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КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ

Basics of Electronic Business and Marketing

**Сборник текстов по обучению
профессионально-ориентированному чтению
на английском языке**

для студентов специальностей

1-28 01 01 – «Экономика электронного бизнеса»
1-28 01 02 – «Электронный маркетинг»

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Сборник текстов по обучению профессионально-ориентированному чтению на английском языке предназначается для студентов специальностей 1-28 01 01 Экономика электронного бизнеса и 1-28 01 02 Электронный маркетинг.

Тематика текстов дает достаточно полное представление о практической реализации принципов деятельности в этих сферах экономической активности.

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Unit 1. Organizations in the Electronic Age

Text 1. *Underlying concepts*

We live today in a world much beyond the hype of the dotcom bubble. It is a world in which even the most staid and traditional businesses, such as banks and insurance companies, would not be without their online and telephone service channels. Put simply, e-Business is now a mainstream part of most organizations.

This doesn't mean, of course, that all organizations have thrown off the shackles of Industrial Age business models and ways of working. In many factories and offices life goes on, seemingly unchanged. But peer beneath the surface and a lot has happened. Purchasing clerks may still spend their days staring into a computer screen, but nowadays that a computer is as much a communication tool as a word-processing or computational device. While paper may still exist, more and more processes are now handled electronically. With links to the Internet, the clerks in question may spend most of their time exchanging e-mails with remote suppliers, ordering goods via electronic catalogues and tracking those orders through the whole procurement cycle.

Beyond the purchasing department, senior manager and marketing departments will be pulling together a range of newly integrated, up-to-date information (not least about customers and products) and using it to perform more effective analysis and decision making. That same infrastructure is also allowing closer links with suppliers and collaborating organizations, and enabling personnel to operate more flexibly and remotely — in the field (with clients), at home (as tele-workers) or with other colleagues and partners (in virtual project teams).

Slowly but surely the old approach is giving way to a new way of doing things. But, as it does, most organizations are still trying to fathom the implications and opportunities this presents. As managers increasingly recognize, the Electronic Age calls into question many established 'good' business practices while also creating new challenges and dilemmas.

How, for instance, can organizations make the most effective use of the data that e-enabled processes now produce on customers and their buying habits? Inside the organization, what use should be made of electronic information systems to improve internal communications? And, in both cases, what safeguards should be put in place to insure against invasions of (e-)privacy?

Most people know that the prefix 'e' commonly denotes something to do with ICT (information and communications technology) and the Internet (the worldwide network of computer networks that link together, using common ICT standards).

There are numerous definitions of e-commerce and e-business, with many people organizations in the electronic age treating them somewhat synonymously. For most, though, e-Commerce has a more restrictive meaning and is concerned with the buying and selling of goods online. This may also extend to 'back-end' processes where supply chains are managed through electronic stock ordering systems (which pre-date the Internet in the form of EDI, or Electronic Data Interchange).

E-business is therefore a broader concept and describes arrangements where organizations have redesigned their business structures, processes and services to take advantage of Internet capabilities. The essential features of an e-Business are that it:

a) makes greater use of electronic devices in the processing and communicating of data;

b) allows increased integration of databases and hardware devices (thanks largely to the 'open protocols' that govern the transfer of data between systems);

c) enables users to engage 'interactively' with systems and services (e.g., to purchase goods, check on orders or collaborate in virtual teams or communities).

Realizing the full benefits of the Internet, as well as the e-commerce functions it supports, is not easily done using traditional systems of work and organization. It is therefore an e-business orthodoxy that organizations need to 'reinvent' their business processes or entire business models if they are to see the full dividends from their Internet investments. The same principles apply equally well to the public sector. Indeed, many parts of government might be seen as archetypal bureaucracies that could benefit significantly from a rethink and redesign. When talking about the public sector, it's common to discuss such 'e'-developments under the banner of 'e-Government'. This does not disguise the fact that most e-commerce and e-business issues and theories are just as relevant to the public sector as they are to the private.

Text 2. Internet and world-wide web technologies

The microcomputer or Personal Computer (PC) forms the basis of e-commerce. The Internet would not have the wide reach that it has into peoples' homes in the absence of the PC. Most office PCs are linked to a computer network and PCs at home are connected to the Internet via modems or dedicated data transfer cables.

PCs on local area networks (LANs) and wide area networks (WANs) are connected to the Internet. LANs and WANs are digital computer networks that connect PCs to enable sharing of information between separate computers. LANs are limited to a geographical area such as an office, whereas WANs connect computers over a wider geographical area.

A major effect of the Internet and the Web over the 1990s was to enable executives and business strategists to develop new ways of doing business electronically. These new electronic approaches are termed e-commerce 'business models'. Business models that combine the use of the Internet and Web technologies with fundamental business transformation are referred to as 'e-business'. The term e-Business is used to describe a business that shares its production or service information with customers and business suppliers or partners, fosters the development of customer relationships electronically, and enables business to be transacted from personal computers or other electronic devices, such as mobile phones or personal digital assistants (PDAs). One of the most successful e-commerce business models is the US company Dell Computers. It has a $14 million per day Internet-based revenue stream, or a quarter of its total revenue. Though a survey by NOP in 1999 revealed that only 15 per cent of the companies surveyed used the Internet for making online sales, Gartner Research predict that 97.5 million US users will adopt e-billing and online account management by 2005.

The capacity of a single computer is increased by connecting it to a LAN or WAN, as it can share computer programmes and information. A computer that is linked to a network can download and use computer programs and share storage and printing facilities, and take advantage of network capabilities for sending and receiving data and information.

A computer on a LAN or WAN that provides resources like application programs or printer connections is known as a 'server'. A server provides other computers known as 'clients' on the LAN or WAN with software and other resources. This set-up is called client – server computing architecture. A server that is linked to the Internet is called a 'host computer'. A server computer is capable of running server software, which needs to be compatible with the network operating system. The client and server are independent and perform specialized tasks to process information and run computer applications. If you use Microsoft Word on your computer, the client, it is probable that a server will have provided the Microsoft Word software for you to use. The client – server architecture is the basis of the Internet too.

The Internet is the sum total connection of LANs, WANs and stand-alone computers around the world. The term 'Internet' is short for 'inter-networking' or an interconnected set of networks. It is the global network of computers, whether the computer is on a LAN in an office, or a WAN in an industry extranet, or an independent computer in a private home. An Internet-connected computer is known as an Internet host computer. The Internet is also known as the 'Net', the 'Information superhighway' or 'Cyberspace'.

The set of rules for moving information over the Internet is called a 'protocol'. The transmission control protocol (TCP) is used for sending large amounts of information between host computers on the Internet. Vinton Cerf wrote the basic ideas for TCP on the back of an envelope over lunch, and in 1983 the core protocols of the Internet transmission control protocol/Internet protocol (TCP/IP) became the standard protocol for transmitting information over the Internet. An intranet consists of networked internal connection of computers owned by an organization and makes use of Web technology. An intranet may be mounted on a LAN or a WAN. An intranet makes use of Internet technology such as TCP/IP, HTML, Java and HTTP to make it interoperable and to provide it with Web capability. The basic elements of an intranet are a computer network, a computer designated as a server containing server software and the Internet protocols TCP/IP.

An intranet offers several benefits to an organization: improved sharing and communication of information, open standards and cross-platform collaboration. For example, a car manufacturing company may connect its information systems on purchasing with its accounting information systems to form an intranet for sharing and processing information between two departments in the company. An intranet is a company's own internal information transfer system that offers: e-mail, communication among different computers, connection to remote offices, a Web browser interface and special-interest news groups. For e-Commerce, an intranet is used to provide a corporate image and unified 'experience' for a customer that combines product information, ordering and customer care.

An extranet is used for business-to-business (B2B) e-commerce. It is the networked connection of computers of two or more companies. It is a private communication system to support trade and is used for communication and transactions between business partners, suppliers or special customers. For example, a car manufacturing company may connect its computers with its various suppliers of components for the cars it makes. Another example is the airline industry's OneWorld network, which enables customers to transfer seamlessly between airlines to reach their destinations.

Text 3. Electronic Business

E-business is a term used to describe businesses run on the Internet, or utilizing Internet technologies to improve the productivity or profitability of a business. In a more general sense, the term may be used to describe any form of electronic business — that is to say, any business which utilizes a computer. This usage is somewhat archaic, however, and in most contexts e-business refers exclusively to Internet businesses. The most common implementation of e-business is as an additional, or in some cases primary, storefront.

By selling products and services online, an e-business is able to reach a much wider consumer base than any traditional brick-and-mortar store could ever hope for. This function of e-business is referred to as e-commerce, and the terms are occasionally used interchangeably.

An e-business may also use the Internet to acquire wholesale products or supplies for in-house production. This facet of e-business is sometimes referred to as e-procurement, and may offer businesses the opportunity to cut their costs dramatically. Even many e-businesses which operate without an electronic storefront now use e-procurement as a way to better track and manage their purchasing.

There are many different benefits of e-commerce and e-business. Some of the benefits of e-commerce include purchases that can be made 24 hours a day and 7 days a week, making it available to every place in the world, at any time. Other benefits of e-commerce include a larger marketplace, more secure then using cheques, can increase you sales potential, lead to increased productivity. Benefits of e-business include improved speed of response, cost savings, reduction in inventory, better transfer of best practices, and improved customer service.
These are all benefits and advantages of e-commerce and e-business.

Advantages
● with the use of e-commerce you can promote your product globally;
● reduces Time and money spent;
● gives a competitive advantages;
● removes location and availability restrictions.

