B.TECH IV Year I Semester CSE

2022 – 2023

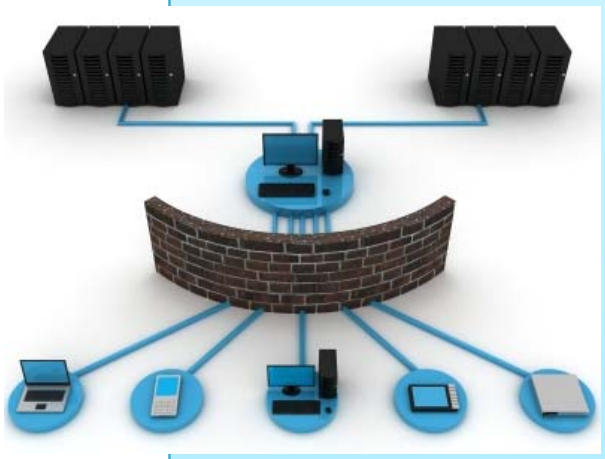
E-COMMERCE TRENDS (A5632)

(Open Elective) - VCE-R19

UNIT-2

E-BUSINESS INFRASTRUCTURE

E-ENVIRONMENT



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Course Overview

- The tremendous growth of the Internet and World Wide Web is having great impact on businesses, governments and individuals throughout the world.
- In this course, we will attempt to understand the phenomena, technological, economic and social, behind these rapid changes, and how organizations successfully conduct Internet-based activities.
- We will also study some of the technology of the Internet.
- This course provides an overview of e-commerce from both technological and managerial perspectives.
- It introduces e-commerce frameworks, and technological foundations; and examines basic concepts such as strategic formulation for e-commerce enterprises, management of their capital structures and public policy.
- It is particularly important that the student place a great deal of emphasis in understanding the different E-Commerce system design principles.

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Course Outcomes (Cos)

After the completion of the course, the student will be able to:		POs	PSOs
A5632.1	Illustrate the components and roles of the E-Commerce environment.	1	-
A5632.2	Understand legal and ethical issues related to E-Commerce and web marketing approaches.	5	-
A5632.3	Identify how to sell products and services on the web as well as to meet the needs of web site Visitors.	3	-
A5632.4	Analyze e-commerce payment systems	3	-

CO#	Bloom's Taxonomy Level					
	Remember (L1)	Understand (L2)	Apply (L3)	Analyze (L4)	Evaluate (L5)	Create (L6)
A5632.1		✓				
A5632.2		✓				
A5632.3			✓			
A5632.4			✓			

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SYLLABUS

UNIT-1: INTRODUCTION TO E-BUSINESS AND E-COMMERCE: What is the difference between e-commerce and e-business, E-business risks and barriers to business adoption, Management responses to e-commerce and e-business.

E-COMMERCE FUNDAMENTALS: Location of trading in the marketplace, Business models for e-commerce, Focus on auction business models, Focus on Internet start-up companies.

UNIT-2: E-BUSINESS INFRASTRUCTURE: Introduction, Internet technology, Web technology, Internet-access software applications, Managing e-business infrastructure, Focus on web services, SaaS and service-oriented Architecture (SOA), Focus on mobile commerce.

E-ENVIRONMENT: Social and legal factors, Environmental and green issues related to Internet Usage, Focus on e-commerce and globalization, Political factors.

Syllabus Contd..

UNIT-3: E-BUSINESS STRATEGY: What is e-business strategy, Strategic analysis, Strategic objectives, Strategy definition, Strategy implementation, Focus on information systems strategy and e-business strategy.

E-SECURITY- Securing the Business on Internet-Security Policy, Procedures and Practices, Transaction Security, Cryptology, Digital Signatures, Security Protocols for Web Commerce.

UNIT-4: SUPPLY CHAIN MANAGEMENT: What is supply chain management? Focus on the value chain, Using e-business to restructure the supply chain, Supply chain management implementation

E-PROCUREMENT: What is e-procurement, Drivers of e-procurement, Focus on estimating e-procurement cost, Implementing e-procurement, Focus on electronic B2B marketplaces.

UNIT-5: E-MARKETING: What is e-marketing?, E-marketing planning, Situation analysis, Objective setting, Strategy, Tactics, Focus on online branding.

CUSTOMER RELATIONSHIP MANAGEMENT: What is e-CRM, The online buying process, Focus on marketing communications for customer Acquisition, Customer retention management, Technology solutions for CRM.

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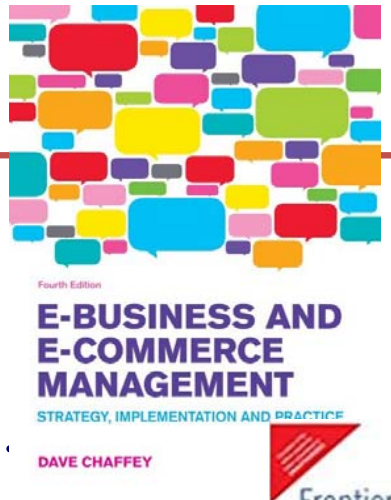
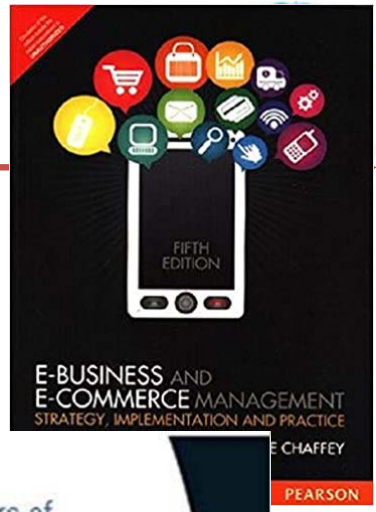
BOOKS

TEXT BOOKS:

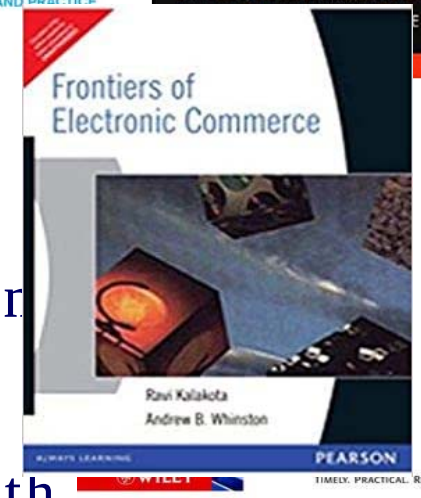
1. *E-Business and E-Commerce Management, Strategy, Implementation and Practice*
   Dave Chaffey, 4th Edition, Pearson Education.



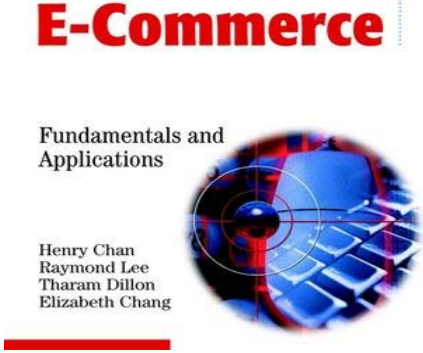


REFERENCE BOOKS:

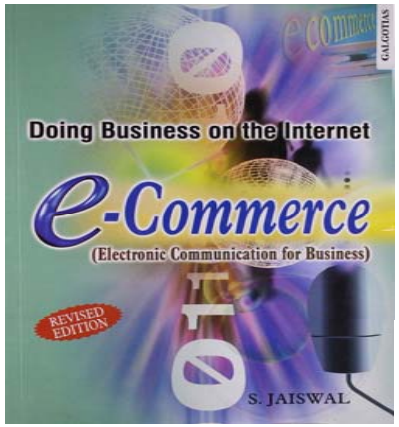
1. *Frontiers of electronic commerce –*
   Ravi Kalakata, Andrew B. Whinston, Pearson Education



2. *E-Commerce fundamentals and applications*
   Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley



3. *E-Commerce*
   S.Jaiswal, Galgotia.



