to drive towards a common goal through common objectives and a common value set.

VALUE CHAIN AND E-STRATEGY

To determine the intensity of information in one's industry, he to look at his value activities and value chain. These concepts will help in figuring out what may happen in the Future.

Value Activities

Value chain activities are the things that the company does to design, produce, sell a service product typical value activities for a manufacturing firm would be things like;

- Designing product
- Purchasing materials
- Producing products

- Promoting products
- Selling products
- Servicing products
- Servicing customers

Assessment of Information Intensity

Assessment of the intensity of information in te value chain and value activities takes the next priority. The industry that has high information intensity in the value chain would have characteristics like those listed below

- A large number of direct suppliers or customers
- A complex product line
- A product that needs a lot of information to sell
- A product composed of many parts
- Many steps in the production process
- A long order fulfilment cycle time

Next, if there is high information intensity in the products of your industry, It is reasonable to adopt e-commerce. Characteristics of high information intensity in the product would be a product that:

.

- Provides information.
- Involves information processing.
- Requires the buyer to process a lot of information.
- Has high user training costs.
- Has many alternatives uses.

The validity of this technique

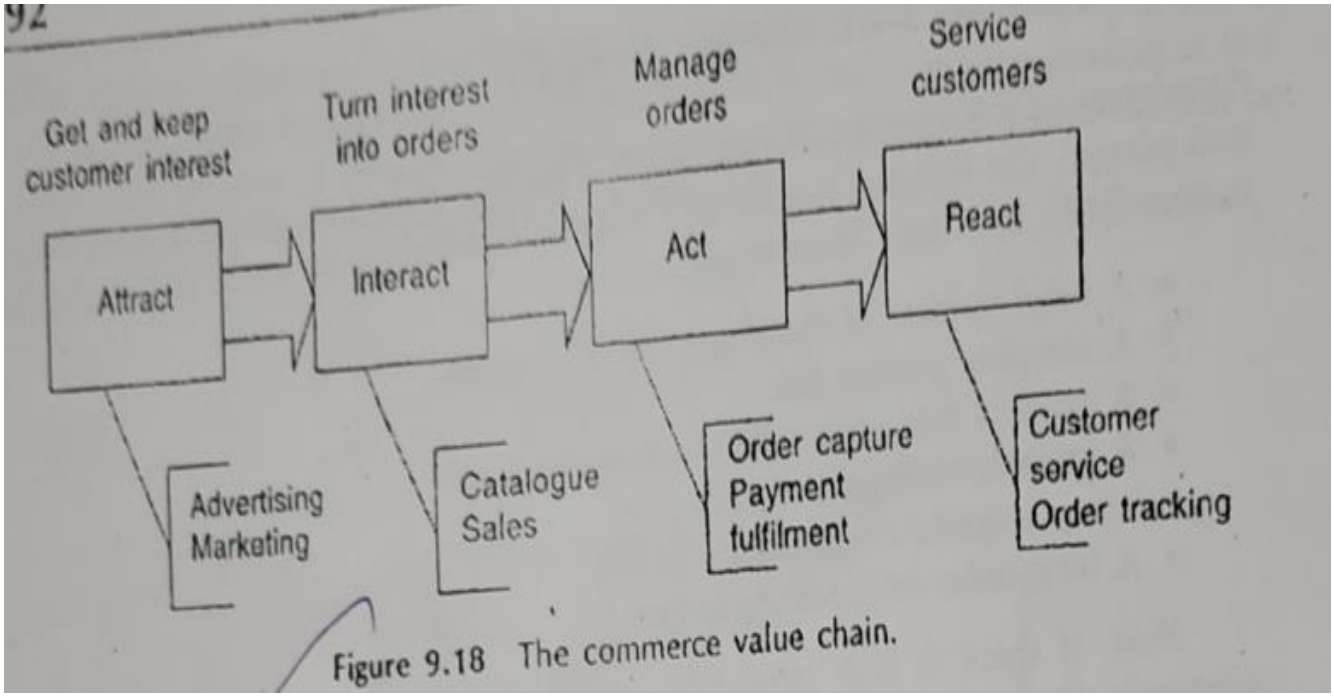


Figure 9.18 The commerce value chain.

1. Attract customers by means of advertising and marketing invite and retain the interests of the customers.
2. Interact with customers by means of sales ,and convert their interests into ‘orders’.
3. Act on customer instructions and manage orders such as order capture ,payment and fulfillment.
4. React to customer requests and involve in customer service and offer technical support.

Components of the commerce value chain

The key components of the value chain can be very different for different industries, and even among different business within a particular industry.

Attract customers

The first component of the generic internet commerce value chain is to attract customers. By this we, mean whatever steps we take to draw customers into the primary site, whether by paid advertisement on other websites, e-mail, television, print, or other forms of advertising and marketing. Instead of attract, the catchword today is ‘addict’ the customer.

Interact with customers

The second component is interaction. By this we mean, turning customer interest into order. This phase is generally content oriented and includes the catalogue, publication, or other information available to the customer on the internet.

Contents may change infrequently or infrequently. Technically, content may be static or dynamic.

- Static content typically consist of prepared pages, such as those from a catalogue, that are sent to a client upon request. These pages must be recreated and updated whenever the information on them changes.
- Dynamic content, on the other hand, is generated at the time of the request, drawing upon one or more information sources to produce an appropriate page of information for the client.

Act on customer instructions

The next component in the commerce value chain is to act. Once a buyer has searched through a catalogue and wishes to make a purchase, there must be a way to capture the order, process payment, handle fulfillment and other aspects of order management.

Order processing:

Often a buyer wishes to purchase several items at the same time, so the order processing must include the ability to group items together for later purchase. This capability, sometimes called a shopping cart in the case of retail transaction, usually includes the ability to modify the contents of the shopping cart at any time. Thus, the buyer is able to discard item, add new ones, change the quantities, and so on. When the buyer is ready to complex the purchase; it is often necessary to compute additional charges, such as sales tax and shipping costs.

Payment:

Depending on the terms of the order, the buyer may pay for it (or provide payment instruction) as part of the order capture. Once an order is finalized, the buyer can make the payment. As in the real world, there may be many ways to pay for an item. Some of the methods may be online analogues of those found in the real world; credit card, purchase orders and like. Other methods of payment may exit only on internet commerce, using new technologies developed especially for a network system.

The most important property of an online payment system is that the seller can use it to collect payment form the buyer.

Fulfillment

Now the order has been placed and the payment mode (or at least a satisfactionary promise of payment). The next step is fulfilling the order. How that happens depends on the type of thing purchased. If the item ordered is a physical good), it will be delivered to the buyer. The order is usually forwarded to a traditional order processing system, with the result that someone picks up the object, packs it and ships it.

The Quantitative Approach for e-strategy

Management faces a two-fold challenge. On the one hand, companies must meet customer expectations in terms of quality of service. On the other hand companies have to keep site costs under control to stay competitive. Therefore, capacity, reliability, scalability, and security are key issues to e-business site managers. E-business sites are complex computer-system arhitectures, with multiple interconnected layers of software and hardware components such as networks, caching proxies, routers, high speed links and mainframe with largr databases.

PLANNING THE E-COMMERCE PROJECT

A successful business plan for an e-commerce initiative should include the following activities.

1. Identifying the initiative's specific objectives.
2. Linking objectives to business strategies.
3. Managing the implementation of business strategies.
4. Overseeing the continuing operations of the initiative, once it is launched.

Identifying Objectives

Common objectives that a business might hope to accomplish through e-commerce could include increasing sales in existing markets, opening new markets, serving existing customers better, identifying new vendors, coordinating more efficiently with existing vendors, or recruiting employees more effectively.

Linking Objectives To Business Strategies

E-commerce opportunities can inspire business to undertake activities such as:

- Building brands
- Enhancing existing marketing programs
- Selling products and services

- Selling advertising
- Improving after-sale service and support
- Purchasing products and services
- Managing supply chains
- Operating auctions
- Creating virtual communities and web portals.

Successes and failures were measured in broad strokes. A company would either become the amaon.com or the eBay of its industry, or it would disappear, either slipping into bankruptcy or be acquired by another company.