Disadvantages
● security — there are still some people who don't think it is safe to buy on-line;
● you may not receive what you believe you have purchased;
● things such as viruses could mean losing the site or affecting your customers computers while on your website.

Text 4. Current Trends in E-business

E-business is more than a smart web presence or a slick, flash-driven shopping cart. This is a critical emergence of business worldwide, with many technologies entering the enterprise computing eco-system. With an astounding hype over internet business scope, droves of large and medium enterprises across the world realized woefully late the immaturity and driving need for a sensible strategy deployment. But now they have realized that for enduring competitive advantage, e-business initiatives have to cohere strongly with the overall business strategy and be driven by distinct set of objectives and measurement criteria. It is now that businesses are turning to enterprise e-business to

enhance value for customers and increase operational efficiencies. E-business's perspective of extending business performance on a transparent, distributed and high-speed platform like internet is today strongly established.

It is important to understand that e-business does not claim primacy over the overall business strategy; in fact, it is a highly exciting corollary to it. There are several critical imperatives that drive the success of the e-business paradigm growth of productivity, customer centricity, disintegration of organizational boundaries and velocity, with a delicate balance between the inward and outward orientation of the fundamental business processes and transactions.

It involves a deep strike at the traditional foundation of business organization, by demanding a reordering of process flow, supply and delivery chains for maximum flexibility.

E-business aims to

1) provide the latest service and product intelligence and insight to enterprises as they choose;

2) knit strongly together customers, partners, suppliers, employees;

3) deliver reliability and tremendous enhancements in enterprise computing for employees;

4) offer ground-breaking communication and collaboration potential for global commerce networks;

5) reduce expenditures and elevate margins, thus profitability.

E-business impacts almost all salient parts of an enterprise in a significant, transformational way — ranging from internal business systems like CRM (customer relationship management), ERP (Enterprise Resource Planning), EIP (enterprise information portal), KM (Knowledge Management), workflow and document systems, process control and internal transaction processing.

Enterprise collaboration and communication undergo tremendous progress with e-mail, voice mail, discussion forums, chat systems, data conferencing — especially collaborative work systems. With an extended scope like never before, enterprises can extend this new computing and communication power to all, or limited/designated user groups as they choose, for electronic commerce and transaction processing. In order to be successful, enterprise e-business applications must support all product types, channel partners, customers, and selling processes seamlessly. Only then customers, employees, partners and suppliers stand to gain.

Text 5. Types of Information Systems

An *information system* is a collection of hardware, software, data, people and procedures that are designed to generate information that supports the day-to-day, short-range, and long-range activities of users in an organization. Information systems are generally classified into five categories: office information systems, transaction processing systems, management information systems, decision support systems, and expert systems.

1. Office Information Systems (OIS). An *office information system* is an information system that uses hardware, software and networks to enhance work flow and facilitate communications among employees. With an office information system,

also described as office automation, employees perform tasks electronically using computers and other electronic devices, instead of doing it manually. With an office information system, for example, a registration department might post the class schedule on the Internet and e-mail students when the schedule is updated. In a manual system, the registration department would photocopy the schedule and mail it to each student's house.

An office information system supports a range of business office activities such as creating and distributing graphics and/or documents, sending messages, scheduling, and accounting. All levels of users from executive management to non-management employees utilize and benefit from the features of an OIS.

The software an office information system uses to support these activities include word processing, spreadsheets, databases, presentation graphics, e-mail, Web browsers, Web page authoring, personal information management, and groupware. Office information systems use communications technology such as voice mail, facsimile (fax), videoconferencing, and electronic data interchange (EDI) for the electronic exchange of text, graphics, audio and video. An office information system also uses a variety of hardware, including computers equipped with modems, video cameras, speakers, and microphones, scanners and fax machines.

2. Transaction Processing Systems (TPS). A *transaction processing system* is an information system that captures and processes data generated during an organization's day-to-day transactions. A transaction is a business activity such as a deposit, payment, order or reservation.

Clerical staff typically performs the activities associated with transaction processing, which include the following:

● recording a business activity such as a student's registration, a customer order, an employee's timecard or a client's payment;

● confirming an action or triggering a response, such as printing a student's schedule, sending a thank-you note to a customer, generating an employee's paycheck or issuing a receipt to a client;

● maintaining data, which involves adding new data, changing existing data, or removing unwanted data.

Transaction processing systems (TPS) were among the first computerized systems developed to process business data — a function originally called data processing. Usually, the TPS computerized an existing manual system to allow for faster processing, reduced clerical costs and improved customer service.

The first transaction processing systems usually used batch processing. With batch processing, transaction data is collected over a period of time and all transactions are processed later, as a group. As computers became more powerful, system developers built online transaction processing systems. With *online transaction processing* (OLTP) the computer processes transactions as they are entered.

Today, most transaction processing systems use online transaction processing. Some routine processing tasks such as calculating paychecks or printing invoices are performed more effectively on a batch basis. For these activities, many organizations still use batch processing techniques.

3. Management Information Systems (MIS). While computers were ideal for routine transaction processing, managers soon realized that the computers' capability

of performing rapid calculations and data comparisons could produce meaningful information for management. Management information systems thus evolved out of transaction processing systems. They generate accurate, timely and organized information so managers and other users can make decisions, solve problems, supervise activities, and track progress. Because it generates reports on a regular basis, a management information system sometimes is called a *management reporting system* (MRS).

Management information systems are often integrated with transaction processing systems. To process a sales order, for example, the transaction processing system records the sale, updates the customer's account balance, and makes a deduction from inventory. Using this information, the related management information system can produce reports that recap daily sales activities, list customers with past due account balances, graph slow or fast selling products; and highlight inventory items that need reordering. A management information system focuses on generating information that management and other users need to perform their jobs.

An MIS generates three basic types of information – detailed, summary and exception. *Detailed information* typically confirms transaction processing activities. A Detailed Order Report is an example of a detail report. *Summary information* consolidates data into a format that an individual can review quickly and easily. To help synopsize information, a summary report typically contains totals, tables, or graphs. An Inventory Summary Report is an example of a *summary report. Exception information* filters data to report information that is outside of a normal condition. These conditions, called the exception criteria, define the range of what is considered normal activity or status. An example of an exception report is an Inventory Exception Report that notifies the purchasing department of items it needs to reorder. Exception reports help managers save time because they do not have to search through a detailed report for exceptions. Instead, an exception report brings exceptions to the manager's attention in an easily identifiable form. Exception reports thus help them focus on situations that require immediate decisions or actions.

4. Decision Support Systems (DSS). A *decision support system* is an information system designed to help users reach a decision when a decision-making situation arises. A variety of DSSs exist to help with a range of decisions.

Transaction processing and management information systems provide information on a regular basis. Frequently, however, users need information not provided in these reports to help them make decisions. A sales manager, for example, might need to determine how high to set yearly sales quotas based on increased sales and lowered product costs. Decision support systems help provide information to support such decisions.

A decision support system uses data from internal and/or external sources. *Internal sources* of data might include sales, manufacturing, inventory, or financial data from an organization's database. Data from *external sources* could include interest rates, population trends, and costs of new housing construction or raw material pricing. Users of a DSS, managers, can often manipulate the data used in the DSS to help with decisions.

Some decision support systems include query language, statistical analysis capabilities, spreadsheets, and graphics that help you extract data and evaluate the

results. Some decision support systems also include capabilities that allow to create a model of the factors affecting a decision. A simple model for determining the best product price, for example, would include factors for the expected sales volume at each price level. With the model, one can ask *what-if* questions by changing one or more of the factors and viewing the projected results. Many people use application software packages to perform DSS functions.

A special type of DSS, called an *executive information system* (EIS), is designed to support the information needs of executive management. Information in an EIS is presented in charts and tables that show trends, ratios, and other managerial statistics. Because executives usually focus on strategic issues, EISs rely on external data sources such as the Internet. These external data sources can provide current information on interest rates, commodity prices, and other leading economic indicators. To store all the necessary decision-making data, DSSs or EISs often use extremely large databases, called data warehouses. A *data warehouse* stores and manages the data required to analyze historical and current business circumstances.

5. Expert Systems. An *expert system* is an information system that captures and stores the knowledge of human experts and then imitates human reasoning and decision- making processes for those who have less expertise. Expert systems are composed of two main components — a knowledge base and inference rules. A *knowledge base* is the combined subject knowledge and experiences of the human experts. The *inference rules* are a set of logical judgments applied to the knowledge base each time a user describes a situation to the expert system.

Integrated Information Systems. With today's sophisticated hardware, software and communications technologies, it is often difficult to classify a system as belonging uniquely to one of the five information system types discussed. Much of today's application software supports transaction processing and generates management information. Other applications provide transaction processing, management information, and decision support. Although expert systems still operate primarily as separate systems, organizations are increasingly consolidating their information needs into a single, integrated information system.

The key to gaining strategic advantages from IT lies in understanding the process of installing, implementing, adapting and managing a strategic information system. But there is growing literature and many case studies on why companies fail to strategically manage their information technology. Two main streams have emerged.

The first suggests that top managers misunderstand IT and its strategic significance, mainly through neglect, fear of new technologies, and the wide spread practice of delegating unpleasant tasks. Some suggest that a well-managed company will also generate strategic management of IT. Others have surveyed senior managers and found little enthusiasm for computers and other recent technologies on their desks, or in their decision processes. Hence, they recommend improved communications with the automation specialists in the company — to enhance learning and to allay managers' inherent discomforts.

The second stream encompasses managerial systems tailored to the perceived tasks and needs of senior executives. Such systems include all "executive" brands of information systems, expert systems and decision support systems. The main idea is

to enroll the best available and most recent automation technology in the service of the executive's key functions, such as decision making. The results of these prescriptions and "support" systems are added confusion and an even stronger resistance on the part of senior managers to engage IT for strategic purposes.