4. *E-Commerce*
   Efrain Turbon, Jae Lee, David King, H.Michael Chang.

UNIT – 2 CONTENTS

2. BUSINESS INFRASTRUCTURE:

2.1 Introduction: E-business infrastructure components

2.2 Internet technology

2.3 Web technology

2.4 Internet-access software applications

2.5 Managing e-business infrastructure

2.6 Web services, SaaS & Service-Oriented Architecture (SOA)

2.7 Focus on Mobile commerce

E-ENVIRONMENT:

2.8 Social and legal factors

2.9 Environmental and green issues related to Internet Usage

2.10 Focus on e-commerce and globalization

2.11 Political factors

Learning outcomes

After completing this unit, the reader should be able to:

- Outline the hardware and software technologies used to build an e-business infrastructure within an organization and with its partners.
- Outline the hardware and software requirements necessary to enable employee access to the Internet and hosting of e-commerce services.

Typical problems faced by users of E-business web sites

- Web site communications too slow.
- Web site not available.
- Bugs on site through pages being unavailable or information typed in forms not being executed.
- Ordered products not delivered on time.
- E-mails not replied to.
- Customers' privacy or trust is broken through security problems such as credit cards being stolen or addresses sold to other companies.

2. E-BUSINESS INFRASTRUCTURE

2.1 Introduction: E-business infrastructure components

- The infrastructure directly affects the quality of service experienced by users of the systems in terms of speed and responsiveness.
- The e-business services provided through a standardized infrastructure also determine the capability of an organization to compete through differentiating itself in the marketplace.
- **E-business infrastructure** refers to the combination of hardware such as servers and client PCs in an organization, the network used to link this hardware and the software applications used to deliver services to workers within the e-business and also to its partners and customers.
- A key decision with managing this infrastructure is which elements are located within the company and which are managed externally as third-party managed applications, data servers and networks.

Five-layer model of E-business infrastructure components

- Figure 2.1 summarizes how the different components of e-business architecture which need to be managed relate to each other.
- The different components can be conceived of as different layers with defined interfaces between each layer.

I E-business services – applications layer	• CRM, supply chain management, data mining, content management systems
II Systems software layer	• Web browser and server software and standards, networking software and database management systems
III Transport or Network layer	• Physical network and transport standards (TCP/IP)
IV Storage/physical layer	• Permanent magnetic storage on web servers or optical backup or temporary storage in memory (RAM)
V Content and Data layer	• Web content for intranet, extranet and Internet sites, customers' data, transaction data, clickstream data

Fig 2.1: A five-layer model of e-business infrastructure components

Ex: Employee Booking a holiday Request

- The different layers can best be understood in relation to a typical task performed by a user of an e-business system. For example, let us assume that an employee needs to book a holiday request.
- At Level-I in Figure 2.1, there will be a specific human resources application or program created to enable a holiday request to be entered and will forward the application to their manager and human resources department for approval.
- At Level-II, to access the application, the employee will use a web browser such as Internet Explorer, Mozilla Firefox or Google Chrome using an operating system such as Windows or Apple OS.
- At Level-III, this systems software will transfer the information about the holiday request across a network or transport layer.
- At Level-IV, the information will then be stored in computer memory (RAM) or in longterm magnetic storage on a web server.
- At Level-V, the information itself which makes up the web pages or content viewed by the employee and the data about their holiday request are shown as a separate layer.

Kampas: alternative five-level infrastructure model

- Kampas (2000) describes an alternative five-level infrastructure model of what he refers to as 'the information system function chain':

1) Storage/physical: Memory and disk hardware components (equivalent to Level IV in Figure 2.1).
2) Processing: Computation and logic provided by the processor (processing occurs at Levels I and II).
3) Infrastructure: This refers to the human and external interfaces and also the network, referred to as 'extrastructure'. (Level III)
4) Application/content: This is the data processed by the application into information. (Level V in Figure 2.1.)
5) Intelligence: Additional computer-based logic that transforms information to knowledge. (This is also part of the application layer I in Figure 2.1.)

2.2 Internet technology

- "The Internet, sometimes called simply "the Net," is a worldwide system of computer networks - a network of networks in which users at any one computer can, if they have permission, get information from any other computer"

- "A global network connecting millions of computers. More than 100 countries are linked into exchanges of data, news and opinions.

- "Internet is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons"

- The Internet is a large-scale client/server system. Requests for information are transmitted from client computers and mobile devices whose users request services to server computers that hold information and host business applications that deliver the services in response to requests.

Physical and network infrastructure components of the Internet

- Figure 2.2 shows how the client computers within homes and businesses are connected to the Internet via local Internet Service Providers (ISPs) which, in turn, are linked to larger ISPs with connection to the major national and international infrastructure or backbones which are managed by commercial organizations such as AT&T, UUNET and Verizon.
- Globally, there are many submarine cables which form the backbone between countries.
- Internet service provider (ISP) provides home or business users with a connection to access the Internet. They can also host web-based applications.

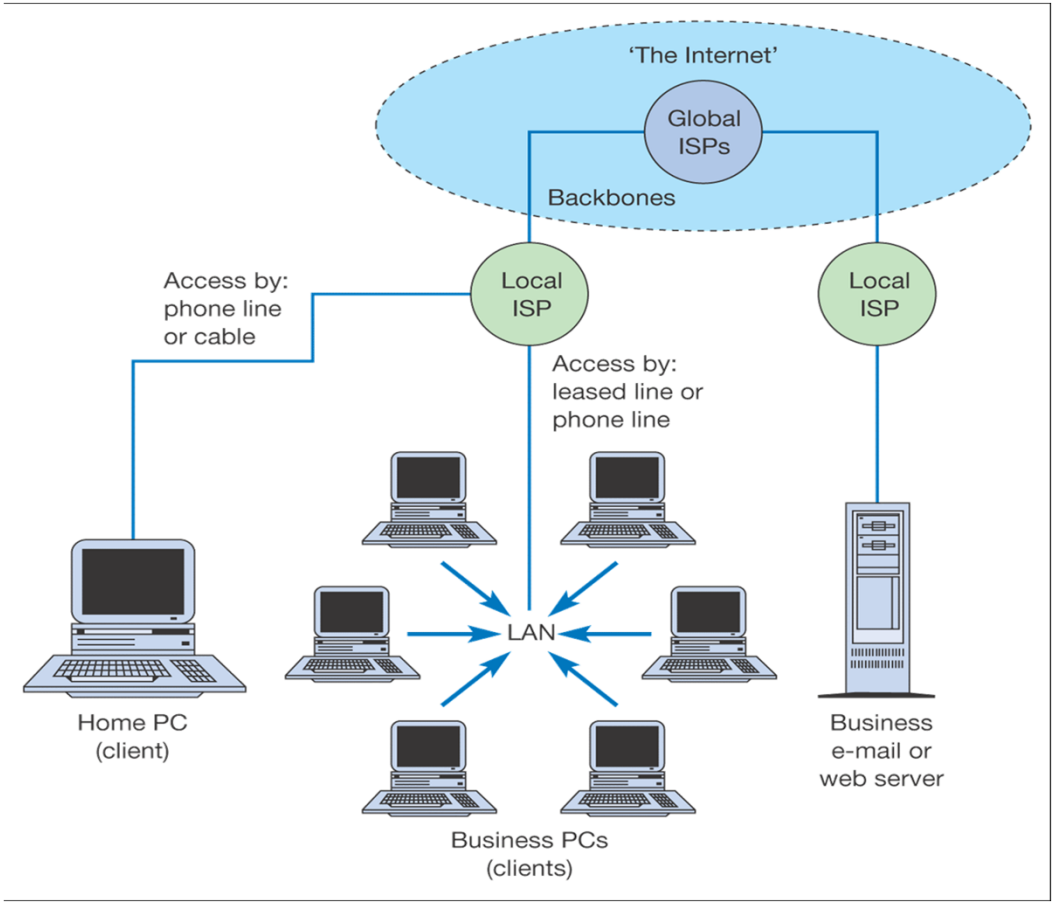


Fig 2.2: Physical and network infrastructure components of the Internet (Levels IV and III in Figure 2.1)

- Backbones are High-speed communications links used to enable Internet communications across a country and internationally.