TABLE 9.4 Measuring the Benefits of e-commerce initiatives

E-commerce Initiatives	Common measurements of benefits provided
Build brands	Surveys or opinion polls that measures brand awareness.
Enhance existing marketing programs	Change in per unit sales volume.
Improve customer service	Customer satisfaction surveys, the number of customer complaints.
Reduce cost of after-sale support	Quantity and type (telephone, fax, e-mail) of support activities.
Improve supply chain operation	Cost, quality, and on-time delivery of materials or services purchased.
Hold auctions	Quantity of auctions, bidders, sellers, items sold, registered participants; dollar volume of items sold.
Provide portals and virtual communities	Number of visitors, number of return visits per visitors, and duration of an average visit.

Measuring Cost Objectives

In addition to hardware and software costs, the project budget must include the costs of hiring, training, and paying the personnel who will design the website, write or customize the software, create the content, and operate and maintain the site. As more companies build e-commerce sites, people who have the skills necessary to do the work are demanding increasingly higher compensation.

The initial cost of building an electronic commerce site is not the whole story, unfortunately. Since Web technology continues to evolve at a rapid pace, most businesses will want to take advantage of what that technology offers, to remain competitive.

Comparing Benefits To Costs

Most companies have procedures that call for an evaluation of any major expenditure of funds. These major investments in equipment, personnel, and other assets are called capital projects or capital investments.

The techniques that companies use to evaluate proposed capital projects range from very simple calculations to complex computer simulation models. If the benefits exceed the cost of a project by a comfortable margin, the company invests in the project.

A key factor in creating a business plan for e-commerce initiatives is the process of identifying potential benefits (including intangibles such as employee satisfaction and company reputation), identifying the costs required to generate the benefits, and evaluating whether the benefits exceed the costs.

Companies should evaluate each element of their e-commerce strategies using this cost/benefit approach.

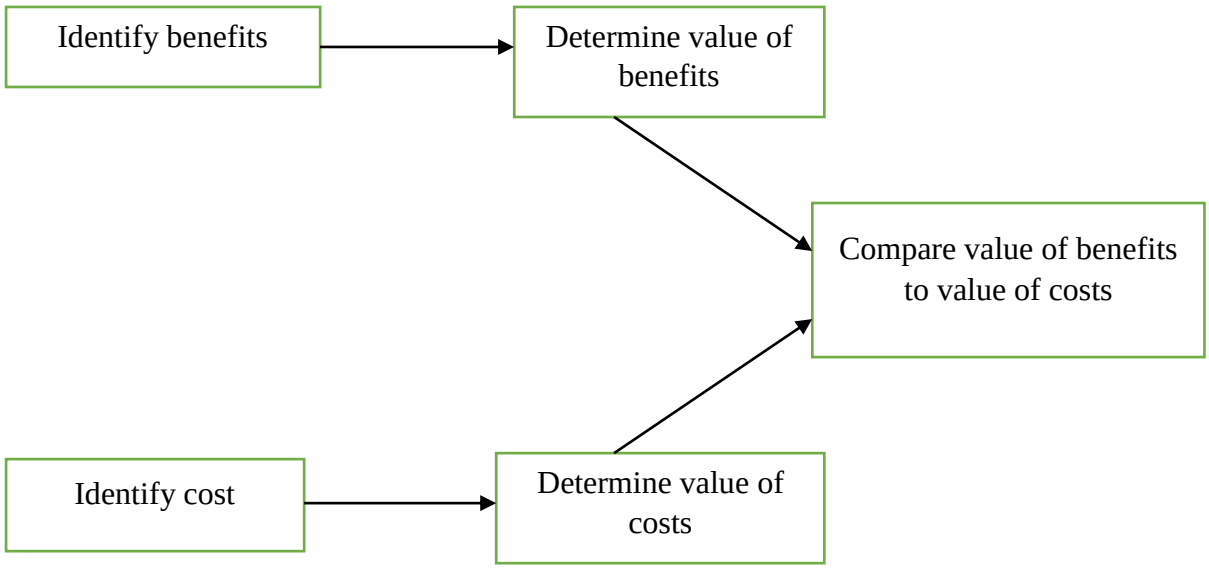


FIGURE 9.19 Cost/benefit evaluation of e-commerce strategy elements

Managers often use the term Return on Investment (ROI) to describe any capital investment evaluation technique, even though ROI is the name of only one of these techniques.

E-supply chain at CISCO

Cisco systems, Inc. are the worldwide leader in networking for the Internet. Cisco's hardware and software solutions are used to link computers and computer networks so people have easy access to information-regardless of differences in time, place, or type of computer system. Customers benefit from Cisco networking solutions through more efficient exchange of information which in turn leads to cost savings, process efficiencies, and closer relationships with customers, prospects, business partners, suppliers, and employees. Cisco solutions are the networking foundation for companies, universities, utilities, and government agencies worldwide.

The Company was founded in late 1984 by a small group of computer scientists from Stanford University seeking an easier way to connect different types of computer systems. Cisco systems shipped its first product in 1986. Since then, Cisco has grown into a multinational corporation with over 47,000 employees in more than 200 offices in 54 countries.

Cisco's products encompass the broadest range of networking solutions available from any single supplier. These solutions include routers, LAN and WAN switches, dial and other access solutions, SNA-LAN integration solutions, Website management tools, Internet

appliances, and network management software. Cisco's offerings also include industry-leading customer services for network design, implementation, maintenance, and support.

Cisco is the market leader in multiple areas, such as routing and switching, unified communications, wireless and security. The company helped catalyse the industry's move toward IP and now that it is fully underway, the company is at the centre of fundamental changes in the way the world communicates.

Cisco is leading the transition to a network centric technology environment. By combining its core strength (IP) with intelligence, the company is creating a powerful communications platform that will serve as the basis for the convergence of data, voice, video and mobile communications in a secure, integrated architecture.

1. **IP communications and IP video.**
   Communications networks are going through a transformation empowered by the Internet and networking technology. When the Internet was at its earliest stages as a Business and consumer tool, Cisco had a vision for how IP technology would transform voice and video communications. In 1998, Cisco acquired a small Voice over Internet Protocol (VoIP) company and began developing this technology.

2. **Emergency responder communications**.
   Cisco has developed IP-based technology that addresses today's voice communications interoperability requirement, enabling communications across any type of device, whether push-to-talk (radio) systems, cell phones or landline phones. This technology called IPICS (IP interoperability and collaboration system) is now

3. **Health care information technology.**
   Quality health care is one of our most vital national needs. There is a growing consensus that our health care system is out dated, inefficient, and most worrisome, prone to errors. The Bush Administration has worked to modernize the health care system through electronic health records and information sharing that will improve the quality of health care and reduce costs. Cisco has taken a leadership position in driving this change.

Linksys Takes Cisco Into the Home

Cisco has extended its networking technology expertise in the enterprise and service provider markets into the high-growth consumer networking market with the addition of its Linksys Division in June 2003.

Linksys has the most extensive product line in home networking, with more than 70 products including wireless routers and access points for simultaneous sharing of to better utilize their broadband Internet connections wireless network adapters and wireless print servers as well as traditional wired products such as Ethernet routers and cable modems, unmanaged switches and hubs, print servers and network attached storage for easy sharing of digital music, photo and video media files.

A home network enables families to better utilize their broadband internet connection by offering the ability to share the internet access using either wired or wireless connections.

Unit - V

E-Security

Information System Security

Any business, whether it is a traditional brick-and-mortar business, a 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. This means that a private computer network system is exposed to potential threats from anywhere on the public network. Protection against these threats requires business to have stringent security measures in place.

The goals of security are:

- Integrity of the data sent and received.
- Confidentiality of the data so that it is not accessible to others.
- The data ought to be available to the people for whom it is meant.

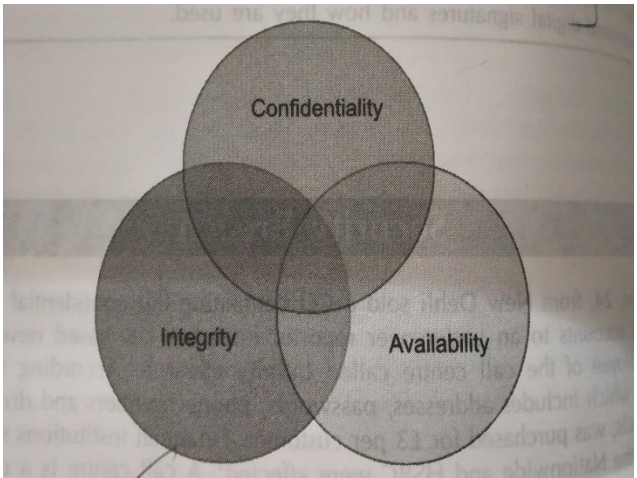


Figure 5.1 Security goals.