The problem is essentially in the process, not solely in the perspective of senior management nor in their ability or inability to cope with recent technology. The advent of a new generation of senior managers better skilled in current technology by no means assures an improved strategic approach to IT and MIS. Senior managers make basic decisions which determine, first, what the strategically and competitively important information systems are for the company. Thus, they set the overall direction and the key criteria for the acquisition of information systems and information technology. Second, senior managers decide on the specific objectives of any given system (usually per recommendations of the systems professionals in the MIS function). Once this is established, the organizational factors, the systems design, and the technological choices will follow and most probably will be delegated to lower echelons and to varied functions in the company. However, although senior managers have had a key role in determining the information systems to be selected, purchased and established in the firm, their impact on the subsequent process of managing the routine operations of the systems is greatly diminished.

IT is essentially managed by the information systems professionals in the company. Further, IT is embedded in almost all functions and activities of the corporation, dispersed and diluted at all levels and departments. In addition, benefits accrued to the company from the usage of IT manifest themselves in improvements in the information system of the corporation and in its MIS, and are not directly measurable at the corporate/strategic level. Therefore, to strategically manage IT, senior managers need to understand the diffusion of the technology and its role in information gathering, processing, and transfer — at all levels and through the services of IS/MIS. Information technology is too important to be left to the sole discretion of information professionals.

In the field of business decision support, more and more recent research has been concentrating on the human side of the person – technology relation in decision making. It has been proved that business decision making environment is a unity of decision makers' experience, beliefs and perceptions on one side, and decision support tools and techniques – on the other side.

The information environment surrounding business activities and decisions is getting increasingly complex due to growing volumes of information of potential relevance to certain business activities, increasing number of sources of such information and multiplying technologies for accessing and handling data and information. The expected role of information technologies is to filter and direct relevant information flows and to provide reliable and flexible support.

At the same time, every case of decision making for a problem situation tests the existing support mechanisms and provides valuable information for future situations, thus creating new knowledge and experience for participants involved, and in the case of right decision increasing confidence in future actions.

Unit 2. Ensuring e-Business: Information Technologies

Text 1. Definitions and models of e-commerce

There are many definitions of e-commerce, but they all imply some manner of electronic mediation for business transactions. The UK Department of Trade and Industry (DTI) defines e-commerce as: 'The exchange of information across electronic networks, at any stage in the supply chain, whether within an organisation, between businesses, between businesses and consumers, or between the public and private sectors, whether paid or unpaid'.

Though the word commerce carries with it a sense of activities being undertaken for payment, this definition gives the term e-commerce a broad informational scope to also include activities for which no direct payment is made within a supply chain. A supply chain describes the distribution of goods, services and information flows between market participants within or between industries. For example, a vehicle manufacturer is at the heart of a variety of supply chains, including parts, raw materials, services, etc., supplied to it by other firms. The optimal management of a supply chain reduces transaction costs. As a result, the competitive advantage of the vehicle manufacturer is enhanced. This explains why many prefer the term e-business rather than e-commerce to describe such electronically mediated activities. The DTI definition does not just place the scope of e-commerce as being Internet- or Web-mediated, but includes electronically mediated activities undertaken outside the Internet and/or which pre-date the Internet.

Earlier forms of e-commerce, prior to the term being coined, include Electronic Data Interchange (EDI). This is the exchange of information by trading partners, for example orders, using technically defined templates whose origins go back to 1969. The succeeding decades have seen many large corporations taking up EDI based on value-added networks. Value added is the process whereby each successive stage of production adds more value than the previous stage. Examples include private sector organizations such as IBM and GEIS (part of the US giant General Electric). Another major sphere is that of Electronic Funds Transfer (EFT) through which the banking system facilitates financial settlements. Prominent amongst EFT systems is SWIFT (Society for Worldwide Interbank Financial Telecommunication), which has handled international inter-bank settlements since the 1960s. The BACS system is one such that handles inter-bank settlement for the UK banking sector. Finally other industries have created their own forms of EDI such as the airline reservation system, SABRE.

There is a distinct difference between the Internet and these other forms of electronic transactions:

• The Internet uses protocols that are open and non-proprietary, that is, these protocols are published so that theoretically any user can use them to hook up to the Internet;

• EDI systems are closed or proprietary systems, which are open only to paying participants.

The fact that systems are closed means a greater guarantee of security for all transactors. Open systems are by definition open to potential fraudulent activity. So though the economic transactions may be alluring, the potential threat to the integrity

of global payment systems is too great at present for the major international banks to shift towards Web-enabled systems. One of the major challenges to examining, analysing and explaining the business environment for e-commerce is the confusion of terms. Perhaps more importantly, the lack of appropriate models by which to examine, analyse and explain it inhibits clarity of thought and interpretation.

Central to any market transaction, whether in a geographical or virtual location, is the exchange of information. In a market economy, prices signal information about transactions between consumers and producers and between producers themselves. The equivalent in e-commerce is Business-to-Consumers (B2C) and Business-to-Business (B2B). The advantage of e-commerce to consumers is greater access to fuller information on prices of goods and services. The advantage to producers is that they can directly access a greater market potential for their goods and services.

However, e-commerce does not overcome the problem of transaction costs (particularly transport costs) and immediacy in purchasing goods and services at designated locations, although it may reduce search costs in some general instances and shift them from producers to consumers in others. Essentially, e-commerce does not alter the nature of exchange and transactions in a market economy.

Moreover, given the relatively low level of Internet commerce in most advanced economies, the heroic assumption that the Internet is now the universal market transactor is not vindicated by evidence. Given the United States had first-mover advantage, and the size of its economy (which is only slightly less than the whole of the European Union), it may come as no surprise that e-commerce revenue in the United States in 2000 was twenty-three times that of the United Kingdom, thirty-three times that of France and seventeen times that of Germany. The ratio of B2B to B2C for the same year in the United Kingdom, France and Germany was 7.04, 7.06 and 7.09 respectively, compared with 7.07 for the United States. If one looks at the contribution of total e-commerce to national income, measured by Gross Domestic Product (GDP), the results do not stand up to many of the hyped claims.

Notwithstanding the rise and then fall in e-commerce revenues in 2000 and 2001, and allowing for the size of the US economy, e-commerce represents a small proportion of all economic transactions. The essential issue is that the dominant virtual medium is television and is likely to remain so for a long time, so that adaptations of this technology to the demands of e-commerce are more likely to generate longer-term benefits and greater market access. There is also a tendency to conflate goods and services that can be downloaded via a modem, for example software and music, with more physical goods that have to be delivered to the home or pick-up point. In other words, there is as much variability in e-commerce transactions as there is in conventional ones.

Examples of B2C include Amazon.com, the on-line retailer of books, music and games. Amazon started achieving profitability ($5 million) only in the last quarter of 2001 after having invested $3 billion in its short life, much of which has been spent establishing itself as an on-line brand and creating a fulfillment system. The disadvantage for many B2C companies dealing in tangible goods is the lack of a distribution system that is reliable and economically efficient. These firms to date have difficulty in obtaining the economies of scale and scope derived by large retail outlets in conventional shopping malls.

Much of B2B activity is associated with the operation and management of supply chains. Advances in information and communications technology (ICT) have facilitated the development of real-time supply chains, that is, orders for goods and services that are activated immediately. For example, the Ford Motor Company had proposed to link its suppliers of car parts to Ford's production sites through their Web sites so that adjustments in demand for parts could occur instantaneously. However, rather like Just-in-Time (JIT) inventory systems, instantaneous delivery of large items of inventory from anywhere on the globe was not realizable owing to size and cost restraints. The technology does speed up the turnover time of production through instant receipt and processing of orders. What these changes produce is an electronic continuum along which supply chains find themselves in terms of the two types of flow:

• those which use electronic mediation to organize their supply chains, but whose tangible goods require physical transportation, and whose payment is handled using traditional inter-company means;

• products whose entire supply chain can be mediated by electronic means, in terms of product, payment and its mediation. So digital artefacts, for example computer programs can be developed, and then searched for, ordered, invoiced, paid for and delivered to customers using wholly electronic means.

Chaffey's taxonomy includes other less well cited e-commerce models such as C2C and C2B. Consumer-to-Consumer (C2C) implies the sale of goods and services between individuals, often via auction sites such as eBay. Consumer-to-Business (C2B) implies individuals selling goods and services to companies. Examples include the sale of cars by individuals to companies. Conceptually in these cases, it is difficult to define who is the consumer and who is the producer. By definition, a consumer does not sell. Such models persist even though the semantic irregularities demand otherwise, partly because no better descriptions currently exist, and that these are part of marketing strategies and ploys by particular companies.

A more concrete model is Business-to-Public Institution, or, more commonly in the United Kingdom, Business-to-Government (B2G). This relates to the trade in goods and services between the private sector and different forms of government, whether local, regional or national. This particular description is gaining greater resonance as governments in the advanced economies seek to promote the concept of e-Government. A final model is the User-to-User or Peer-to-Peer, which is styled P2P. This implies a relationship between two individuals that is electronically mediated but not via any central body. Freenet is an example of a network that promotes the digital exchange of music artefacts on a P2P basis.

Text 2. The business environment for E-commerce

By the middle of 2001 the business revolution promised by the 'new economy' and the functions of the Internet had come to naught. The promise of a new business model based on e-commerce or e-business (as the term has been used interchangeably) failed to deliver as the dotcom phenomenon imploded into that of the dot-bomb. S. Caulkin, management correspondent for the Observer, described it as follows: 'So, farewell then death of the business cycle, the end of inflation and

above all the myth of the New Economy: slain by revisions to US figures that show that, far from lifting the economy permanently to the sunny uplands of unending productivity growth, the great Internet binge has given us levels of improvement that haven't been seen since 1930s'.