Intranet and extranet

- Intranet is a private network within a single company using Internet standards to enable employees to share information. That is the information is restricted to employees inside an organization,
- Extranet is formed by extending an intranet beyond a company to customers, suppliers and collaborators. That is access to an organization's web services is extended to some others, but not everyone beyond the organization,

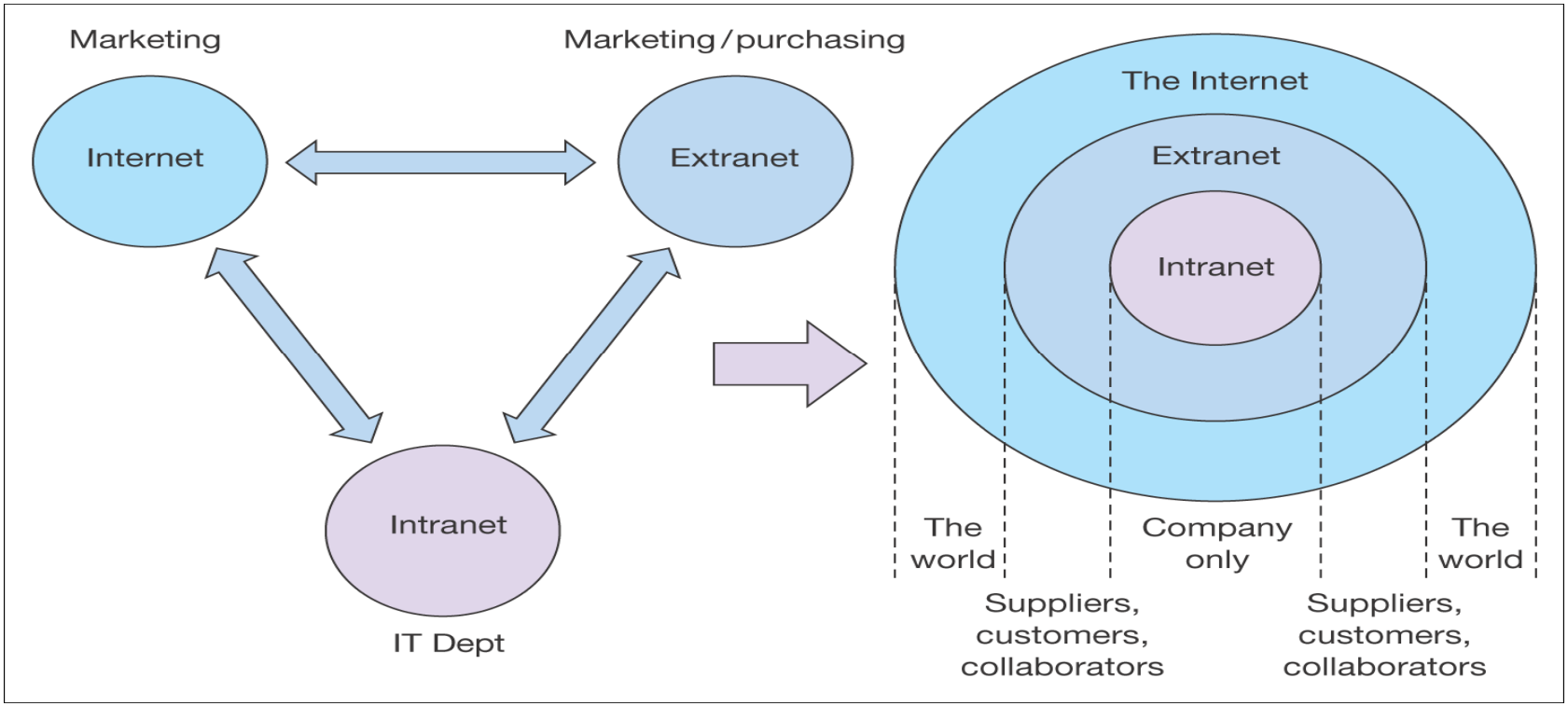


Fig 2.3: The relationship between intranets, extranets and the Internet

Intranet applications

- Intranets are used extensively for supporting sell-side e-commerce from within the marketing function.
- They are also used to support core supply-chain management activities.
- A marketing intranet has the following advantages:
  - Reduced product lifecycles – as information on product development and marketing campaigns is rationalized we can get products to market faster.
  - Reduced costs through higher productivity, and savings on hard copy.
  - Better customer service – responsive and personalized support with staff accessing customers over the web.
  - Distribution of information through remote offices nationally or globally.
- Intranets are also used for internal marketing communications

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12 ways to use your intranet to cut your costs

1) Build bridges with internal customers.
2) Research users' needs.
3) Implement or expand self-service.
4) Target further design, print and distribution savings.
5) Improve usability.
6) Revamp HR content.
7) Create content for customer-facing staff.
8) Create internal helpdesk content.
9) Enhance the employee directory.
10) Put senior leaders online.
11) Leverage online meetings.
12) Measure savings.

Extranet applications

- An extranet is created when two businesses connect their respective intranets for business communication and transactions.
- It is a network connected to another network for the purpose of sharing information and data.
- Used to provide online services which are restricted to business customers.
- Extranets are used extensively to support supply chain management as resources are ordered from suppliers and transformed into products and services delivered to customers.

Business benefits of an extranet:

1) Information sharing in secure environment.
2) Cost reduction
3) Order processing and distribution
4) Customer service

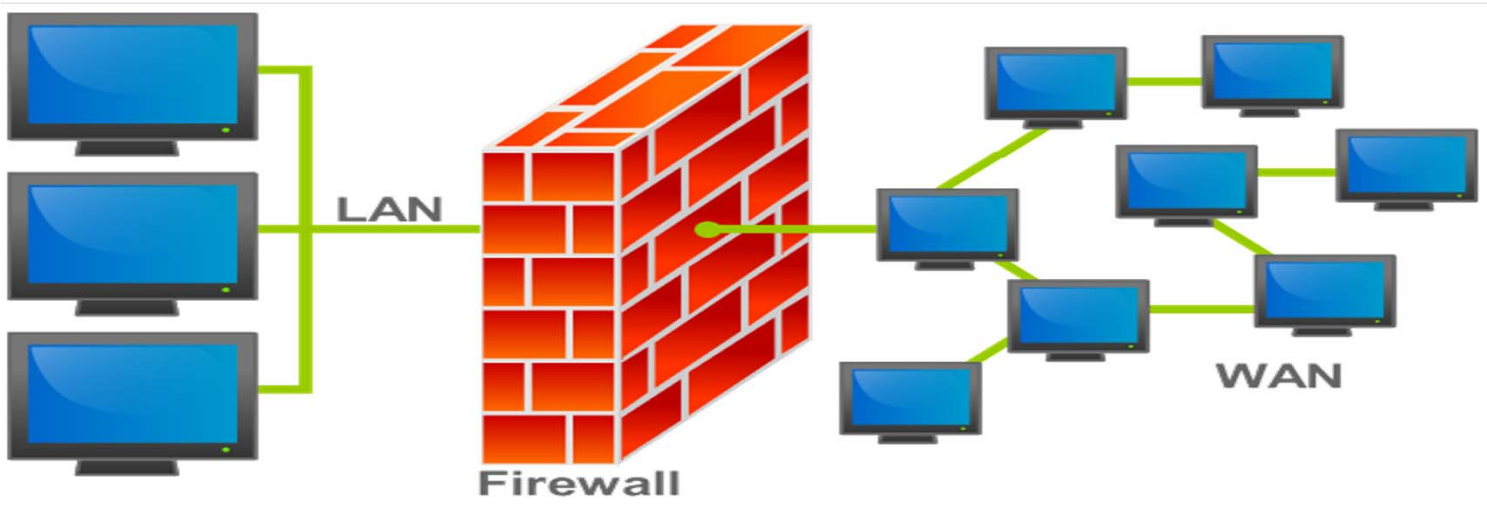
Management issues involved with Extranets and Intranets

- The management challenges of implementing and maintaining an intranet are similar to those of an extranet.
- Each of these issues also applies to intranets.
- These are five key questions that need to be asked when reviewing an existing extranet or when creating a new extranet:

1) Are the levels of usage sufficient?
2) Is it effective and efficient?
3) Who has ownership of the extranet?
4) What are the levels of service quality?
5) Is the quality of the information adequate?