As shown figure 5.2, the data sent from the source ought to reach in destination without any tampering as shown in figure 5.2(a). But the above criteria shown in figure 5.2(a) may be violated by the following:

1. Interrupt the data and cut it off as shown in figure 5.2(b).

2. Interrupt the data with the intent of spying on it as shown in figure 5.2(c).
3. Interrupt the data and modify it and send a different data to the receiver as shown in figure 5.2(d).
4. Obstruct the data fabricate new data and send it to the receiver as shown in figure 5.2(e).
    - Encryption
    - Software Controls (access limitations in a database, in operating system protect each user from other users)
    - Hardware Controls (smartcard)
    - Policies (frequent changes of passwords)
    - Physical Controls

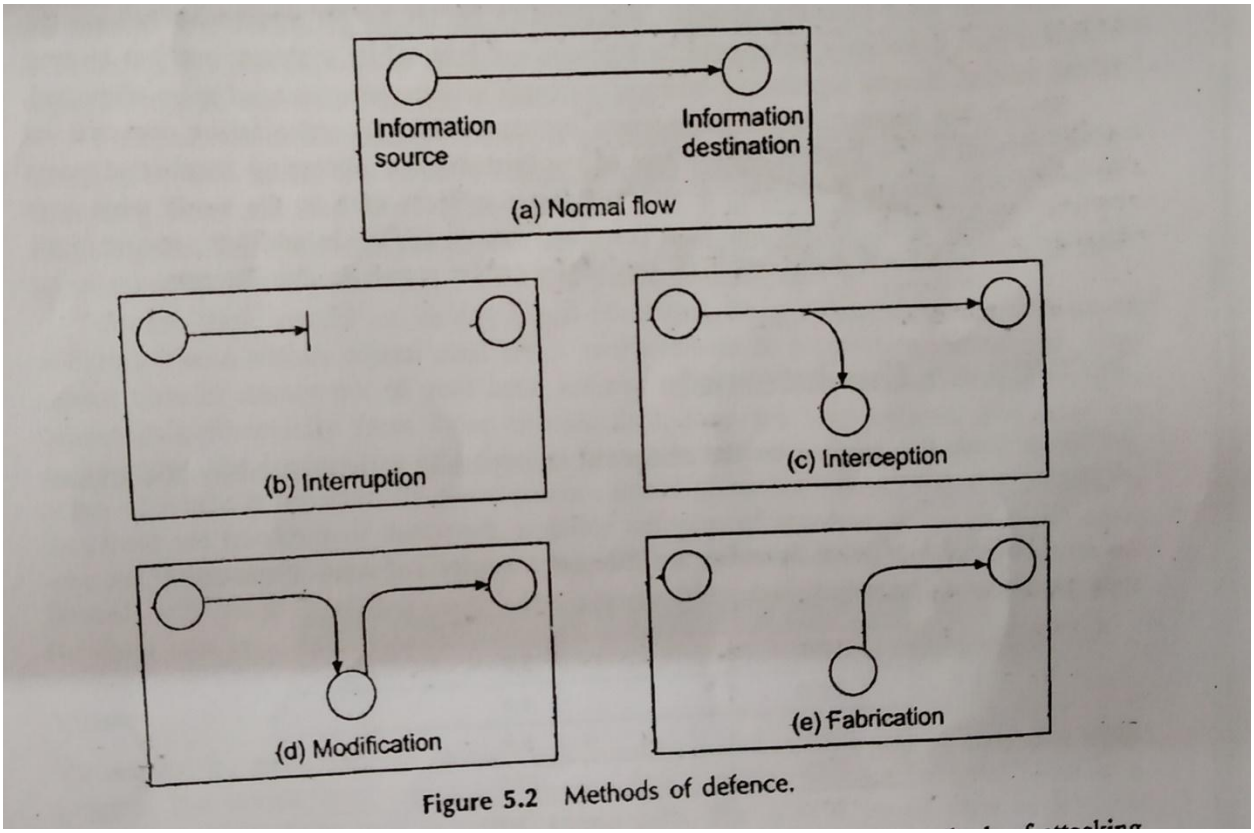


Figure 5.2 Methods of defence.

Security on the Internet

To provide the required level of protection, an organization needs a security policy to prevent unauthorized users from accessing resources on the private networks and to protect against the unauthorized export of private information. Even if an organization is not connected to the internet, it may still want to

establish an internal security policy to manage user access to certain portions of the network and protect sensitive or secret information.

Other factors include the following:

1. **Vulnerable TCP/IP Services:**

   A number of the TCP/IP services are not secure and can be compromised by knowledgeable intruders;

2. **Ease of spying and spoofing:**

   A majority of internet traffic is unencrypted; email, passwords, and file transfers can be monitored and captured using readily- available software. Intruders can then reuse passwords to break into systems.

3. **Lack of policy:**

   Many sites are configured unintentionally for wide-open internet access, without regard for the potential for abuse form the internet; many sites permit more TCP/IP services than they require for their operation.

4. **Complexity of configuration:**

   Host security access controls are often complex to configure and monitor; controls that are accidentally misconfigured often result in unauthorized access.

The following sections describe **the problems on the internet** and the factors that contribute to these problems:

1. **How secure is the server software?**

   Security should be in the place to prevent any unauthorized remote logon to the system. It should be extremely difficult to make changes to the servers themselves should be physically located in a secure environment.

2. **How secure are communications?**

   Customer credit card information and other sensitive data that is being transmitted across the internet must be protected.

3. **How is the data protected once it is delivered to the e-business?**

Is it stored in unencrypted text files at the website? Is it moved to offline storage?

4 How are credit card transactions authenticated and authorized?

Credit card transaction must be authenticated and authorized, so as to make it more secure for the users.

The biggest potential security problem in an e-business is of human, rather than of electronic origin. The weakest link in any security system is the people using it. The employees of an e-business may not understand the security policy. Sometimes, the security policy is so burdensome that the employees are not able to follow it, or refuse to follow it because it makes it difficult for them to get their work done.

Table 5.2 summarizes the general security issues that e-business must consider.

Table 5.2 General Security Issues

Issue	Comment
Connection to the internet	Private computer networks are at risk from potential threats from anywhere on the public Internet network.
Unknown risks	New security holes and methods of attacking networks are being discovered with alarming frequency.
Customer privacy and security of customer information	Not only must steps be taken to protect the privacy of customer information, but also customers must be made aware of those steps and have confidence in them.
Security consciousness	Management and employees must understand the importance of security policies and procedures.

Security risks associated with a network and a website can be addressed in some ways as following:

Network and Website Security Risks

As part of planning a startup e-business, security, management should become familiar with network and web server security risk terminology. Originally, hacker was a term used to describe gifted software programmers. Today, hacker is a slang term used to refer to someone who deliberately gains unauthorized access to individual computers or computer networks. Ethical hackers use their skills to find weaknesses in computer systems and make them known, without regard for personal gain.

Malicious hackers, also called crackers, gain access to steal valuable information such as credit card numbers, attempt to disrupt service, or cause any other damage.

Denial-of-Service Attacks: A denial-of-service or DoS attack is on a network that is designed to disable the network by flooding it with useless traffic or activity.

The attacker first breaks into hundreds or thousands of random, insecure computers on the internet and installs an attack program. Then he coordinates them all to attack the target simultaneously. Thereafter, the target is attacked from many places at once; the traditional defences just do not work, and the system crashes.

Viruses: Viruses are the most common security risk faced by e-businesses today. A virus is a small program that inserts itself into other program files that then become "infected", just as a virus in nature embeds itself in normal human cells.

The virus is spread when an infected program is executed, and this further infects other programs. Examples of virus effect include inability to boot, deletion of files or entire hard drives, inability to create or save files, and thousands of other possibilities.

A logic bomb is a virus whose attack is triggered by some event on a computer's system clock. A logic bomb may simply release a virus or it may be a virus itself.

Trojan horse: It appears to do something useful or entertaining but actually does something else as well as destroying files or creating a "back door" entry point to give an intruder access to the system. A Trojan horse may be an e-mail in the form of attachment or a downloaded program. Trojan horse examples include BackOrifice, VBS/Free link, and Backdoor-G.

Worm: This is a special type of virus that does not directly alter program files. Instead, a worm replaces a document or an application with its own code and then uses that code to position itself. Worms are often not noticed until their uncontrolled replication consumes system resources and slows down or stops the system. Worm examples include VBS/Loveletter, a VBS/Godzilla. worm, and Happy99.