This quotation brings to mind the cultural revolution promised by punk in the mid-1970s. According to the then manager of the infamous Sex Pistols, Malcolm McClaren, punk would sweep away all hitherto popular culture into the dustbin of history as it represented a new Situationist adventure. In reality, punk was a speeded-up version of good old rock 'n' roll and ironically corresponds to the Pistols' most famous album, Never Mind the Bollocks. Similarly, the Internet, instead of promising a business revolution, speeds up the rate of transactions rather than their primary nature. Never Mind the Bollocks seems to be making a comeback, nearly thirty years on, but in a different guise.

Where did it all go wrong? Why hasn't the move 'from capitalism to knowledge society', as in the essay title by the management theorist P. Drucker, become our everyday reality? According to P. Drucker, economic history can be divided into three eras:

• The industrial revolution. From the late eighteenth century onwards, knowledge was applied to tools, processes and products.

• The productivity revolution. From 1880 until World War II, knowledge was applied to work.

• The management revolution. From World War II onwards, knowledge applied to knowledge itself.

For P. Drucker, we now effectively live in a 'knowledge society'. For other contemporary theorists we inhabit 'the information society' in which the 'spirit of informationalism' drives all economic and social transactions. There are concepts derived from the same root: the 'weightless economy', the 'thin economy' and the 'weightless society' and the 'death of distance'. The factor common to all these conceptions is the role of technology. In fact, all these accounts can be said to be technologically determinist, that is, it is the technology that is transforming economy and society, rather than the business processes to which technology is put to use. In P. Drucker's account, technology and the invention of calculating machines, in particular the computer, are central to the progress of society through the three revolutions outlined above. Traditional factors of production — land, capital and labour — have become secondary to knowledge. As long as there is specialized knowledge these factors can be obtained. In this view, company transactions become weightless. For example, the value of Coca-cola is tied not to the value of production of a fizzy drink, but the power the brand exercises in the market place.

A more salutary account is given by R. Schiller in his book 'Irrational Exuberance on Stock Market Volatility'. He compares the building of the interstate highway system in the United States between 1956 and 1976 and the Internet as innovations. He argues that the Internet is 'notable for its visibility and vividness, and not unprecedented prospects for promoting economic growth and profits'. The interstate and Internet are both network innovations. The former transformed the economic geography of the United States, promoting lower transport costs, greater market access, outward mobility into the suburbs and the rise of the local shopping

mall. R. Schiller notes that while the Internet offers a wider selection and a greater ability to search, the delivery of goods is not immediate. Consequently, Internet marketing may not be superior to the marketing of the conventional shopping malls.

The Internet remains part of the long march of creating innovations, but like all technology it is the nature of human inventiveness that makes them beneficial. The period of building the interstate system coincides with an annual average 1.6 per cent growth in real earnings on the Standard & Poor's 500 index of the financial performance of the top 500 US companies. Despite the enormous impact of the interstate on the economic geography of the United States why were these earnings not higher? The answer according to R. Schiller was that the interstate system was just another innovation along the path of inventiveness. Similarly, evidence from McKinsey & Co., the international consultancy, shows that the impact of new technology, including the Internet, on productivity in the United States in the late 1990s was much less than was believed at the time.

The relationship between technological change, economic growth, increased productivity and profits is much more complex and indirect than the easy direct relationship suggested by some popular commentators. In the past decade the service sector has been in the forefront of investment in new technologies in the advanced economies. The benefits of these investments, however, have been decidedly uncertain.

Over the past decade senior managers in banking, insurance, health care, and other services have invested billions of dollars in computers and communications equipment — technology investments that promise to hone operations into an acute competitive weapon. But executives have been deluded: the payoffs have not been fully realized. The primary reason is that technology alone does not determine corporate performance and profitability. Employee skills and capabilities play a large role, as do the structure of day-to-day operations and the company's policies and procedures. In addition, an organisation must be flexible enough to respond to an increasingly dynamic environment. And products must meet customer requirements.

These observations act as a health warning to the business environment for e-commerce. This warning is not posted to suggest that Internet-based transactions will fail to deliver material benefits to producers and consumers alike. Rather, they act to signpost the difficulties associated with claims that we now live in a new business, economic and social order.

Text 3. The technical environment for e-commerce

Many of the claims for a significant break with the past stem from the more sceptical accounts of post-industrialism and the information-based economy, for example by the sociologist D. Bell. Other more enthusiastic and technologically determinist accounts include those of the futurologist Alvin Toffler, who coined the phrase 'Third Wave' to imply an impending information revolution. What they share is the prediction and formulation of the concept of an 'information society'. The problem for commentators like Bell and Toffler was an inability to predict the physical agency that would bring the 'information society' to fruition. This agency was the Internet.

The Internet began life in 1969 as a demonstration project linking up four university campuses in the United States. It showed how a primitive file-sharing system worked. Today the Internet boasts in excess of 300 million users, offering the

most rapid take-up of any technology in history. For a relatively small outlay on a computer, a suitable telecommunications link (e.g. via a phone line and modem) and an on-line account provided by an internet service provider, individuals located across the globe can access this massive network which has grown at an exponential rate. The network — the Internet — hooks up the physical infrastructure of computers via cable and wireless links so that users can access rich informational sources (e.g. via the Web) and use interactive forms of communication (e.g. e-mail). However, though the population of Internet users across the globe has grown exponentially, their dispersal is not uniform internationally. The relative density of hosts across the globe is variable. It may be unsurprising to note that the higher concentrations of users are in North America and Europe.

Levels of computers and data services can be shown by measuring Internet access. Network Wizards provide a longitudinal study of the growth of Internet nodes (computers with unique 'Internet Protocol' (IP) addresses) from the network's earliest days. Growth between 1980 and 1987 shows numbers of hosts in the tens of thousands. After 1987, when the US funding body NSF (National Science Foundation) started to work with the Internet, the growth leapt into the hundreds of thousands: many non-US academic sites and scientific and research bodies linked up at this point. The next pulse of acceleration of this growth came when the World Wide Web appeared in 1990. Rapid growth rates ensued, especially after 1993, when the graphical browser called Mosaic appeared, and the scale of change moved into the millions. From an almost unknown medium at the beginning of the 1990s, the Internet by the year 2000 was heading for 100 million hosts (i.e. unique computers linked up) across the world. Gartzen estimates that in broad terms the number of users is due to grow from around 300 million in 2001 to around 1 billion in 2005.

In addition to these fixed hosts that link individual desktop computers to the Internet there will be mobile hosts linking up mobile phones to it using wireless technology. In predictions offered in May 2001, phones labelled as 'Third Generation' (3G) in Gartzen's 'ball park' are due to amount to 1 billion by 2005. This potential rapidity of the Internet's growth creates problems for its continued deployment. Notwithstanding the assumptions underlying these forecasts, even the current global downturn does not detract from the problems associated with the growth of Internet usage. This issue will become sharper if the 'digital divide' is not overcome, i.e. between countries that are hardly wired, as in the developing world, and those with maturing virtual infrastructure, for example in the advanced economies.

The Internet — an interconnected series of networks — began life as a project supported by the US Department of Defense's Advanced Research Project Agency (ARPA). Based on an original concept (the use of a multi-nodal network) developed by the Rand Corporation in the early 1960s and added to by bodies such as the UK National Physical Laboratory (which had developed packet switching ideas), the objective of the research was to provide the United States with a communications network that would survive in the event of a nuclear conflagration. This product of the Cold War was a network purposely designed to offer resilience during a hot war of massive destruction such that it would continue to function whilst 'in tatters'.

Up to this time, network paradigms had offered a central node by which messages could be routed (on a circuit-switched basis). A paradigm is defined as a set

of theories, concepts, methodologies and practices usually associated with particular forms of knowledge. For example, the natural sciences and social sciences have complementary but sometimes opposing paradigms. So the implication was that if this one central node were to be destroyed, then communications on a continent-wide US basis would have been impossible. In order to circumvent such an emergency, the need was established for a network whose technical architecture was based on multiple nodes, and whose messages could be distributed as packets of data. As long as every computer linked to the network could be uniquely identified, then messages broken up into packets (each with a header detailing message destination and source) could be routed across the network via diverse nodes and could be reassembled at the destination computer. In-built system resilience meant that if elements of a message were not present for reassembly (identified through gaps in packet sequences), an automatic request would be generated for retransmission. The events of 11 September demonstrated the robust nature of the Internet: where fixed and mobile telephony failed to function in parts of Manhattan after the deadly attacks on the World Trade Center, e-mail continued to get through.

One notable feature of the Internet's tremendous growth is based on the fact that core software elements were given away by suppliers for free. Mosaic — the first graphical browser — was distributed via the Internet and magazine CD-ROMs to all who wanted to use it at no charge. Its authors (who worked at a university department in Illinois) received no royalties for this work. In the same manner, the underlying software operating system of the Internet — TCP/IP — was also available free to anybody who could hook up to the Internet. TCP/IP is a set of protocols or technical definitions, developed by Vinton Cerf, which, when rolled out across a number of networks in 1983, allowed their inter-linkage and the coining of the term 'Internet'. TCP (Transfer Control Protocol) and IP (Internet Protocol) handle packet disassembly/reassembly and computer addressing respectively.