Firewalls in infrastructure

- Firewall is a specialized software application mounted on a server at the point where the company is connected to the Internet.
- Its purpose is to prevent unauthorized access into the company from1 outsiders.
- Firewalls are necessary when creating an intranet or extranet to ensure that outside access to confidential information does not occur.



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- The use of firewalls within the infrastructure of a company is illustrated in Fig 2.4.
- It is evident that multiple firewalls are used to protect information on the company.
- The information made available to third parties over the Internet and extranet is partitioned by another firewall using what is referred to as the 'demilitarized zone' (DMZ).
- Corporate data on the intranet are then mounted on other servers inside the company.

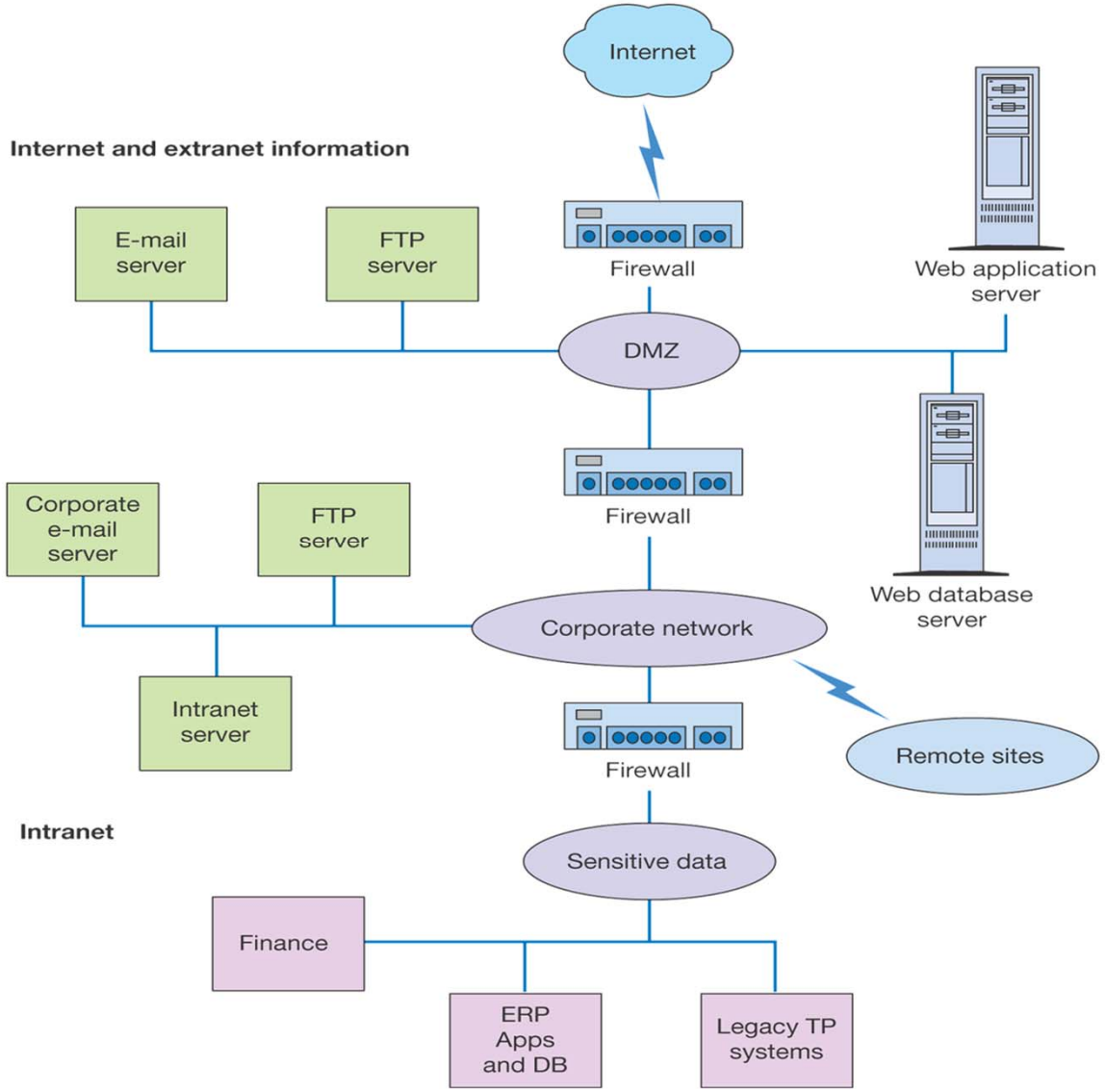


Fig 2.4: Firewall positions within the e-business infrastructure of the B2B company

2.3 Web technology

- World Wide Web (WWW) is the most common technique for publishing information on the Internet. It is accessed through web browsers which display web pages of embedded graphics and HTML/XML-encoded text.
- Hyperlink is a method of moving between one web site page and another, indicated to the user by an image or text highlighted by underlining and/or a different colour.
- Browser plug-in is an add-on program to a web browser, providing extra functionality such as animation.
- Browser extensions is the capability of a browser to add new services through new add-ons or plug-ins or customizing through different visual themes, particularly used in Mozilla Firefox browser

2.3 Web technology

- Web browsers provide an easy method of accessing and viewing information on the WWW that is stored as web documents on different servers. Browsers display the text and graphics accessed from web sites and provide the interactions.

  Ex: Mozilla Firefox, Microsoft Internet Explorer, Apple Safari, Google Chrome etc

- Web servers store and present the web pages accessed by web browsers.
- Static web page is a page on the web server that is invariant.
- Dynamically created web page is a page that is created in real time, often with reference to a database query, in response to a user request.
- Web application frameworks is a standard programming framework based on reusable library functions for creating dynamic web sites through a programming language.

Web technology Contd..

- Web application server is a collection of software processes which is accessed by a standard programming interface (API) of a web application framework to serve dynamic website functionality in response to requests received from browsers. They are designed to manage multiple requests from multiple users and will provide load-balancing to support high volumes of usage.
- Transaction log files is a web-server file that records all page requests.
- Web analytics system analyses information on visitor volumes, sources and pages visited.

Information exchange between a web browser and a web server

- Figure 2.5 indicates the process by which web browsers communicate with web servers.
- A request from the client PC is executed when the user types in a web address, clicks on a hyperlink or fills in an online form such as a search.
- This request is then sent to the ISP and routed across the Internet to the destination server using the mechanism of protocols.
- The server then returns the requested web page if it is a static (fixed) web page, or, if it requires reference to a database, such as a request for product information, it will pass the query on to a database server and will then return this to the customer as a dynamically created web page.