A macro is a short program written in an application such as Microsoft Word or Excel to accomplish a series of keystrokes. A macro virus is a virus that infects Microsoft Word or Excel macros. Macro viruses can be introduced into a computer system as part of a Word or an Excel document received as an e-mail attachment, or as a file on disk. Opening the e-mail attachment or file triggers the macro virus.

Spyware: Spyware is Internet jargon for Advertising Supported software (Adware). It is a way for shareware authors to make money from a product, other than by selling it to the users. There are several large media companies that offer them to place banner ads in their products in exchange for a portion of the revenue from banner sales. This way, you do not have to pay for the software and the developers are still getting paid. If you find the banners annoying, there is usually an option to remove them, by paying the regular licensing fee.

This usually involves the tracking and sending of data and statistics via a server installed on the user's PC and use of your internet connection in the background.

Adware:

Adware in any software application in which advertising banners are displayed while the program is running. The authors of these applications include additional code that delivers the ads, which can be viewed through a bar that appears on a computer screen. The justification adware is that it helps recover programming development cost and helps to hold down the cost for the user.

Adware has been criticized because it usually includes code that tracks a user's personal information and passes it on to third parties, without the user's authorization or knowledge. Adware examples include Bearshare, Bonze Buddy, Comet Cursor and DivX.

Ease of Spying: It is important to note that when a user connect to her account on a remote host using Telnet or FTP, the user's password travels across the Internet unencrypted or in plain text. Thus, another method for breaking into systems is to monitor connections for IP packets bearing a username and a password and then using them on the system for normal login. If the captured password is to an administrator's account, then the job of obtaining privileged access is made much easier.

Ease of Spoofing: The IP address of a host is presumed to be valid and is therefore trusted by TCP and UDP services. A problem is that, using IP source routing, an attacker's host can masquerade as a trusted host or a client.

An example of how this can be used such that an attacker's system could masquerade as the trusted client of a particular server is as follows:

1. The attacker would change her host's IP address to match that of the trusted client.
2. The attacker would then construct a source route to the server, that specifies the direct path the IP packets should take to the server and should take from the server back to the attacker's host, using the trusted client as the last hop in the route to the server.
3. The attacker sends a client request to the server using the source route.
4. The server accepts the client's request as if it came directly from the trusted client, and returns a reply to the trusted client.
5. The trusted client, using the source route, forwards the packet on to the attacker's host.

How Vulnerable are The Internet Sites?

The internet, while being a useful and a vital network, is at the same time vulnerable to attacks, Sites that are connected to the internet face significant risk in some form by intruders. The following factor would influence the level of risk:

- Number of system connected to the site
- Services utilized by the site

- Interconnectivity of site to the internet
- Site's profile or how well-known the site is
- Site's readiness to handle computer security incidents.

The more the number of systems that are connected, obviously the harder it is to control their security. Equally, if a site is connected to the internet at several points, it is likely to be more vulnerable to attacks than a site with a single gateway.

Website Defacement

Website vandalism or defacement can be the result of a hacker breaking into a network, accessing the website files, and modifying the HTML to physically change web pages. Not only do website defacement embarrass an e-business, but some website defacement can have serious financial repercussions.

Credit Card Fraud and Theft of Customer Data

Almost all B2C purchase transactions involve credit cards. An e-business that accepts credit card in payment for goods and services, must secure the credit card information in transit to its website, and it must secure stored credit card information. Also, systems must be in place for credit card transaction authentication (verifying that the person placing the order really is the holder of the credit card used in the transaction), and credit card authorization (verifying that the charge can be made to the card number).

Security and E-mail

E-mail users who desire confidentiality and sender authentication use encryption. Encryption is simply intended to keep personal thoughts personal. There are to good programs to encrypt email and they are: Pretty Good Privacy (PGP), and Privacy Enhanced Email (PEM).

E-mail is typically encrypted for the reason that all network correspondence is open for eavesdropping. Internet e-mail is obviously far less secure than the postal system.

Privacy Enhanced Email Standard

PEM is the internet enhanced mail standard, designed, proposed, but not yet officially adopted by the internet activity boards, to provide secure electronic mail over the internet. Designed to work with current internet e-mail formats, PEM includes encryption, authentication, and key management, and allows use of both public-key and secret-key crypto-systems.

PEM explicitly supports only a few cryptographic algorithms; It uses the DES algorithm for encryption and the RSA algorithm for sender authentication and key management.

PEM also provides support for non-repudiation, which allows the third-party recipient of a forward message to verify the identity of the message to verify the identity of the message originator (not just the message forwarder) and to verify whether any of the original text has been altered.

Pretty Good Privacy (PGP)

Pretty Good Privacy (PGP) is the implementation of public key cryptography based on RSA. It is a free software package developed by Philip Zimmerman that encrypts e-mail.

PGP provides secure encryption of documents and data files that even advanced supercomputers are hard pressed to "crack".

For authentication, PGP employs the RSA public-key encryption scheme and MD5 (message Digest version 5) developed by Rivest, a one-way hash function to form a digital signature that assures the receiver that an incoming message is authentic.

Network and Website Security

The best way to recognize when a hacker is attempting unauthorized network access is to monitor network performance. Setting up, logging, and monitoring established network reference points, called benchmarks, can alert an e-business to security problems. A skilled system administrator and other well-trained technicians, who use these benchmarks to monitor and manage the network and services, are critical. Other tools such as passwords, firewalls, intrusion detection systems, and virus scanning software should be used to protect an e-business network and website.

A password is a code, or more often a common word, used to gain access to a computer network. Passwords are only effective when used properly. Often a computer user chooses a bad password, such a short, common word- a name, or birthday-so that the user can remember the password easily.

Passwords that require a minimum length of six characters in a mix of letters and numbers increase the number of potential passwords into billions and make it more difficult for a hacker to guess them.

A firewall is a software or a hardware used to isolate and protect a private system or an network from the public network. A firewall provides an easy- to-manage entry point to multiple systems behind it. Firewalls can control the type of information that is allowed to pass from the public network to the private network, as well as what services inside the firewall are accessible from the outside. Firewalls can also log activity, to provide an audit trail in case the network is penetrated.

Intrusion detection is the ability to analyze real-time data to detect, log, and stop unauthorized network access as it happens. Business can install intrusion detection systems that monitor the network the network for real-time intrusion and respond to intrusion in a variety of user-detected ways.

Virus scanning software, includes e-mail virus scanning, should be install on all network computers. Antivirus software should be kept update. Communication ports should be used to allow data to enter and exit the network. The system administrator should be all unused communication ports.

Transaction Security and Data Protection

To protect transaction data and customer data include:

- Using a predefined key to encrypt and decrypt the data during transmission;
- Using the secure sockets layer (SSL) protocol to protect data transmitted over the internet.
- Moving sensitive custom information such as credit card numbers offline, or encrypting the if it is to be stored online;
- Removing all files and data from storage devices, include disk drives and tapes, before getting rid of the devices; and

- Shredding all hard-copy documents containing sensitive information before trashing them.

Security Audits and Penetration Testing

Security audits can provides an overall assessment of an e-business system and security issues by checking for vulnerabilities in those system and providing recommendation for fixing those vulnerabilities.

Individual PC Security Risks

Often manages in an e-business use stand-alone personal computer during the start up phase, until funds are available to build and operate a network or until the e-business can outsource is IT operations.

Certainly, business employees often work on business files at home. Due to these factors, it is important for an e-business to understand that individual PCs are also at risk from hackers.

E-business Risk Management Issues

An e-business should manage its e-business risks as a business issue, not just as a technology issues. An e-business must consider the direct financial impact of immediate loss of revenue, compensatory payments, and future revenue loss from e-business risk such as;

1. Business interruptions caused by website defacement or denial- of –service attacks;
2. Litigation and settlement costs over employees inappropriate use of e-mail and the internet;
3. Product or service claims against items advertised and sold via a website;
4. Web- related copyright, trademark, and patent infringement lawsuits; and
5. Natural or weather-related disasters.

An e-business should put in place an effective risk management program that includes the following;

- Network and website security and intruder detection programs

- Antivirus protection
- Firewalls
- Sound security policies and procedures
- Employee education.

Table 5.3 illustrates some of the different kinds of insurance coverage an e-business should consider when developing an effective risk management program.