Central to the development of the Internet is the root democracy. The ARPAnet was developed for operation under cataclysmic conditions, whatever remnant nodes that existed on a network were required to function. One way of helping to maximize success was to keep any processing tasks as simple as possible. So once the interrogation of a packet's destination is adduced, a routing computer does little more than pass it on. At root, therefore, the Internet evinces 'packet switching democracy': all packets are equal under TCP/IP. In the event of a network disruption, therefore, all packets would be delayed equally.

This inherent lack of packet prioritization has significance for any time-critical or contiguous operations, and thus the efficacy of the Internet can be called into question, not least by commercial interests. This treatment of message packets is defined by the IP protocol in its fourth version (known as IPv4). Though a new version, IPv6, allows packet prioritization, it is not yet pervasive. For some commercial interests, delay in introducing this prioritization will be significant, and ultimately have an impact on the growth of e-commerce.

While TCP/IP has provided the 'glue' of the Internet, until 1993 it was mainly the preserve of a 'high priesthood' of academics and scientists who used detailed knowledge of protocols to exploit Internet applications. Only with the emergence of the World Wide Web — or 'the Web' — did individuals with little knowledge of such protocols manage to participate in this electronic medium. Initially the Web was text-based only.

The relative simplicity with which new users can hook up to the Internet, given telecoms access, has meant its vast and dispersed take-up, such that demand peaks can lead to network congestion and the so-called 'World Wide Wait'. Innate human perception of delays in response times means that 'waiting' for more than a second can be intolerable for some. Nevertheless, the response of suppliers has not been slow, as the vast investments in Internet connectivity make clear. However, the very success that the Internet enjoyed in its rapid take-up led to so much conceptual and financial hyperbole during the late 1990s that speculative activities intended to reap vast profits from vast investments reaped vast losses instead.

On so much technical configuration does human response lie. If nothing else, the dotcom crash had the effect of sharpening the eye for the detail of the Internet's case. In a fundamental degree that case is shaped by technical protocols. Where once the examination of such arcane documents may have been the preserve of technical departments, now they are examined in boardrooms. Many are aware that technical protocols govern the way they undertake business, and that tiny changes to protocols, for example, can have disproportionate effects on business prospects. The ability to influence the technical standards of Internet technologies is therefore to permit some control over financial destinies.

Text 4. Measuring e-commerce

Measuring the value of electronically mediated business has become an important activity in its own right. Fraught with difficulty, it is one which has to date produced wide divergences in terms of predictions, many of them prepared by those with a material interest in promoting e-commerce and e-business. It is also one where the danger of double counting is most frequently encountered. One source of data is the University of Texas at Austin, where they identify four levels of the 'Internet economy':

• Layer 1: The Internet infrastructure layer. This includes trade in products and services that provide for the electronic infrastructure. It encompasses Internet backbone providers (e.g. Nortel Networks), Internet service providers (e.g. AOL), networking hardware and software (e.g. Cisco), PC and server manufacturers (e.g. Dell), security vendors (e.g. Norton) and fibre optic manufacturers (e.g. Corning).

• Layer 2: The Internet applications layer. This includes products and services that build upon the infrastructure layer and make it technologically feasible to undertake business activities online. Categories include all software applications such as browser and server software (e.g. Netscape, Microsoft), multimedia (e.g. Macromedia), Web building (e.g. Adobe), search engines (e.g. Google), databases (e.g. Oracle), on-line training (e.g. Assymetrix, ilearn.to) and consultancy (e.g. Scient).

• Layer 3: The Internet intermediary layer. Internet intermediaries seek to increase the efficiency of electronic markets by facilitating the meeting of buyers and sellers and their interaction. Categories include Web portals (e.g. Yahoo), brokerages (e.g. Schwab), content aggregators (e.g. ZDNet), market makers (e.g. IFX) and online advertising brokers (e.g. Doubleclick).

• Layer 4: The Internet commerce layer. This layer concentrates on Web-based commerce transactions. It includes the new 'e-tailers' (e.g. Amazon.com), manufacturers (e.g. Dell), fee/subscription-based providers (e.g. Forrester) and online entertainment (e.g. AOL Time Warner) and professional services (e.g. KPMG).

This is a useful approach to measuring the Internet economy. The difficulty is untangling what is attributable to the 'new economy' and what is attributable to the 'old economy'. In fact, this example is as problematic as trying to separate out manufacturing from services: a common mistake among politicians and journalists.

There is also a problem of double counting. In national income accounting, each successive stage of production adds value to the previous stage. For example, coal is mined and then sold to make steel. Steel is made from the combination of coal, iron ore and lime. Steel is used in the production of, say, beams for buildings, which are manufactured and then sold to construction companies to be used in buildings which are then sold or leased to clients. At each stage in the production value is added. The value of the coal, iron ore and lime is added to the net increase in value of the steel, what it is sold at less the cost of the material inputs. The value of the steel beams less the cost of the steel inputs is then added and finally the value of the buildings less the cost of the steel beams is added to produce final national income made up of the value added at each production stage. This method avoids double counting and it is this kind of approach that should be used in measuring the value of the Internet economy, notwithstanding the general problem of disentangling conventional economic transactions from those associated with the Internet.

Although the taxonomy is a useful way to think about measuring the 'Internet economy', the latest research shows that the contribution of B2B and B2C to national income was very small in 1999, just before the peak of the so-called productivity miracle in the United States. The significant slowdown from the end of 2000 and subsequent recession in the United States, the fall-out from dot-bomb phenomena and events after 11 September 2001 show that the brave new world of the virtual economy was as susceptible to the business cycle and political shocks as the so-called old economy. In the words of Public Enemy, the US rap band, 'Don't believe the hype.'

Text 5. Drivers and barriers for e-commerce

The principal driver for the take up of e-commerce is economic. If we accept what corporate forecasters such as Forrester and IDC predict, then more than 80 per cent of the growth of electronically mediated trade in the period 1999 – 2004 will be via B2B e-commerce. At root, this take-up is driven by transaction costs. As an example, banks feel that the cost of processing a financial transaction via the Web can be as little as 1 per cent of that performed at a branch using traditional paper methods. So once fixed costs such as equipment and telecommunication lines are found, the marginal cost of servicing transactions on the Web can be very low.

For a relatively small outlay, companies and individuals can hook up to the Web and access sites that are dispersed across the globe. This fact has contributed to an explosion of infrastructural and service provision on the Internet and prompted many commentators to enthuse about the potential it holds for the traditional economics of location. F. Cairncross, for example, asserts that the communications revolution removes geographical boundaries to trade: 'No longer will location be key to most business decisions. Companies will locate any screen-based activity anywhere on the Earth, wherever they can find the best bargain of skills and productivity.'

However, though the Internet can facilitate market growth for individual companies, commentators point to more complex factors at work in terms of location. Pratt cites New York's 'Silicon Alley' as a cluster of software developers that could locate in a disaggregated manner if they wished but choose to retain close physical proximity. Whatever the reasons for this and the nature of the particular business function, it suggests that commentators such as F. Cairncross are ignoring the potential value of social interaction and informal face-to-face networks that clustering might imply. In the case of the City of London, Europe's largest financial centre, large international financial institutions, law and accounting firms and business services providers seek to locate in close proximity.

The underlying logic is associated with external versions of economies of scale and scope, i.e. the ability to explore large and different transactions in the same place. Other key factors are the ability to easily recruit specialist labour, access to informational and transport infrastructure and, perhaps more important, the development and sustaining of a powerful innovation environment in which new financial products are developed. R. Sennett, the American sociologist, has pointed out that in an apparently global era, the leading international economic and business activities are still crowding into the world's major cities. Whatever the claims made for an imagined virtual future, place still matters to business and society.

The cost of computing power has declined over the past thirty years to such an extent that claims are made that the power of the multi-million-dollar mainframes supporting the Apollo mission to the Moon at the end of the 1960s can now be contained within a desktop computer costing less than $1,000. The precipitous increase in the power of 'microchips' has followed a pattern first predicted by G. Moore, a co-founder of Intel, in 1965. 'Moore's law' reckoned that the power of chips would double at intervals of every eighteen months to two years.

The effect has been that, in relative terms, the cost of ICT is now so low and its power so great that companies have little financial reason to avoid taking up Web-mediated business if they so wish. Once installed, all that a user needs is an account with an Internet service provider (ISP). At the height of the dotcom boom, there were hundreds of ISPs on the UK market offering access to the Internet, and pricing reflected their relative quality of service.

Unit 3. E-business Tools: Business Applications

Text 1. E-business systems

There are as many ways to use information technology in business as there are business activities to be performed, business problems to be solved, and business opportunities to be pursued. A business professional should have a basic understanding and appreciation of the major ways information systems are used to support each of the functions of business that must be accomplished in any company that wants to succeed.

A business professional should have a specific understanding of how information systems affect a particular business function (e.g., marketing) or a particular industry (e.g. banking) that is directly related to his/her career objectives. For example, someone whose career objective is a marketing position in banking

should have a basic understanding of how information systems are used in banking and how they support the marketing activities of banks and other firms.

Information systems can be grouped into business function categories. Information systems can be analyzed according to the business function they support by looking at a few key examples in each functional area. This should give you an appreciation of the variety of functional business systems that both small and large business firms may use.

Marketing Systems. The business function of marketing is concerned with the planning, promotion, and sale of existing products in existing markets, and the development of new products and new markets to better attract and serve present and potential customers. Marketing performs a vital function in the operation of business enterprise. Business firms have increasingly turned to information technology to help them perform vital marketing functions in the face of the rapid changes of today's environment.

M*arketing information systems* provide information technologies that support major components of the marketing function. For example, Internet/intranet websites and service make an interactive marketing process possible where customers can become partners in creating, marketing, purchasing, and improving products and services.