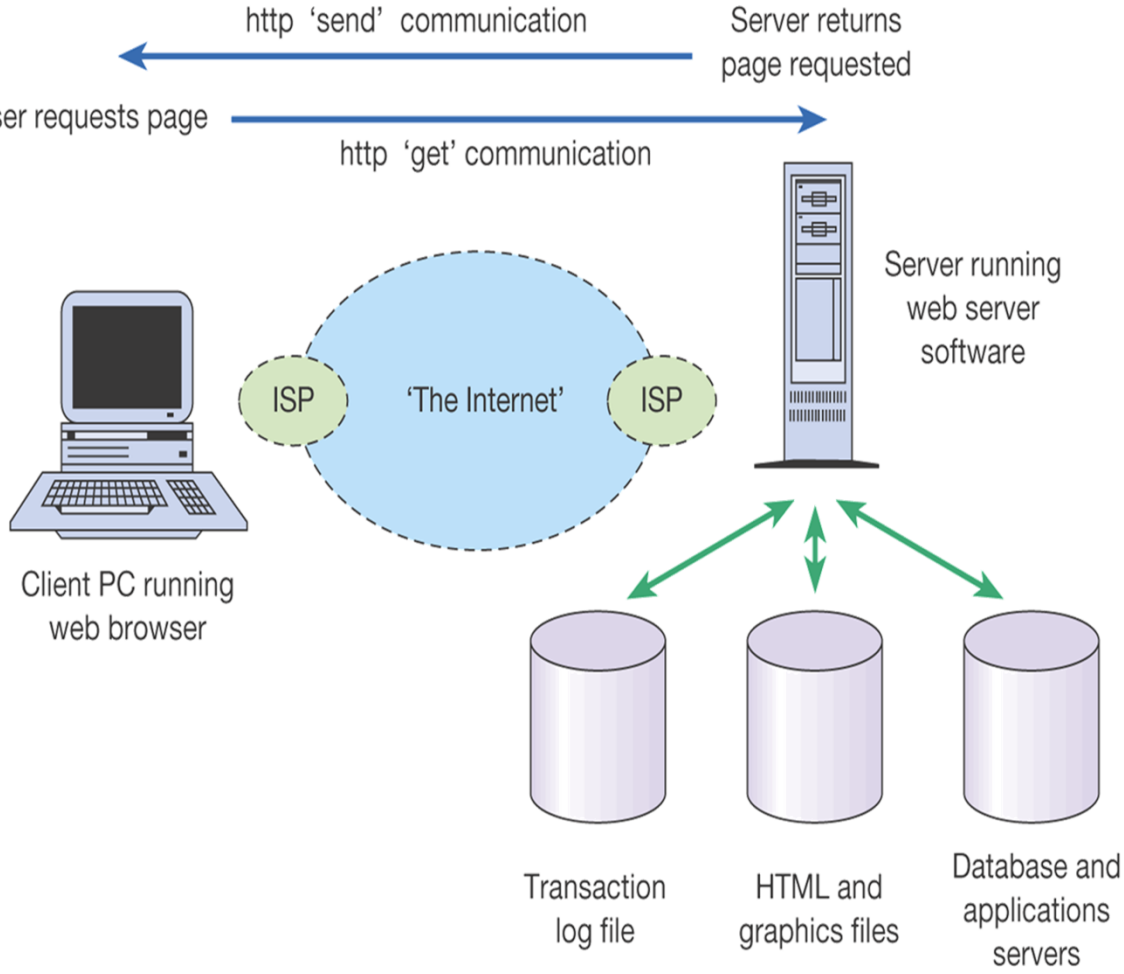


Fig 2.5: Information exchange between a web browser and web server

2.4 Internet-access software applications

- Blogs Web-based publishing of regularly updated information in an online diary-type format using tools such as Blogger.com, Typepad or WordPress.
- Electronic mail or e-mail Sending messages or documents, such as news about a new product or sales promotion between individuals is a key Internet capability.
- Feeds Really Simple Syndication (RSS) is a well-known XML-based content distribution format commonly used for syndicating and accessing blog information. Standard XML feed formats are also used by merchants updating price comparison sites.
- FTP file transfer The File Transfer Protocol is used as a standard for moving files across the Internet. Commonly used to upload HTML and other files to web servers. FTP is still used for e-business applications such as downloading files such as product price lists or specifications.
- Gophers, Archie and WAIS These tools were important before the advent of the web for storing and searching documents on the Internet. They have largely been superseded by the web and search engines

Internet-access software applications Contd..

- Instant Messaging (IM) and Internet Relay Chat (IRC) These are synchronous communications tools for text-based 'chat' between different users who are logged on at the same time. IM, from providers such as Yahoo and MSN and Twitter has largely replaced IRC and provides opportunities for advertising to users.
- IPTV Digital TV channels are made available via broadband Internet either as streamed live broadcasts or as archived broadcasts of TV programmes.
- Usenet newsgroups Forums to discuss a particular topic such as a sport, hobby or business area. Traditionally accessed by special newsreader software, but now typically accessed via a web browser from http://groups.google.com.
- Secure Shell (SSH) and Telnet These allow remote command-line access to computer systems. SSH is a more secure replacement for Telnet. For example, a retailer could check to see whether an item was in stock in a warehouse using SSH.
- Peer-to-peer file sharing Peer-to-peer file-sharing technology used to enable sharing of large audio and video files in BitTorrent or approaches such as Kontiki.

Internet-access software applications Contd..

- Podcasting A method of downloading and playing audio or video clips (webcasts), targeting portable devices such as the iPod or MP3 players or fixed devices.
- Voice over Internet Protocol (VOIP) Technology for digitally transmitting voice over a LAN or Internet.
- Widget A badge or button incorporated into a site or social network space by its owner, with content or services typically served from another site, making widgets effectively a mini-software application or web service. Content can be updated in real time since the widget interacts with the server each time it loads.
- World Wide Web Widely used for publishing information and running business applications over the Internet accessed through web browsers.

2.5 Managing e-business infrastructure

- E-business infrastructure comprises the hardware, software, content and data used to deliver e-business services to employees, customers and partners.

Different perspectives on the infrastructure:

1) Hardware and systems software infrastructure. This refers mainly to the hardware and network infrastructure which includes the provision of clients, servers, network services and also systems software such as operating systems and browsers (Layers II, III and IV).
2) Applications infrastructure. This refers to the applications software used to deliver services to employees, customers and other partners (Layer I).
3) Management of data and content (Layer V)

Managing hardware and systems software infrastructure

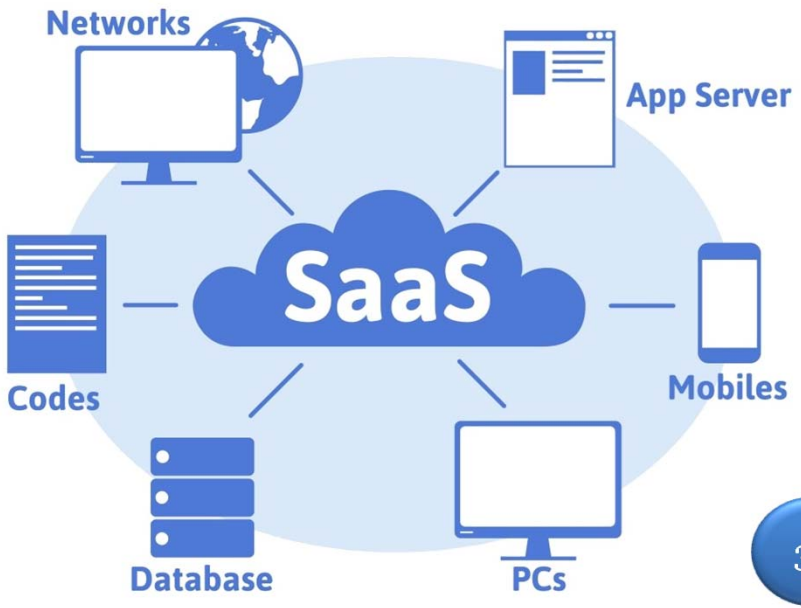
- Management of the technology infrastructure requires decisions on Layers II, III and IV.
- Layer II – Systems software: The key management decision is standardization throughout the organization. Standardization leads to reduced numbers of contacts for support and maintenance and can reduce purchase prices through multi-user licences.
- Layer III – Transport or network: Decisions on the network will be based on the internal company network, which for the e-business will be an intranet, and for the external network either an extranet or VPN. The management decision is whether internal or external network management will be performed by the company or outsourced to a third party.
- Layer IV – Storage: The decision on storage is similar to that for the transport layer. Storage can be managed internally or externally.
- Managing Internet service and hosting providers: The primary issue for businesses in managing ISPs and hosting providers is to ensure a satisfactory service quality at a reasonable price. Access to the Internet is either Dial-up connection or Broadband connection.