TABLE 5.3 E-risk Insurance

E-risk insurance	Coverage
Computer virus Transmission	Protects against losses that occur when employees open infected e-mail attachments or download virus-laden software.
Extortion and reward	Responds to internet extortion demands and/ or pays rewards to help capture saboteurs
Unauthorized access/ unauthorized use	Covers failure to protect against third-party access to data and transaction.
Specialized network security	Responds to breach of network security and resulting losses.
Media liability	Protects against intellectual property infringement losses.
Patent infringement	Covers defensive and offensive costs when battling over patent infringement issues.
Computer server and services errors &omissions	Protects e-business against liability for errors and omission when their professional advice causes a client's financial loss.

THE FIREWALL CONCEPT

An internet firewall is a system or group of systems that enforces a security policy between an organization's network and the internet.

The firewall determines which inside services may be accessed from the outside, which outsiders are permitted access to be permitted inside services, and which outside services may be accessed by insiders.

For a firewall, to be effective, all traffic to and from the internet must pass through the firewall, where it can be inspected. The firewall must permit only authorized traffic to pass, and the firewall itself must be immune to penetration. Unfortunately, a firewall system cannot offer any protection once an attacker has got through or around the firewall.

An internet firewall is not just a router, a bastion host, or a combination of devices that provides security for a network. The firewall is part of an overall security policy that creates a perimeter defence designed to protect the information resources of the organization.

This security policy must include published security guidelines to inform users of their responsibilities; corporate policies defining network access, service access, local and remote user authentication, dial-in and dial-out, disk and data encryption, and virus protection measures and employee training.

A firewall system is usually located at a higher-level gateway, such as a site's connection to the internet. However, firewall systems can be located at lower-level gateways to provide protection for some smaller collection of hosts or subnets.

WHY FIREWALL?

The general reasoning behind firewall usage is that without a firewall, a subnet's systems expose themselves to inherently insecure services, and to probes and attacks from hosts elsewhere on the network.

A firewall approach provides numerous advantages to sites by helping to increase overall host security. The following sections summarize the primary benefits of using a firewall.

Protection of vulnerable services

A firewall can greatly improve network security and reduce risks to hosts on the subnet by filtering inherently insecure services. As a result, the subnet network environment is exposed to fewer risks, since only selected protocols will be able to pass through the firewall.

For example, a firewall could prohibit certain vulnerable services such as Network File System (NFS) from entering or leaving a protected subnet.

Controlled access to site systems

A Firewall also provides the ability to control access to site system. For example, some hosts can be made reachable from outside networks, whereas others can be effectively sealed off from unwanted access. A site could prevent outside access to its hosts except for special cases such as mail servers or information servers.

Concentrated security

A firewall can actually be less expensive for an organization in that all or most modified software and additional security software could be located on the firewall systems as opposed to being distributed on many hosts.

Enhanced privacy

Using a firewall, some sites wish to block services such as finger and Domain Name Service. Finger displays information about users, such as their last login time, whether they have read mail, and other items. But, finger could leak information to attackers about how often a system is used, whether the system has active users connected, and whether the system could be attacked without drawing attention.

Need for usage statistics on network

It is important to collect statistics about network usage and evidence of probing for a number of reasons. Of primary importance is, knowing whether the firewall is withstanding probes and attacks, and determining whether the controls on the firewall are adequate. Network usage statistics are also important as input into network requirements studies and risk analysis activities.

Policy enforcement

A firewall provides the means for implementing and enforcing a network access policy. In effect, a firewall provides access control to users and services. Thus, a network access policy can be enforced by a firewall, whereas without a firewall, such a policy depends entirely on the cooperation of the users.

FIREWALL COMPONENTS

The primary components (or aspects) of a firewall are:

1.Network policy

2.Advanced authentication mechanisms

3.Packet filtering

4.Application gateways.

The following sections describe each of these components in detail.

NETWORK POLICY

There are two levels of network policy that directly influence the design, installation and use of a firewall system. The higher-level policy is an issue-specific network access policy that defines those services which will be allowed or explicitly denied from the restricted network, how these services will be used, and the conditions for exceptions to this policy. The lower-level policy describes how the firewall will actually go about restricting the access and filtering the services that were defined in the higher level policy.

- **SERVICE ACCESS POLICY**

The service access policy should focus on Internet-specific use issues as defined above, and perhaps all outside network access (i.e., dial-in policy, and SLIP and PPP connections) as well.

- **FIREWALL DESIGN POLICY**

The firewall design policy is specific to the firewall. It defines the rules used to implement the service access policy.

Firewalls generally implement one of the following two basic design policies:

1.Permit any service unless it is expressly denied.

2.Deny any services unless it is expressly permitted.

- **ADVANCED AUTHENTICATION**

Security lapses on the identity of internet users have occurred in part due to the weaknesses associated with traditional passwords. For years, users have been

advised to choose passwords that would be difficult to guess, or not to reveal their passwords.

Advanced authentication measures such as smartcards, authentication tokens, biometrics, and software-based mechanisms are designed to counter the weaknesses of traditional passwords. While the authentication techniques vary, they are indeed similar in one aspect. The password generated by advanced authentication devices cannot be reused by an attacker who has monitored a connection.

Some of the more popular advanced authentication devices in use today are called one-time password systems. The smartcard or authentication token, for example, generates a response that the host system can use in place of a traditional password. The token or card works in conjunction with software or hardware on the host, and therefore, the generated response is unique for every login. The result is one-time password which, if monitored, cannot be reused by an intruder to gain access to an account.

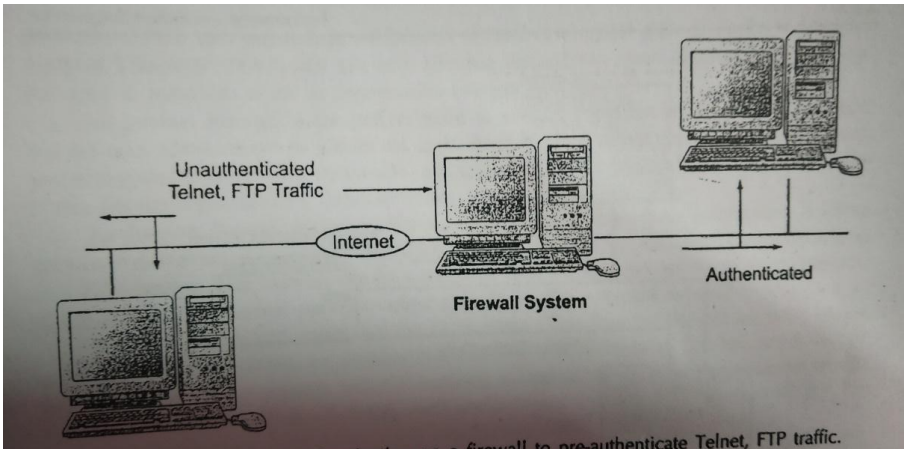


Figure 5.4 Advanced authentication on a firewall to pre-authenticate Telnet, FTP traffic.

- **PACKET FILTERING**

IP packet filtering is done, usually, using a packet filtering router designed for filtering packets, as they pass between the router's interfaces. A packet filtering router usually can filter IP packets based on some or all of the following fields:

1.Source IP address

2.Destination IP address

3.TCP/UDP source port

4.TCP/UDP destination port

Not all packet filtering routers currently filter the source TCP/UDP port, though vendors have now started incorporating this capability. Some routers examine the router's network interfaces in which a packet arrives, and then use this as an additional filtering criterion. Some UNIX hosts provide packet filtering capability, although most do not.

- **APPLICATION GATEWAY**

To counters some of the weaknesses associated with packet filtering routers, firewalls need to use software applications to forward and filter connections for services such as Telnet and FTP. Such an application is referred to as a proxy service, while the host running the proxy service is referred to as an application gateway. Application gateways and packet filtering routers can be combined to provide higher levels of security and flexibility than if either were used alone.

What should a firewall contain?

A firewall should have the following significant features or attributes.

1.Be able to support a "deny all services except those specifically permitted" design policy, even if that is not the policy used;

2.Support your security policy, not impose one;

3.Be flexible and able to accommodate new services and needs if the security policy of the organization changes;

4.Contain advanced authentication measures, or should contain the hooks for installing advanced authentication measures;

5.Empoy filtering techniques to permit or deny services to specified host system, as needed;

6.Use proxy services for services such as FTP and Telnet, so that advanced authentication measures can be employed and centralized at the firewall. If services such as NNTP, http, or gopher are required, the firewall should contain the corresponding proxy services;

7.Contain the ability to centralize SMTP access, to reduce direct SMTP connections between site and remote systems. This results in centralized handling of site e-mail;

8.Accommodate public access to the site, such that public information services can be protected by the firewall.