Sales force automation systems to use mobile computing and internet technologies to automate many information processing activities for sales support and management. Other marketing information systems assist marketing managers in customer relationship management, product planning, pricing, and other production management decisions, advertising, sales promotion, and targeted marketing strategies, and market research and forecasting.

Human Resource Systems. The human resource management (HRM) function involves the recruitment, placement, evaluation, compensation, and development of the employees of an organization. The goal of human resource management is the effective and efficient use of human resources of a company. Human resources information systems are designed to support a) planning to meet the personal needs of the business, b) development of employees to their full potential, c) control of all personnel policies and programs.

Originally, businesses used computer based information systems to 1) produce paychecks and payroll reports, 2) maintain personnel records and 3) analyze the use of personnel in business operations.

Many firms have gone beyond these traditional personnel management functions and have developed human resource information systems (HRIS) that also support a) recruitment, selection, and hiring, b) job placement, c) performance appraisals, d) employee benefit analysis, e) training and development and f) health, safety, and security.

Financial Management Systems. Computer based financial management systems support business managers and professionals in decision concerning a) the financing of a business and b) the allocation and control of financial resources within a business.

Major financial management system categories include cash and investment management, capital budgeting, financial forecasting, and functional planning.

For example, the capital budgeting process involves evaluating the profitability and financial impact of proposed capital expenditures. Long-term expenditure proposals for facilities and equipment can be analyzed using a variety of return on investment (ROI) evaluation techniques. This application makes heavy use of spreadsheet models that incorporate present value analysis of expected cash flows and probability analysis of risk to determine the optimum mix of capital projects for a business.

Financial analysts also typically use electronic spreadsheets and other financial planning software to evaluate the present and projected financial performance of a business. They also help determine the financing needs of a business and analyze alternative methods of financing.

Financing analysts use financial forecasts concerning the economic situation, business operations, types of financing available, interest rates, and stock and bond prices to develop an optimal financing plan for the business. Electronic spreadsheet packages, DSS software, and Web-based groupware can be used to build and manipulate financial models.

Manufacturing Systems. Manufacturing information systems support the production/operations function that includes all activities concerned with the planning and control of the processes producing goods and services. Thus, the production/operations function is concerned with the management of the operational processes and systems of all business firms. Information systems used for operations management and transaction processing support all firms that must plan, monitor, and control inventories, purchases, and the flow of goods and services. Therefore, firms such as transportation companies, wholesalers, retailers, financial institutions, and service companies must use production/operations information systems to plan and control their operations.

Cross Functional Enterprise Applications. Many companies today are using information technology to develop integrated cross-functional enterprise systems that cross the boundaries of traditional business functions in order to reengineer and improve vital business processes all across the enterprise. These organizations view cross-functional enterprise systems as a strategic way to use IT to share information resource and improve the efficiency and effectiveness of business processes, and develop strategic relationships with customers, suppliers, and business partners.

Enterprise Application Architecture. An enterprise application architecture, which illustrates the inter-relationships of the major cross-functional enterprise applications that many companies have or are installing today. This architecture does not provide a detailed or exhaustive application blueprint, but provides a conceptual framework to help you visualize the basic components, processes, and interfaces of these major e-business applications, and their inter-relationships to each other. This application architecture also spotlights the roles these business systems play in supporting the customers, suppliers, partners, and employees. Instead of concentrating on traditional business functions, or only supporting the internal business processes of a company, enterprise applications are focused on accomplishing fundamental business processes in concert with a company's customer, supplier, partner, and employee stakeholders.

Enterprise resource planning (ERP) concentrates on the efficiency of a firm's internal production, distribution, and financial processes. Customer relationship management (CRM) focuses on acquiring and retaining profitable customers via marketing, sales, and service processes. Partner relationship management (PRM)

aims at acquiring and retaining partners who can enhance the selling and distribution of a firm's products and services. Supply chain management (SCM) focuses on developing the most efficient and effective sourcing and procurement processes with suppliers for the products and services needed by a business. Knowledge management (KM) applications focus on providing a firm's employees with tools that support group collaboration and decision support.

To provide a fast and effective ordering and delivery process to their customers, companies like IBM and Apple have turned their expertise and the technology inward. The result is an example of an enterprise system. An enterprise e-business system requires end-to-end connectivity across all of the different processes, from the company's legacy systems to the outer reaches of its suppliers, customers, and partners.

In the personal computing world, customers want a system configured exactly the way they want it, and they want it as fast as possible. To accommodate these market pressures, PC manufacturers are developing and implementing configure-to-order enterprise systems. A customer in Europe can configure a personal computer on IBM's website and get real-time availability and order confirmation. While this seems simple enough, to make this action possible it took a team of analysts and programmers and hundreds of man-years of effort to develop the myriad business processes and systems that need to work together.

Here's what happens when a European customer places an order with IBM. The other travels to IBM fulfillment engine located in the United Kingdom; its e-commerce engine located in Colorado, USA; its ERP and production management systems located in North Carolina, USA; its sales reporting system located in Connecticut, USA; its product database located in New York; and back to the customer's browser in Europe. Every system updates its status and communicates with every other system in real time. And each order placed in Europe zips across the Atlantic an average of four times. In its journey, it touches dozens of geographical units, legacy systems, and databases strewn across the globe.

Enterprise Collaboration Systems. Enterprise Collaboration Systems (ECS) are cross-functional information systems that enhance communication, coordination, and collaboration among the members of business teams and workgroups. Information technology, especially Internet technologies, provides tools to help us collaborate — to communicate ideas, share resources, and coordinate our competitive work efforts as members of the many formal and informal process and project teams and workgroups that make up many of today's organizations. The goal of enterprise collaboration systems is to enable us to work together more easily and effectively by helping us to *a) communicate* – sharing information with each other, *b) coordinate* – coordinating our individual work efforts and use of resources with each other, *c) collaborate* – working together cooperatively on joint projects and assignments.

For example, engineers, business specialists, and external consultants may form a virtual team for a project. The team may rely on intranets and extranets to collaborate via e-mail, videoconferencing, discussion forums, and a multimedia database of work-in-progress information at a project website. The enterprise collaboration system may use PC workstations networked to a variety of servers on which project, cooperate, and other databases are stored. In addition, network servers may provide a variety of software resources, such as Web browsers, groupware, and application packages, to assist the team's collaboration until the project is completed.

Text 2. Architecture of e-commerce systems

The buying and selling of products and services over the Internet is termed 'online trading'. Online trading or e-commerce is important to businesses because it provides a flexible source of trading with customers, and with business partners. To enable online trading, companies need to combine existing computerized transaction processing systems and information systems with Internet and Web technology. Existing computerized systems, databases, and Internet and Web technology are the basic components of online trading and form the architecture of e-commerce systems. Computer system architecture consists of hardware and software components that are configured in terms of the needs of organizations.

Companies connect computers to a LAN, WAN and the Internet, using TCP/IP, based on *client – server* architecture, to share computer software, printers or scanners. Basic Internet tools such as e-mail, browsers, search engines and protocols such as file transfer protocol (FTP) and Telnet are combined to form the system architecture for e-commerce.

The systems architecture for a company will depend on its trading activities. A retail company will have a different architecture from a manufacturing company or a service company. As a company changes and evolves its mission or objectives, its e-commerce system architecture will need to change too. Alternatively, the stimulus to change may come from competitors who use the most modern e-commerce technology.

Internet, e-Commerce systems and information systems. Some of the terms used to describe a company's involvement with the Internet are that it has 'an online presence' or it has 'a Web site'. Such terms hide the complex IT and IS that form the infrastructure that underpin e-commerce systems.

An information system is the application of a computer to capture and process data to provide information for managers and executives for the purposes of decision making and management. A company will normally have various information systems, such as an airline reservation system or an inventory control system. These systems will be linked to a corporate database that stores relevant data, like product or customer details. A company's Web site is connected to such information systems and databases to provide the essential product or service information for customer and employee use.

Companies' existing client–server technology and its IS/IT infrastructure is connected to the Internet to form part of an e-commerce architecture. The e-commerce architecture is based on a company's business model, consisting of the basic logic of what it wants to produce or sell, how it will market it, how it defines its customers and other fundamental business issues. IT is combined with Internet technology to enable a company to personalize its service to a customer.

Databases. A computer database consists of records on specific items of interest, for example customers' contact details or the products they have bought. It is a collection of data that can be queried for specific purposes such as targeting a particular customer for certain products. Databases are used to market products and services. This is termed database marketing. Databases are used to store data on the purchasing habits of customers and enable a company to develop a tailored relationship with its customers. The data are then processed to provide tailored information on individual customers' preferences that are then sent, information about

products or services relevant to their current buying habits. Data-mining techniques are used to reprocess existing data in databases to extract previously unrealized information of potential commercial use.

E-commerce systems and the customer. E-commerce systems that interface with the customer need to be pragmatic. The selection and evaluation of Internet technology need to be appropriate to both the company's needs and the customer's ability to use the system. A good business model will assume that the customer has little interest in technology and avoid the technology trap.

Avoiding the technology trap. It is not user-friendly to use over-complex Internet and Web technology in e-commerce systems. The technology needs to be appropriate to prevent prolonging the time it takes for customers' commands to be executed by the system.

Web site evaluation software. It is possible to measure the popularity of a company's Web site using evaluation software that generates log files. Such log files record the number of visitors to the site or page impressions. They record which parts of the Web site are most popular, the times of the day people visit, record which search engines are being used by visitors and how long they spend on the site, known as the 'stickiness' of the site. These log files can subsequently be used to evaluate the performance of the site from a business perspective and the information can be used to make it easier for customers to make transactions.