Managing e-business applications infrastructure

- Management of the e-business applications infrastructure concerns delivering the right applications to all users of e-business services.
- To avoid the problems of a fragmented applications infrastructure, companies turned to Enterprise Resource Planning (ERP) vendors such as SAP, Baan, PeopleSoft and Oracle.
- The difficulty for those managing e-business infrastructure is that there is not, and probably never can be, a single solution of components from a single supplier.

2.6 Web services, SaaS and Service-Oriented Architecture (SOA)

- 'Web services' or 'Software as a Service (SaaS)' refers to a highly significant model for managing software and data within the e-business age.
- The web services model involves managing and performing all types of business processes and activities through accessing web-based services rather than running a traditional executable application on the processor of your local computer.
- Web services: Business applications and software services are provided through Internet and web protocols with the application managed on a separate server from where it is accessed through a web browser on an end-user's computer.



Advantages and Disadvantages of using SaaS

Advantages of web services or SaaS:

- SaaS are usually paid for on a subscription basis, so can potentially be switched on and off or payments paid according to usage, hence they are also known as 'on demand'.
- The main business benefit of these systems is that installation and maintenance costs such as upgrades are effectively outsourced.

Disadvantages of web services or SaaS:

- The most obvious disadvantage of using SaaS is dependence on a third party to deliver services over the web, which has these potential problems:
- Downtime or poor availability if the network connection or server hosting the application or server fails.
- Lower performance than a local database.
- Reduce data security since traditionally data would be backed up locally by in-house IT staff (ideally also off-site).
- Data protection –customer data stored in a different location should be sufficiently secure with the data protection and privacy laws.

Deploying SaaS

- Multi-tenancy SaaS: A single instance of a web service is used by different customers (tenants) run on a single or load-balanced across multiple servers. Customers are effectively sharing processor, disk usage and bandwidth with other customers.
- Single-tenancy SaaS: A single instance of an application (and/or database) is maintained for all customers (tenants) who have dedicated resources of processor, disk usage and bandwidth. The single instance may be load-balanced over multiple servers for improved performance.
- Utility computing: IT resources and in particular software and hardware are utilized on a pay-per-use basis and are managed externally as 'managed services'.
- Application service provider: An application server provides a business application on a server remote from the user.
- Cloud computing: The use of distributed storage and processing on servers connected by the Internet, typically provided as software or data storage as a subscription service provided by other companies.

- Virtualization: The indirect provision of technology services through another resource (abstraction). Essentially one computer is using its processing and storage capacity to do the work of another. Ex Vmware.

Virtualization has these benefits:

- Lower hardware costs through consolidation of servers
- Lower maintenance and support costs
- Lower energy costs
- Scalability to add more resource more easily
- Standardized, peronalized desktops can be accessed fromany location, so users are not tied to an individual physical computer
- Improved business continuity.

Service-oriented architecture

- Service-oriented architecture (SOA): A service-oriented architecture is a collection of services that communicate with each other as part of a distributed systems architecture comprising different services.
- The main role of a service within SOA is to provide functionality. This is provided by **three characteristics**:

1) An interface with the service which is platform-independent. The interface is accessible through applications development approaches such as Microsoft .Net or Java and accessed through protocols such as SOAP, i.e. instructions and returned results to be exchanged between services.
2) The service can be dynamically located and invoked. One service can query for the existence of another service through a service directory – for example an e-commerce service could query for the existence of a credit card authorization service.
3) The service is self-contained. The service cannot be influenced by other services; rather it will return a required result to a request from another service, but will not change state. Within web services, messages and data are typically exchanged between services using XML.

2.7 Focus on Mobile commerce

- Mobile commerce or m-commerce: Electronic transactions and communications conducted using mobile devices such as laptops, PDAs and mobile phones, and typically with a wireless connection.
- Wireless Application Protocol (WAP) is a technical standard for transferring information to wireless devices, such as mobile phones.

Popularity and benefits of mobile applications:

- Ubiquity - No fixed location, can be accessed from anywhere
- Reachability - users can be reached when not in their normal location
- Instant access/Convenience – No power supply or fixed-line connection
- Security – each user can be authenticated
- Location based services - give geographically based services
- Privacy - provide a degree of privacy compared with a desktop PC

Bluetooth

- Wi-Fi ('wireless fidelity'): A high-speed wireless local-area network enabling wireless access to the Internet for mobile, office and home users.
- Bluetooth is another wireless technology, this time used for short-range data transmission between devices.
- Applications of Bluetooth include wireless keyboards and beaming data between a PDA and a desktop or a laptop and a printer.
- Proximity marketing: Marketing messages are delivered in real time according to customers' presence based on the technology they are carrying, wearing or have embedded. Bluecasting is the best-known example.
- Bluecasting involves messages being automatically pushed to a consumer's Bluetooth enabled phone or they can pull or request audio, video or text content to be downloaded from a live advert.
- Bluejacking involves sending a message from a mobile phone (or other transmitter) to another mobile phone which is in close range and set up to connect with other bluetooth devices such as from a store to customers.

Technology convergence

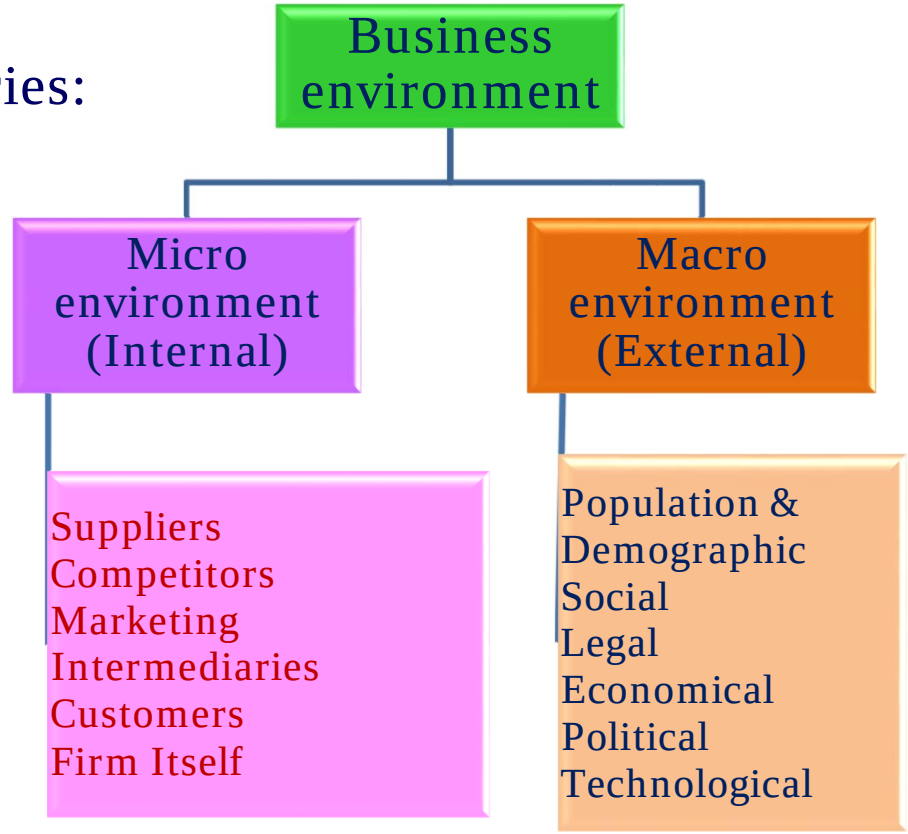
- Technology convergence: A trend in which different hardware devices such as TVs, computers and phones merge and have similar functions.
- Mougayer (1998) identifies different types of convergence:
- Infrastructure convergence –increase in the number of delivery media channels for the Internet such as phone lines, microwave (mobile phones), cable and satellite. These are now often being used in combination.
- Information appliance (technology) convergence – the use of different hardware devices to access and deliver the content of the Internet.
- Supplier convergence – the overlap between suppliers such as Internet service providers, online access providers and more traditional media suppliers such as the telecommunications and cable companies.
- Revenue models for mobile access for site owners include advertising, sponsorship or subscription for individual content items or be on a subscription basis.


nvironment


GO GREEN
There is no Planet B

E-ENVIRONMENT

- Every business organization is a part of the business environment, within which it operates.
- No entity can function in isolation because there are many factors that closely or distantly surrounds the business, which is known as a business environment.
- It is broadly classified into two categories:



1) Micro environment (Internal) -

- refers to the environment which is in direct contact with the business organization and can affect the routine activities of business straight away.
- They can influence the performance and day to day operations of the company, but for a short term only.
- Its elements include suppliers, competitors, marketing intermediaries, customers and the firm itself

2) Macro environment (External) - The general environment within the economy that influences the working, performance, decision making and strategy of all business groups at the same time. SLEPT factors

SLEPT Analysis

- SLEPT Analysis is a framework to assess an organization's Macro (external) environmental influence on it.
- The outcome of SLEPT analysis to identify threats and opportunities that can be used in SWOT analysis which further adds on the internal factors affecting the organization.