A security policy should include People, Policy and Technology. The security process is a mixture of these three elements. Each element depends in some manner on the other element.

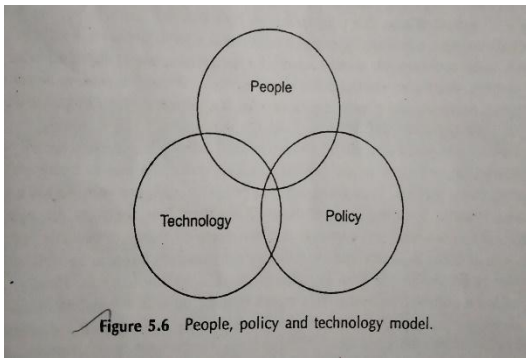


Figure 5.6 People, policy and technology model.

PEOPLE

This core element is most important. The people element comprises the people and various roles and responsibilities within an organization.

A few key roles include senior management, security administrators, system and IT administrators, end users, and auditors.

POLICY

This element comprises the security vision statement, security policy and standards, and the control documentation.

This is basically the written security environment—the bible that the security process will refer to for direction and guidance.

TECHNOLOGY

This element includes tools, methods, and mechanisms in place to support the process.

These are core technologies—the operating systems, the databases, the applications, the security tools—embraced by the organization.

The technology then is the enforcement, monitoring, and operations tools that will facilitate the process.

THE PEOPLE, POLICY, TECHNOLOGY (PPT) MODEL

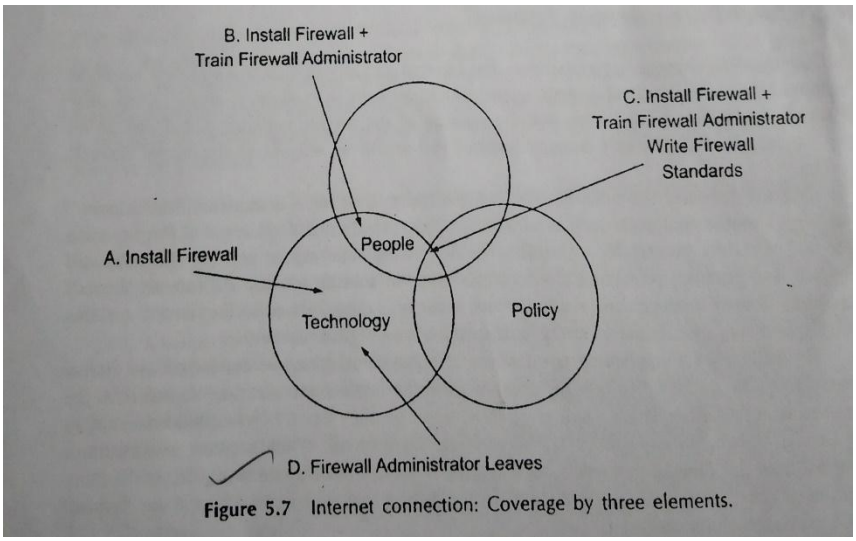


Figure 5.7 Internet connection: Coverage by three elements.

UNDERSTANDING THE SECURITY FRAMEWORK

Key elements, also referred to as the "Four Pillars" to information security, include:

- Solid senior management commitment
- An overall security vision and strategy ‘
- A comprehensive training and awareness program
- A solid information security management structure including key skill sets and document responsibilities as depicted in fig 5.8:

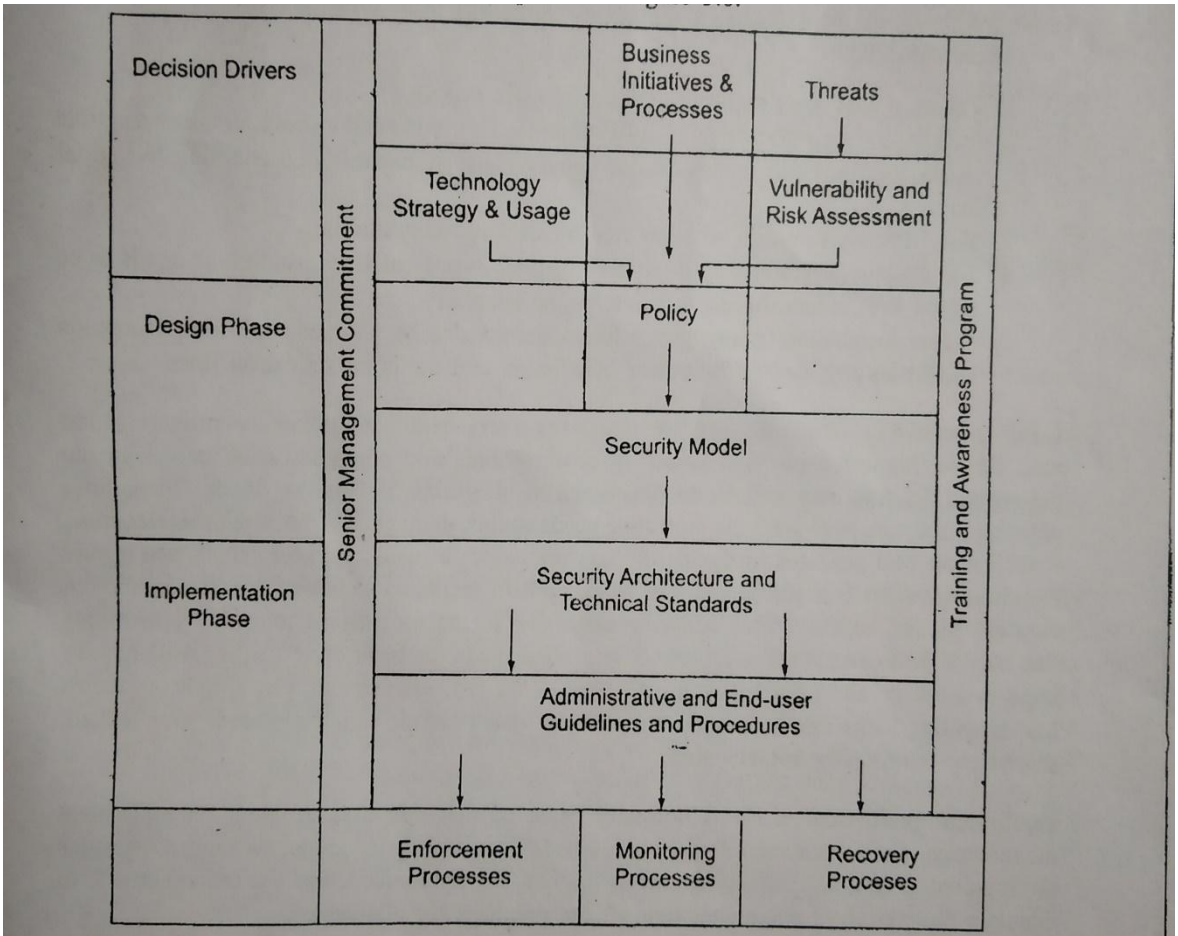


Figure 5.8 Information security management structure.

SECURE PHYSICAL INFRASTRUCTURE

Security can be best achieved by ensuring multiple layers of security and not depending on a single measure. This principle is very evident here. The controls for physical and environmental security are defined in three areas:

- Security of the premises'
- Security of the equipment
- Security behaviour

Security of the premises

PHYSICAL SECURITY PERIMETER

We begin by defining the boundary of the premises and examining the security requirements, based on the risk assessment. The best way to do this will be to walk around the premises and 'case and joint'. Evaluate all the entry points through which an intruder could come in. Take help of a security agency to do this. Do not

depend on your skills as an armchair detective. The classical approach to securing the premises is to create multiple barriers.

Consider all the entry points. Are the doors strong enough? Are the door frames strong enough? Are the windows, ventilators, air-conditioning firmly secured with grills? Do the physical barriers extend from real floors to real ceiling, or is there a gap between false ceiling and real ceiling through which somebody could crawl in? We need to detect the weakest link while assessing the perimeter defence. How are the access points guarded? Are they controlled through card-controlled entry gates? Are watchmen, guards or receptionist monitoring the entry points?