Internet service providers. A company wanting to trade over the Internet has to agree a contract with an Internet service provider (ISP). ISPs provide communication and hosting services for individuals and companies wanting to access the Internet.

ISPs provide access to the Internet and enable Internet commerce by connecting individuals and companies to the Internet. There are thousands of ISPs that a company can choose from, all of them providing domain name services and electronic mail. The two most popular ISPs are UUNET Technologies and AT&T World Net. Other organizations, like a bank with mainframe computers, may also act as an ISP.

ISPs also provide hosting services for Web sites by installing and operating the server computers and software for a company. The computers and software are located at the ISP's site. Transaction services such as payment systems or order capture and fulfillment are also provided by ISPs.

Example of e-commerce architecture. The important considerations for designing e-commerce architecture are the customer, the company, the company's existing information systems and how payment will be made. For example, a company with a Web site that includes an order form would need a Web server that can provide a catalogue, whose details would be retrieved from a catalogue database, and order form. It would need to interface with an existing database to collect and record the order details entered by the customer. The payment might be transacted with a credit card whose details would be captured on the order form utilizing standard security features available on the Web.

E-commerce security technology. The success of e-commerce depends on the security of data like personal details and credit card numbers transmitted over the Internet. The domain name system Internet protocol that makes IP addresses readable by humans is insecure. Security measures need to be taken in e-commerce systems to prevent compromising the systems. Some of these measures include building firewalls, incorporating cryptography and authentication, and using secure connections.

Firewall. A firewall is hardware and software that are used to secure a private computer network system from uninvited intruders. A firewall is used to control whether a client is permitted to connect to the private network it protects.

Cryptography. Cryptography is a science that provides secure communication over vulnerable channels. Cryptography is fundamental to the success of the Internet and e-commerce. Governments regulate cryptographic technology because of its importance to national security.

In cryptography a message, like a credit card number, is encrypted using a key and the encrypted message is transmitted. The receiver uses the key to decrypt the message and convert it back to its original form. The basic elements of a cryptographic system are algorithms, protocols and key management. An example of key management is the secret-key encryption algorithms. These algorithms are 'secret' because only the receiver and sender know the secret key.

Cryptography is used to provide secure transmission of data over the Internet. Private data like credit card details or digital signatures are encrypted and then transmitted over the Internet. Cryptography can keep a message secret and act as a gateway for identifying senders and receivers. It provides the secure electronic transaction technology for credit card transactions on the Internet.

Authentication. Authentication procedures are used to establish the identity of an individual or another computer system. Authentication procedures can be hardware- or software-based. Authentication procedures make use of personal items of knowledge or possession such as secret names or birth dates. Good authentication systems make use of two-factor authentication, such as a place name and memorable date known to the user. Some banking systems make use of three-factor authentication before allowing customers to make online account transfers.

Secure socket layer. The secure socket layer (SSL) is a layer of security between the application and the transport protocol. The purpose of SSL is to enable secure and reliable data transmission and communication over the Internet. The SSL provides private connection, making use of encryption and secret-key cryptography. Authentication in SSL is achieved using public key cryptography, which consists of a private key that is never made public chosen by one participant in the data exchange, and a public key chosen by the other participant in the exchange. Either key may be used for encryption. Reliability of data transmission is achieved by using secure hash functions like SHA or MD5. Secure hash functions check the integrity of a message. SSL is commonly used in e-commerce systems.

Text 3 Using marketing databases in e-business

A database may be defined as a comprehensive collection of interrelated data, which can be accurately manipulated or retrieved. A marketing database will typically contain details of customers and the transactional or behavioural histories associated with those customers and can benefit all the elements of the marketing mix, whether in broadcast or direct communications or in sales promotion or PR.

There is a role for the database in supporting advertising, market research, product development, sales force management and motivation and sales promotion.

Hence the concept of Database Marketing should not be confused with Direct Marketing, nor should it be considered a medium in itself, competing with others in the marketing mix, but rather as a tool to improve performance, efficiency and effectiveness in marketing communications.

The marketing database helps develop a clear, actionable understanding of customers and develop a dialogue that ideally should always be relevant, timely and focused on qualified opportunities.

Database Marketing of the 1980s and 1990s strove for one-to-one relationships and its success has been commendable within the context of the available techniques. New concepts, tools and expertise will now help deliver an outcome that is closer to the vision. The increased awareness and availability of data within organizations has coincided with the appearance of new, intuitive data analysis tools. This combination allows the derivation of information and interpretation of trends within time frames conducive to achieving the required dynamics.

As companies seek to integrate their suppliers, their customers and their marketing partners in complex relationship structures, new quantities of data are becoming accessible for exchange and sharing and the value of the data as a corporate asset is increasing. The existence and growth of the World Wide Web and the increasing exponents of the medium have implications on both sides of the data-driven communications equation. On the one hand, the Web provides a novel, exciting and convenient medium for delivering a message to customers and prospective customers. On the other, it presents a channel for data collection that makes possible concepts that were only hypothetical in the past.

Data are things that are given, facts that when combined with other facts can constitute information. Jenkinson (1995) identified four types of explicit data, referred to as Primary Research, Secondary, Performance and External. Whilst these types remain valid, some broadening of the definitions is required to gain a better understanding of how they link and are complementary:

• *Basic data*. Rather than being just primary research data received directly from the customer, basic data may be viewed generically as the most fundamental elements, acquired usually as part of a standard business process. These will include a customer's name and address, e-mail address, definitions of the company's products or services, its URL, pricing, campaign definitions, branches and channels of distribution, sales force or dealer network.

• *Qualifying data*. Qualifying data are data from any source that in any way add description to the basic data. For example, a company may wish to collect the demographics of its customers (age, sex, income, occupation), their lifestyle information or geographical profiles.

• *Behavioural or transactional data*. These are data that record how customers have reacted, what they have bought or enquired about and all the transactional information a company may hold.

• *Externally sourced data*. External data cover everything that augments, qualifies or enhances the basic data that are acquired from outside the business and outside the relationship with customers or suppliers. For example, companies may rent or buy lists of prospects to add to their database or may acquire additional data to enhance their existing records such as correcting the postcode or adding qualifying data elements.

There is a fifth type of data. It is not explicit but is known as tacit data. These are data that are normally held in the minds of the people using the database. The data represent their understanding of their relationship with their customers or suppliers; they are the low-level view acquired through experience or local knowledge and are intuitive, intimate and topical. Their inclusion enables the explicit data to be put into context and interpreted and helps convert information into manageable knowledge, itself a combination of data and information-processing technology with human creativity and innovation.

There are a variety of methods for acquiring data into the business. Some are a function of the business processes such as completing a sale or taking an enquiry. Others may be contrived tactics with the main objective of collecting a particular item of data for the database. Essentially, data can be acquired from six types of source: (1) leveraging current business processes, (2) tactical activity, (3) purchase lists, (4) marketing partners, (5) enhancement from external sources, (6) business information vendors.

Other data elements

Some data elements may be 'organically generated' within the database. Such data are referred to as derived data and may be acquired as a result of analysis or applying specific calculations. A simple example may be the automatic calculation of customers' age from their date of birth or the creation of banded values such as age groups (twenty-one to thirty-five, fifty-plus, etc.) from discrete personal data. More complex algorithms can be applied to generate scores or propensity quotients that can be used as additional selection or segmentation criteria.

There is overhead attached to holding data in terms of storage, disk space and the implication on hardware and software. There is also a management overhead — the greater the amount of data held, the more management time will be required in data checking, handling data problems and administering the database. There is also a data protection implication: are you acquiring and holding data that really you have no use for and should not be collecting as it is irrelevant to your business?

Data quality

The value of the data in the database will relate directly to its quality and integrity. It is possible to achieve meaningful results without sophisticated modelling, so long as you have high-quality, robust and reliable data. The better the quality of the data, the more reliable the answers will be to queries run against the database.

Validation processes help with quality and integrity, making sure that the data being added to the database is valid. Business rules manage the validation process, and reference tables ensure conformity and adherence to standards and should be applied in all aspects of data acquisition and use. When designing a data capture device, like an entry form or application screen on a Web site, or when capturing data either using in-house data entry resources or an external data punching bureau, the brief should be the same, with all referring to the same set of rules.

The analytical or selectivity applications of the database rely on conformity, hence the table of references ensures that only values within the predetermined set may be entered into the database. For example, a Web site registration form may request details of how the customer first accessed the site. Normally termed the source code, or media code, this is an important piece of data, since not only does it provide feedback on marketing response but it also establishes a criterion on which customers could be selected for future contact.

If left to their own devices to complete a free text field, customers may enter, a free text string complete with typographical errors. Using a reference table of acceptable responses, conformity is assured and the quality of the data is maintained. Bear in mind also the data storage overhead: the free text string has to be held verbatim, whilst the selected value in a table need only be held as a code reference.

Key issues to manage:

Data acquisition — are all marketing initiatives sharing the same data goals, are the needs of other departments being taken into consideration?

Decay. Data will decay over time. Business data tend to decay at a greater rate, since people move jobs, companies move premises or reorganize, acquire or are acquired by other companies or go out of business more often than individuals move house. Estimates suggest that 30 per cent of management and professional staff change positions annually.

With regard to individuals, during the last UK property boom attrition rates of up to 12 per cent a year were experienced, meaning that in just four years about half the volume of any consumer database would be out of date. About 8-10 per cent of the population currently move house or die per year.