1) **S**ocial factors – these include the influence of consumer perceptions in determining usage of the Internet for different activities.
2) **L**egal and ethical factors – determine the method by which products can be promoted and sold online. Governments, on behalf of society, seek to safeguard individuals' rights to privacy.
3) **E**conomic factors – variations in the economic performance in different countries and regions affect spending patterns and international trade.
4) **P**olitical – national governments and transnational organizations have an important role in determining the future adoption and control of the Internet and the rules by which it is governed.
5) **T**echnological factors – changes in technology offer new opportunities to the way products can be marketed.

2.8 Social factors

- Social and Cultural impacts of the Internet are important from an e-commerce perspective since they govern demand for Internet services and propensity to purchase online.

Factors governing e-commerce service adoption:

1) Cost of access:

- Cost to own a home computer,
- Cost of using an ISP to connect to the Internet
- Cost of using the media to connect (telephone or cable charges) forms a major expenditure for many households.
- Free access would certainly increase adoption and usage.

2) Value proposition:

- Customers need to perceive a need to be online – *what can the Internet offer that other media cannot?*
- Examples of value propositions include access to more supplier information and possibly lower prices.

Social factors Contd..

3) Ease of use:
   - Ease of first connecting to the Internet using the ISP and the ease of using the web once connected.
4) Security:
   - The perception generated by news stories may be that if you are connected to the Internet then your personal details and credit card details may not be secure.
5) Fear of the unknown:
   - Internet non-adopters will have general fear of the technology and the new media and concern about pornography, fraud and privacy infringements.

Legal factors

- Introduction of new technologies and changes in their popularity tend to be frequent too and need to be assessed.
- Governmental and legal changes tend to happen over longer timescales. The trick for managers is to identify those factors which are important in the context of e-commerce which are critical to competitiveness and service delivery and monitor these.
- Legal factors are most important issues for the e-commerce manager to address. The six most important legal issues for managers to assess are

1) Data Protection and Privacy Law
2) Disability and Discriminating Law
3) Brand and Trademark Protection
4) Intellectual Property Rights
5) Contract Law
6) Online Advertising Law

Ethical factors

- Ethical standards are personal or business practices or behavior which are generally considered acceptable by society.
- Ethical issues and the associated laws developed to control the ethical approach to Internet marketing constitute an important consideration of the Internet business environment for marketers.
- Privacy of consumers is a key ethical issue.
- A further ethical issue for which laws have been enacted in many countries is providing an accessible level of Internet services for disabled users.
- Another important ethical factor we have to consider is managing commerce and distance selling products.

Privacy and trust in e-commerce

Privacy legislation

- Privacy refers to a moral right of individuals to avoid intrusion into their personal affairs by third parties.
- Identity theft is the misappropriation of the identity of another person without their knowledge or consent.

Anti-spam legislation

- Laws have been enacted in different countries to protect individual privacy and with the intention of reducing Sending Persistent Annoying e-Mail (spam) or Unsolicited Commercial E-mail (UCE).
- Spammers rely on sending out millions of e-mails in the hope that even if there is only a 0.01% response they may make some money.
- Cold list: Data about individuals that are rented or sold by a third party.
- House list: Data about existing customers used to market products to encourage future purchase.
- Privacy and Electronic Communications Regulations (PECR) Act: A law intended to control the distribution of e-mail and other online communications including cookies.
- Viral marketing: In an online context, 'Forward to a friend' e-mail used to transmit a promotional message from one person to another. 'Online word of mouth.'

Customer Information

Table summarizes different types of customer information used by the Internet marketer which are governed by ethics and legislation are collected and used through technology.

Type of information	Approach and technology used to capture and use information
1) Contact information	• Online forms – linked to customer database - name, postal address, e-mail address and web site address. • Cookies – are used to remember a specific person on subsequent visits
2) Profile information including personal information	• Online forms - customer's characteristics that include age, sex and social group for consumers, and company characteristics • Cookies can be used to assign a person to a particular segment and then offering content consistent with their segment
3) Platform usage information.	• Web analytics system – identification of computer type, operating system, browser and screen resolution used by site users based on http attributes of visitors

Customer Information Contd..

Type of information	Approach and technology used to capture and use information
4) Behavioural information (on a single site).	• Purchase history, buying process are stored in the sales order database. • Web analytics store details of IP addresses visited • GIF is used to assess whether a reader had opened an e-mail • First-party cookies are used for monitoring visitor behaviour • **Malware** can collect additional information such as passwords
5) Behavioural information (across multiple sites).	• Third-party cookies used for assessing visits • Search engines such as Google use cookies to track advertising • Services monitor IP traffic to assess site usage of customer groups within a product category

Data protection principles

- The guidelines on the eight data protection principles are produced by legal requirements of the 1998 UK Data Protection Act.
- These principles state that personal data should be:

1) Fairly and lawfully processed: Personal data shall be processed fairly and lawfully and, in particular, shall not be processed conditions are met.
2) Processed for limited purposes: Personal data shall be obtained only for one or more specified and lawful purposes and shall not be further processed in any manner incompatible with that purpose or those purposes.
3) Adequate, relevant and not excessive: Personal data shall be adequate, relevant and not excessive in relation to the purpose or purposes for which they are processed.
4) Accurate: Personal data shall be accurate and, where necessary, kept up to date.
5) Not kept longer than necessary: Personal data processed for any purpose or purposes shall not be kept for longer than is necessary for that purpose or those purposes.

Data protection principles Contd..

6) Processed in accordance with the data subject's rights: Personal data shall be processed in accordance with the rights of data subjects under this Act. One aspect of the data subject's rights is the option to request a copy of their personal data from an organization; this is known as a 'subject access request'.
7) Secure: Appropriate technical and organizational measures shall be taken against unauthorized or unlawful processing of personal data and against accidental loss or destruction of, or damage to, personal data.
8) Not transferred to countries without adequate protection: Personal data shall not be transferred to a country or territory outside the European Economic Area, unless that country or territory ensures an adequate level of protection of the rights and freedoms of data subjects in relation to the processing of personal data.

Understanding cookies

- A 'cookie' is a data file placed on the computer that identifies the individual computer.
- Cookies are stored as individual text files in a directory on a personal computer and enables the receiver to perform some operation.

Types of cookies

- Persistent cookies – these stay on a user's computer between multiple sessions and are most valuable for marketers to identify repeat visits to sites.
- Temporary or session cookies – single session – useful for tracking within pages of a session such as on an e-commerce site.
- First-party cookies – served by the site you are currently using – typical for e-commerce sites.
- Third-party cookies – served by another site to the one you are viewing – typical for portals where an ad network will track remotely or where the web analytics software places a cookie.
- Cookies are specific to a particular browser and computer, so if a user connects from a different computer such as at work or starts using a different browser, the web site will not identify him as a similar user.