PHYSICAL ENTRY CONTROLS

Only the authorized persons should be allowed access to the secure areas. This objective could be achieved by having a clear access control policy defining the access rights. These measures may take the form of access control devices like swipe card controlled doors, logging information about visitors and visible identification badges.

SECURING OFFICES, ROOMS AND FACILITIES

Location of the secure office within the physically secure perimeter should be chosen with care. All the risks pertaining to fire, flood, explosion, civil unrest and other forms of natural or man-made disaster should be considered. There could also be threat from neighbouring premises, caused by leakage of water, spreading of fire, or storage of toxic/inflammable/explosive material. Even bulk supplies like stationery should not be stored within the secure premises.

No display board, banners, signs to indicate the presence of any important information processing activity. Even the internal telephone directories should not be readily accessible to outsiders.

Support facilities like photocopier, fax machines, which are constantly accessed by everyone, should be located away from the secure area. Suitable intrusion detection systems like CCTV, motion sensors etc. should be installed and regularly tested.

WORKING IN SECURE AREAS

Security equipment like CCTV and swipe-card controlled gates are of no use if the person working in these locations are not trustworthy, or are incompetent, or simply lack awareness of their responsibility. They should be hand-picked and

trained for these operations. They should not brag about their nature of work or location. Also, information should be provided on need-to-know basis. Segregation of duties should be scrupulously followed with strict supervision. Third-party personnel should be granted restricted access. No photographic, video, audio or other recording equipment must be allowed inside the premises, unless authorized.

ISOLATED DELIVERY AND LOADING AREAS

We have taken care of every aspect of physical security in the above paragraphs, but do we know how canteen facilities get into secured premises? How the trash is taken out? How the courier delivers the parcels? In industrial premises, there could be constant movement of incoming and outgoing material.

SECURITY OF THE EQUIPMENT

EQUIPMENT SETTING AND PROTECTION

Our next concern is the appropriate security of the equipment. Information processing equipment needs to be handled carefully.

It should be such as to minimize the risk of theft as well as the risk from natural disasters like fire, flood, chemical etc. Also, consider risks like electrical and electromagnetic interference, humidity etc.

POWER SUPPLIES

Information processing will come to halt in the absence of a suitable power supply. This could be the worst type of a denial-of-service attack.

Based on the evaluation, appropriate measures need to be taken.

These could be:

1.Taking power from multiple feeds of electric supply.

2.In case all the electric supplies fail simultaneously, you need to have an uninterruptible power supply (UPS) with adequate battery capacity capable of sustaining the initial load.

3.The UPS could in-turn be supported by backup generator sets.

4.The backup generator would require adequate supply of fuel, which also needs to be stored with replenishment, assured by the suppliers.

5.Proper installation of emergency lights should also be planned; lightning protection should be provided to the power installation and the communication lines.

CABLING SECURITY

We really need to remember every detail, including the proverbial last nail. Do we know the physical layout of power cables and communication cables in our premises? The first step will be to obtain wiring diagrams and update them. Then, do a physical inspection and assess the protection needs against damage, interference or interception. Establish the best practices for laying the network cables as well as power cables, and ensure that these are actually implemented.

EQUPIMENT MAINTENANCE

It is normally expected that due care is taken for equipment maintenance, and proper records are maintained. From a security angle, two more measures are required. One is to maintain record of faults that were noticed, and the second step is to maintain records of all equipment sent off the premises for maintenance.

SECURITY OF EQUIPMENT OFF PREMISES

Shrinking size of computers and expanding wide area networks have made the computers equipment extremely mobile. Processing as well as storage capacity of mobile devices has been following Moore's law of doubling every 18months. Securing these devices is as important as securing the data centre.

Physical controls like securing the devices with security chains, alarms, and storing them at non-obvious places, using access control devices like USB tokens, and finally taking adequate insurance cover.

SECURE DISPOSAL OR REUSE OF EQUIPMENT

Storage devices have long memory, unless specifically destroyed. Mere deletion is not enough. This becomes important when an old computer equipment is disposed off or transferred to another location. Equipment sent for repair are equally susceptible to reading of data from the 'deleted' storage devices.

INFORMATION SECURITY ENVIRONMENT IN INDIA

A “secure and reliable” environment – defined by storage copyright, IT and cyber laws – is an imperative for the growth and future success of the ITES-BPO industries.

NASSCOM has been proactive in pushing this cause and ensuring that the Indian Information Security environment benchmarks with the best across the globe. Indian ITES—BPO companies today adhere to international best practices—they are regularly audited by independent certified auditors, comply with international standards at the highest levels, update procedures and practices regularly and meet, if not exceed the worldwide information security standards to ensure that data and personal information of international customers is adequately protected.

SECURITY ENVIRONMENT IN INDIA

Indian companies are known for their quality deliverables. International certifications like ISO 9000 went a long way in establishing this reputation. Likewise following international standards in information security is also helping Indian companies build credibility among customers. While most Indian BPO firms are recognized for high quality processes and services, information security practices need to be constantly reviewed and updated according to the rapidly changing environment. Customers data demands special focus.

Indian companies primarily comply with BS 7799—a global standard that covers all domains of security. Companies sign Service Level Agreement (SLA), which have very strict confidentiality and security clauses built into them at the network and data level. Such SLAs also cover all relevant laws that the companies want its offshore providers to comply with and actions that can be taken in case of breaches.

Laws such as the IT Act, 2000, Indian Copyright Act, Indian Penal Code Act and the Indian Contract Act, 1972 provide adequate safeguards to companies offshoring work to US and UK. Most of the BPO companies providing services to UK clients ensure compliance with UK Data Protection Act, 1998 (DPA) through contractual agreements.

LEGAL AND ETHICAL ISSUES

Computers as targets for crime

Offences involving theft of information may take a variety of forms, depending on the nature of the system attacked. Sensitive information stored on law enforcement and military computers offers a tempting target to many parties, including subjects of criminal investigations, terrorist organizations, and foreign intelligence operatives.

Hackers also target non-governmental systems to obtain proprietary or other valuable information. For example, a hacker might gain access to a hotel reservation system to steal credit card numbers. Other cases may fall into the broad category of intellectual property theft. This includes not only the theft of trade secrets, but also much more common offences involving the unauthorized duplication of copyrighted materials, especially software programs.

Computers can also be the target of an offence in cases where an offender gains unauthorized access to a system. For instance, an offender may use his computer to break into a telephone switching system (including a private system, such as a PBX) to steal long-distance calling services. (This type of telephone equipment manipulation is often referred to as "phone phreaking".

In the category of attacks known collectively as "denial of services", the objective is to disable the target system without necessarily gaining access to it. One technically straight forward method of accomplishing this objective is "mailbombing", the practice of sending large volumes of e-mail towards single site (or user account) to clog the mail server or even to cause the target host to crash.

COMPUTERS AS STORAGE DEVICES

A second way in which computers can be used to further unlawful activity involves the use of a computer or a computer device as a passive storage medium. Drug dealers might use computer to store information regarding their sales and customers. Another example is a hacker who uses the computer to store stolen password lists, credit cards or calling card numbers, proprietary corporate information, pornographic image files, or "warez" (pirated commercial software).

For example, an unsophisticated offender, even after "deleting" computer files (as opposed to destroying paper records), might leave evidence of unlawful activity that a trained computer forensic expert could recover.

COMPUTERS AS COMMUNICATIONS TOOLS

Another way in which computer can be used in cyber crime is as a communication tool. Many of the crimes falling within this category or simply traditional crimes that are committed online. The unlawful conducts that exists in the physical, "offline" world also exist in the online world, such as the illegal sale of prescription drugs, controlled substance, alcohol, and guns; fraud; gambling; and child pornography. These examples are, of course, only illustrative; online facilities may be used in the furtherance of a broad range of traditional unlawful activity. E-mail and chat sessions, for example, can be used to plan or coordinate almost any type of unlawful act, or even to communicate threats or extortion demands to victims.

CYBERSTALKING

Cyberstalking is a prime example of the use of computers and the internet to facilitate a traditional, offline crime. Cyberstalking generally refers to the use of the internet, e-mail, or other electronic communications devices to "stalk" another person – where "stalking" in the traditional sense means to engage in repeated harassing or threatening behaviour (such as following a person, appearing at a person's home or workplace, making harassing telephone calls, or leaving written messages or objects) that places the victim in reasonable fear of death or bodily injury.

EXAMPLE

A 23 year old Telecom engineer from Mumbai who posed as the famous hacker Dr Neuker and made several attempts to hack the Mumbai police Cyber Cell Website.