2.9 Environmental and green issues related to Internet Usage

- Online shopping through transactional e-commerce can also have environment benefits. Internet Media in Retail Group (IMRG) launched a Go Green, Go Online campaign where it identified six reasons why it believes e-commerce is green. They are:

1) Less vehicle-miles: each time a customer decides to buy online rather than go shopping by car, CO2 emissions are saved.
2) Lower inventory requirements: The trend towards pre-selling online – i.e. taking orders for products before they are built, avoids the production of obsolete goods, wastage in energy and natural resources.
3) Fewer printed materials. Online e-newsletters and brochures replace their physical equivalent so saving paper and distribution costs.
4) Less packaging. Items like software or electronic items sold online and downloaded from internet don't require any packaging or plastic.
5) Less waste: Across the whole supply chain of procurement, manufacturing and distribution the Internet can help reduce product and distribution cycles.
6) Dematerialization: Better known as 'digitization', this is the availability of products like software, music and video in digital form.

2.10 Focus on e-commerce and globalization

- Globalization refers to the increase of international trading and shared social and cultural values between countries.
- to compete in the global marketplace; they say a company must have:
  - a 24-hour order taking and customer service response capability;
  - regulatory and customs-handling experience to ship internationally;
  - in-depth understanding of foreign marketing environments to assess the advantages of its own products and services.
- Localization is referred to as tailoring e-commerce services for individual countries or regions.
- A web site may need to support customers from a range of countries with:
  - different product needs;
  - language differences;
  - cultural differences.

Evaluation framework for the level of localization

- Singh and Pereira (2005) provide an evaluation framework for the level of localization:

1) Standardized web sites (not localized): A single site serves all customer segments (domestic and international).
2) Semi-localized web sites: A single site serves all customers; however, there will be contact information about foreign subsidiaries available for international customers. Many sites fall into this category.
3) Localized web sites: Country-specific web sites with language translation for international customers, wherever relevant.
4) Highly-localized web sites: Country-specific web sites with language translation; they also include other localization efforts in terms of time, date, postcode, currency formats, etc.
5) Culturally customized web sites: Web sites reflecting complete 'immersion' in the culture of target customer segments; as such, targeting a particular country may mean providing multiple web sites for that country depending on the dominant cultures present.

2.11 Political factors

- The political environment is shaped by the interplay of government agencies, public opinion, consumer pressure groups and industry-backed organizations that promote best practice amongst companies.
- The political environment is one of the drivers for establishing the laws to ensure privacy and to achieve taxation, intended to improve the economic competitiveness of countries or groups of countries.
- Political action enacted through government agencies to control the adoption of the Internet can include:
  - promoting the benefits of adopting the Internet for consumers and business to improve a country's economic prosperity;
  - enacting legislation to protect privacy or control taxation;
  - providing organizations with guidelines and assistance for compliance with legislation setting up international bodies
- Internet governance describes the control put in place to manage the growth of the Internet and its usage. Governance is traditionally undertaken by government, but the global nature of the Internet makes it less practical for a government to control cyberspace.

Governments encourage use of the Internet

- Governments encourage use of the Internet. They identify five broad themes in policy:
  1) Increasing the penetration of access devices.
  2) Increasing skills and confidence of target groups.
  3) Establishing driving licenses or passport qualifications.
  4) Building trust, or allaying fears.
  5) Direct marketing campaigns.
- Government strategy for e-commerce which are intended to increase industry competitiveness:
  1) Establish a brand in e-commerce both domestically and internationally.
  2) Transform existing businesses.
  3) Foster e-commerce creation and growth.
  4) Expand the e-commerce talent pool (skills).
  5) Provide leadership in international e-commerce policy development.
  6) Government online should be a priority.

UNIT-2 Question Bank

#	Descriptive Answer Question	Course Outcomes	Blooms Level
1)	Draw a neat diagram of five-layer model of e-business infrastructure. Explain it with the employee who needs to book a holiday through an application. (OR) Summarize how the different components of e-business architecture which need to be managed relate to each other with a neat diagram.	A5632.2	Understand (L2)
2)	With a neat diagram, explain the physical and network infrastructure components of the Internet technology. Describe the two main functions of an Internet service provider (ISP). How do they differ from applications service providers? R15-Sup-2021Dec	A5632.2	L2
3)	What is the difference between the Internet and the World Wide Web? R15-Reg-2021June	A5632.2	L2
4)	With a neat diagram explain about the firewall positions within the e-business infrastructure of the B2B company.	A5632.2	L2

UNIT-2 Question Bank Contd..

#	Descriptive Answer Question	Course Outcomes	Blooms Level
5)	With a neat diagram explain about the relationship between intranets, extranets and the Internet. Write the applications of Intranets and extranets. Explain the differences between intranet, extranet and the Internet from an e-business perspective. R15-Reg-2021June	A5632.2	L2
6)	With a neat diagram explain how information exchange between a web browser and web server.	A5632.2	L2
7)	Write about different Internet-access software applications/tools. (OR) Explain the following terms: HTML, HTTP, XML, FTP, Blogs, IPTV, VoIP and WWW R15-Reg-2021June The existence of standards such as HTML and HTTP has been vital to the success and increased use of the World Wide Web. Explain why. R15-Sup-2021Dec	A5632.2	L2
8)	Explain about Managing e-business infrastructure.	A5632.2	L2

UNIT-2 Question Bank Contd..

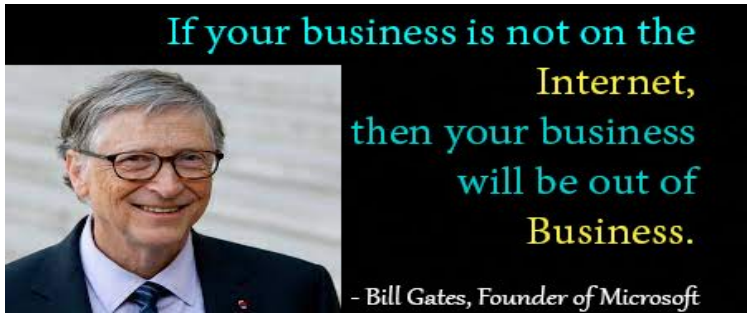
#	Descriptive Answer Question	Course Outcomes	Blooms Level
9)	What is SAAS? Enumerate the advantages and disadvantages of SAAS in E-Business. R15-Reg-2021June What is webservices and explain the types of services with in detail. R15-Sup-2021Dec	A5632.2	L2
10)	Define SOA and explain its characteristics.	A5632.2	L2
11)	Write about the Popularity of mobile applications.	A5632.2	L2
12)	According to Mougayer what are the three different types of Technology convergence.	A5632.2	L2
13)	Explain about the SLEPT Analysis framework to assess Macro (external) environmental factors that directly affect an organization.	A5632.2	L2
14)	Explain about the factors governing e-commerce service adoption.	A5632.2	L2
15)	Enumerate the Social and Legal Factors that influences E-Commerce. R15-Sup-2021Dec	A5632.2	L2

UNIT-2 Question Bank Contd..

#	Descriptive Answer Question	Course Outcomes	Blooms Level
16)	What are the main customer information types used by the Internet marketer which are governed by ethics and legislation are collected and used through technology?	A5632.2	L2
17)	What are the eight data protection principles are produced by legal requirements of the 1998 UK Data Protection Act	A5632.2	L2
18)	Online shopping through transactional e-commerce can have environment benefits. Explain why it believes e-commerce is green. Discuss the summary of Environmental and Green issues in Internet usage in E-Business. R15-Sup-2021Dec	A5632.2	L2
19)	Explain about the evaluation framework for the level of localization. (OR) Globalization is a boon to E-Commerce. Justify your views. R15-Sup-2021Dec	A5632.2	L2

UNIT-2 Question Bank Contd..

#	Descriptive Answer Question		Course Outcomes	Blooms Level
20)	Explain about the political factors in e-commerce. R15-Sup-2021Dec		A5632.2	L2
21)	Define the following: ▪ Micro environment ▪ Macro environment ▪ Identity theft	▪ Cold list & House list ▪ Viral marketing ▪ Persistent Cookies ▪ Globalization	A5632.2	L2




YOU CAN DO IT
Best Of Luck