PRIVACY IS AT RISK IN THE INTERNET AGE

Privacy is not just about hiding things; it is about self-possession, autonomy, and integrity. But this right of privacy does not mean that is the right of people to close their doors and pull down their window shades, perhaps because they want to engage in some sort of illicit or illegal activity. It is the right of people to control

what details about their lives stay inside their own houses and what leaks to the outside.

To understand privacy, we need to rethink what privacy really means today:

- It is not about the man who wants to watch pornography in complete anonymity over the internet.
- It is about the society that views law-abiding citizens as potential terrorists, yet does little to effectively protect its citizens from the real threats to their safety.

Today, more than ever before, we are witnessing the daily erosion of personal privacy and freedom. We are victims of a war on privacy that is being waged by government eavesdroppers, business marketers, and nosy neighbours.

Privacy is fundamentally about the power of the individuals. In many ways, the story of technologies attack on privacy is really the story of how institutions and the people who run them use technology to gain control over the human spirit, for good and ill. That is because technology by itself does not violate our privacy or anything else, it is the people using this technology and the policies they carry out that create violations.

COOKIES AND PRIVACY

Cookies are pieces of information generated by web server and stored in the user's computer, ready for future access. Cookies are embedded in the HTML information flowing back and forth between the user's computer and the servers. Cookies were implemented to allow user-site customization of Web information. For ex, cookies are used to personalize web search engines, to allow users to participate in WWW-wide contests, and to store shopping list of items a user has selected while browsing through a virtual shopping mall.

Cookies are based on a two- stage process. First the cookie is stored in the user's computer without their consent or knowledge. For example, with customizable Web search engines like My Yahoo!, a user selects categories of interest from the Web page. The web server then creates a specific cookie, which is essentially a tagged string of text containing the user's preferences, and it transmits this cookie to the user's computer.

During the second stage, the cookie is clandestinely and automatically transferred from the user's machine to a Web server. Whenever a user directs her

Web browser to display a certain Web page from the server, the browser will, without the user's knowledge, transmit the cookie containing personal information to the Web server.

A cookie is a piece of text that a Web server can store on a user's hard disk. Cookies allow a website to store information on a user's machine and later retrieve it. The pieces of information are stored as name-value pairs. For example, a website might generate a unique ID number for each visitor, and store the ID number on each user's machine using a cookie file.

PHISHING

Computer criminals used a relatively new method-phishing, which is becoming more and more popular amongst hackers. Recently many banks all over the world encountered a variety of frauds and scams committed by hackers, swindlers, and inside bank officials. But the most widespread crime against banks and especially accounts owners is a so-called 'phishing scam'. This scam is always entailed by usual spam. Swindlers try to trick consumers into giving up credit card information by posing as mail from regulations.gov, the government website where citizens comment on federal rule-making

The phishing e-mails typically have subject headings of 'Official information' or 'Urgent information to all credit card holders!'.

APPLICATION FRAUD

Application fraud is one specific version of what is broadly to as "identity theft". As the name implies, it essentially involves a criminal using someone else's name and credentials to fill out credit card applications without their permission. Often the thief sets the stage for application fraud by stealing supporting documents from the victim's, name such as utility bills or bank statements, which are then used to substantiate the thief's fraudulent credit card application

SKIMMING

An electronic method of capturing a victims personal information used by identity thieves. The skimmer is a small device that scans a credit card and stores the information contained in the magnetic strip. Skimming can take place during a legitimate transaction at a business

Skimming can occur easily in a restaurant because your card is taken away when the bill is being settled. If your service is a skimming identity thief, he or she will, before giving the card back to you, scan the credit card with a hand-held electronic device, which takes only seconds. The electronically captured information is then used by the thief or sold to other criminals.

COPY RIGHT

In general terms, copy right provides an author with a tool to protect a work from being taken, used, and exploited by others without permission. The owner of a copy righted work has the exclusive right to reproduce it, prepare derivative works based upon it, distribute copies by sale or other transfer of other ownership, to perform and display it publicly, and to authorize others to do so.

Copy right law protects "original works of authorship". Certain items of excluded from copy right protection. Registering a work with the copyright office in a critical step to be taken in protecting a work under copy right law. While time and money costs are involved, significant benefits are gained by completing the registration process in a timely manner. To protect a work from the date of first publications, it must be registered with in 3 months of the time. The work may be registered by the owner or an exclusive licensee. There is a "mandatory" deposit requirement, but it is not a condition of copy right protection.

INTERNET GAMBLING

The internet and other emerging technologies, such as interactive television, have made possible certain types of gambling that were not feasible a few years ago. For example an Indian citizen can now, from his home at any hour of the day or night, participate in an interactive internet poker game operated by a computer located in the Caribbean.

Only gambling also makes it fare more difficult to prevent minors from gambling. Gambling website cannot lock at their customers to assess their age and request photo identification as is possible in traditional physical casinos and off-track-betting parlours. currently, internet gambling businesses have no reliable way of confirming that the gamblers are not minors who have gained access to a credit card and are gambling on the website.

Unlike on-site gambling, online gambling is readily available to all at all hours, and it permits the user to gamble, in many cases anonymously. This presents a

great danger for compulsive gambling and can cause severe financial consequences for an unsuccessful player. Internet gambling, unlike many other forms of gambling activity, is a solitary activity, which makes it even more dangerous; people can gamble uninterrupted and undetected for unlimited periods of time.

Another major concern about online gambling is that internet gambling businesses provide criminals with an easy and excellent vehicle for money laundering, in large part due to the volume, speed, and international reach of internet transactions and the offshore locations of most internet gambling sites, as well as the fact that the industries itself is already cash intensive.

It is a fact that money launderers have to go to financial institutions either to conceal their illegal funds or recycle those funds back into the economy for their use. Because criminals are aware that banks have been subjected to greater scrutiny and regulation, they have turned to other non-bank financial institutions, such as casinos, to launder their money.

THREATS TO CHILDREN

With the growing number of classrooms connected to the internet and the rising number of personal computers used in the home, more and more children are now able to access the internet. One of the greatest benefits of the internet is that it provides children with access to such things as educational materials, subject matter experts, online friendships, and penpals.

One concern of course is that the internet may allow children unrestricted access to inappropriate materials. Such materials may contain sexually explicit images or descriptions, advocate hate or bigotry, contain graphic violence, or promote drug use or other illegal activities. In the worst instances, children have become victims of physical molestation and harassment by providing personal information about themselves over the internet and making contact with strangers.

To protect the children from such risks, parents and teachers therefore need to empower themselves with the tools, knowledge, and resources to supervise and guide children's online experience and to teach children how to use the internet responsibility.

Technology provides tools that may assist in preventing children from accessing inappropriate materials on the internet or divulging personal information about themselves or their families online. The most common technological tools are "blocking" and "filtering" software.

“Blocking” software uses a “bad site” list and prevents access to those sites. The vendor of the software identifies specified categories of words or phrases that are deemed inappropriate and configures the blocking software to block sites on which the prohibited language appears.

Although such software can be a useful tool for restricting access to inappropriate websites in certain circumstances, they can also create a false sense of security, because they cannot restrict access to all inappropriate sites for children. The number of websites published each day far exceeds the ability of software companies to review the sites and categorize them for their “bad site” lists.

“Filtering” software blocks sites containing keywords, alone or in context with other keywords. For example, if parents wanted to restrict their child’s access to sites related to drug use, the software would be configured to deny access to sites containing such words as “marijuana”, “cocaine”, “heroin”, etc. Filtering software is available both directly and through some Internet Service Provider (ISPs) such as Lycos or FamilyNet.

Filtering software can also be used to restrict access to inappropriate websites, but, like blocking software, they can be both underinclusive and overinclusive. They can, for example, filter sites that are either harmless or even desirable. With the example above, sites that promote drug rehabilitation, seeking help for a drug problem, or drug prevention would be blocked simply because they use the keywords.

Filtering software may also be used to block sites that have a particular label or rating.

Parents must decide whether to block or allow access to unrated sites. Blocking all unrated sites would deny access to harmless and educational material, while allowing access to all unrated sites would undoubtedly allow inappropriate material to get through.

THE THREE ETHICALLY SIGNIFICANT CHARACTERISTICS OF THE INTERNET

Internet is a medium of communication and such it has three special features:

1. Many-to-many communications on a global scale
2. It facilitates a certain kind of anonymity
3. Certain programs on the internet have the ability to replicate themselves.