Depending on the provenance of the data and how often it has been mailed in the past, companies will embark on cleansing, using such tools as NCOA (the National Change of Address File), the Mortality File and, in order to maintain data protection best practice, the Mailing Preference Service. NCOA can also provide the new address of the gone-aways on your file, since the source of the data is Royal Mail's postal redirection service for home movers.

Most reputable data-processing bureaux will be able to provide a service whereby a company's data are washed against these external data sources in order to suppress those who have died, moved or have an objection to receiving direct communications.

People change their names too, in some countries most married women will change both title and surname. Decay can also be the result of natural progression, when the customer is no longer in the market for the product or service. For example, once a person turns thirty-one years old they are out of the market for a Club 18-30 holiday; similarly once a baby becomes potty-trained the parents no longer buy nappies.

Data appraisal. In order to assess the quality of the data, an audit should be carried out. View the data on screen or in hard copy — most databases will allow the user to export data into a more familiar environment, like Microsoft Excel, where you can either view the data or print out the spreadsheets if more convenient, checking for key indicators regarding the reliability of the data.

Text 4. Data storage and management

Essentially the database environment comprises three elements — the central database or data repository, the tools for data maintenance and the tools for reporting and data analysis. The central database is independent of the tools.

The structure of the central database will depend on the application of the system. Often, where the central database has been constructed for key commercial transactional purposes (the 'lifeblood processes', such as order processing or financial activities), this may not be conducive to returning swift responses to querying or reporting.

Extensive querying and analytical activity can place a demand for processing on the central database and this additional demand may limit the resources available for transactional processing. The marketing database, normally constructed in a relational structure with varying degrees of normalization to ensure optimization for analysis, increasingly resides outside the transactional systems of the business, integrating data from various sources, both internal and external, that help build the information.

Data warehouses. The technological advances demonstrated by data warehouses, data marts and marketing universes have facilitated the management decision processes that benefit from the integration of data from across the business. All these are concerned with extracting data from large corporate legacy systems and delivering either selected attributes or data merged from disparate systems into manageable chunks that can then be used for management decision, analysis or to automate operational or communications processes.

Kimball defined a data warehouse as a copy of transaction data specifically structured for querying and reporting. Gupta suggests that simply a data warehouse is managed data situated after and outside the operational systems. However, the concept of data warehousing in marketing has broadened beyond being solely transaction data, providing an optimized structure for the integration of disparate data sources from both within the business and external sources.

Data warehousing essentially removes the processing of data querying and analysis away from the lifeblood systems of the enterprise, which could become overloaded with query traffic from users and interrupt the essential business process flow. It also permits the relationship between data from different systems by acting as a central data repository with a common data structure and data dictionary to facilitate selection and analysis.

'Data warehouse' and 'data mart' are frequently misunderstood terms, with many having strong beliefs regarding their use and benefits. From a technology standpoint there really is no difference in that both are databases tasked with processing, combining and structuring data in order that its use will benefit the business.

Probably the most distinctive attribute of a data warehouse or mart is its architecture and design, and these are heavily influenced by the business requirements. A balance must therefore be struck between an infinite ability to load any data with little or no recourse to technical rework versus an adaptable 'business-focused' design that reflects the corporate structures and processes and, most importantly, is recognizable by the people who will use it.

A data warehouse typically contains a wide variety of data that present a consistent view of the business to support the management decision process across the enterprise. It may combine databases across an entire corporation and will address a strategic requirement and is likely to contain a high volume of data to a greater level of detail than a data mart.

Data marts. Demarest suggests that data marting deals almost exclusively with servicing a distinct community of users, focusing on their need for information from diverse systems, reflecting the user's understanding of the business. A data mart is usually subject-oriented, smaller, likely to contain more summarized data (i.e. less detail) and will be applied tactically within a single business unit or department. It is not unusual to find the accounts department with its own data mart, HR with theirs

and marketing with theirs, but each will reflect the requirements of the specific department as regards data attributes, level of history held and channels of access and analysis. Data marts take account of the PC user or the desktop analyst, presenting only the data that interest him in a way that is appropriate to the business processes and culture of the department or business unit.

Not all data marts need be physical. Data can be brought together into a universe for analysis or into an aggregated and summarized multi-dimensional structure referred to as an OLAP (online analytical processing) cube. Both these are established so that end users can 'drill down' into the data to refine their analysis with a specific set of analytical tools. Being virtual structures they can be created to serve a tactical purpose and then destroyed, with new universes or cubes being created containing different data attributes or alternative summa-rizations or aggregations.

However, data marts could be sub-sets of a data warehouse, providing subject-specific access for different users' reporting and decision support requirements.

Marketing universes. Any of these structures could be termed a marketing universe, i.e. a data repository, existing separately from the central transactional system that contains all the required data, incorporates the feeds from external sources and is subjected to the analysis tools.

Both data warehouses and data marts are predominantly static (although those applied to support e-commerce are increasingly near real-time), reflecting the business as it was at the time of last update or creation, respectively. However, it must be noted that modern data warehouses and marts are not just replicas of the data in other systems: the data are enriched, enhanced and, in the case of the marts, specially aggregated or summarized in line with the user's requirements. The data mart or data warehouse may often be viewed within the organization as a 'marketing database'.

Text 5. Electronic payment systems

Electronic payment systems are non-credit-card online payment systems. The goal of their development is to create analogues of checks and cash on the Internet, i.e. to implement all or some of the following features:
– protecting customers from merchant's fraud by keeping credit card numbers unknown to merchants;
– allowing people without credit cards to engage in online transactions;
– protecting confidentiality of customers.
– in some cases providing anonymity of customers ("electronic cash").

The problems in implementing electronic payment systems, especially anonymous electronic money, are:
– preventing double-spending copying the "money" and spending it several times. This is especially hard to do with anonymous money.
– making sure that neither the customer nor the merchant can make an unauthorized transaction;
– preserving customer's confidentiality without allowing customer's fraud.

While electronic payment systems have not gained a very wide popularity, except for PayPal system used on online auctions, such as eBay, they may become

more popular in the future if more businesses start using them. Electronic payment systems may be more convenient for international online business due to differences in credit card customer protection laws in different countries.

Virtual PIN. Virtual PIN, started in 1994 by a company called First Virtual Holding, was a system for making credit card payments over the Internet without exposing the credit card number to the merchant. It required no special software for a customer to make a purchase. Virtual PIN relied on difficulty of intercepting and forging e-mail. To enroll, a customer gives their credit card information and their e-mail address to the First Virtual (this was done by phone). After the credit card information has been verified, the customer receives their PIN by e-mail.

The procedure for purchasing an item using Virtual PIN is as follows. The customer gives the merchant their Virtual PIN. The merchant sends the Virtual PIN and the amount of transaction to First Virtual. First Virtual sends an e-mail to the customer asking to confirm the purchase. The customer answered "Yes", "No", or "Fraud". If the answer is "Yes", the merchant is informed that the charge has been accepted. If "No", the charge is declined. If the answer is "Fraud", the charge is investigated.
Even though no encryption was involved, an eavesdropper could not use a virtual PIN without being able to intercept and answer the e-mail message to confirm the purchase.

Unlike credit cards which carry the customer's name, Virtual PIN provided a customer's anonymity from the merchant. The e-mail confirmation of the transaction served as a protection against merchant's fraud. Unfortunately, while the system has been created for all kinds of online business, the main use of Virtual PIN at the time was for buying and selling pornography. Virtual PIN tried to disassociate itself from this market. Eventually the company abandoned the Virtual PIN and became specialized in sending promotional e-mail.

DigiCash (or E-Cash). DigiCash (also known as E-cash) is an electronic payment system developed by Dr. David Chaum, who is widely regarded as an inventor of digital cash. The system was based on digital tokens called digital coins. DigiCash operated as follows. A customer establishes an account with the bank or other organization that could mint and receive digital coins. The customer's account was backed by real money in some form, for instance it could be linked to the customer's checking account.
The customer also needs to download and install a software called electronic wallet.
To obtain DigiCash, the customer uses the electronic wallet to create digital coins. The coins are sent to the bank to sign. When the coins are signed, the equivalent amount of money is withdrawn from the customer's account.

In the proposed protocol the customer also had an option of "blinding" the coins. To blind a coin, the customer multiplies it by a random number **r** before sending it to the bank to sign. The bank signs the data.

After the data and its digital signature are sent to the customer, the customer computes the digital signature of the original (non-multiplied) coin by dividing the bank's signature by **r**. This way the bank doesn't know the coin, but the customer, who knows **r**, can trace his/her payments. Blind signatures have not been implemented. When the customer wants to make a purchase, he/she sends signed digital coins to the merchant. The merchant verifies the bank's signature and deposits the coins to the bank, where they are credited to the merchant's account.

The DigiCash (or E-cash), produced by the company DigiCash BV based in Amsterdam, has never created a market. The company eventually declared bankruptcy. However, the algorithms used in DigiCash are considered fundamental in development of digital money.

CyberCash/CyberCoin. CyberCash is a system that allows customers to pay by a credit card without revealing the credit card number to the merchant. To achieve this, a credit card number is sent to the merchant in an encrypted form. To enroll, a customer installs software called CyberCash wallet on their computer. At the time of the installment the wallet generated a pair of a public and a private key. The wallet was protected by a passphrase, and a backup key was stored encrypted on a floppy disk. A CyberCash account was linked to the customer's credit card. A variation of this scheme called CyberCoin was linked to the customer's checking account.

A purchase was conducted the following way. When the purchase was initiated, the CyberCash wallet displayed the amount, the merchant's name, and other information. After the customer approved the transaction, an encrypted payment order was sent to the merchant. The merchant could decrypt some of the information in the order, such as the product list, the address, etc., but not the other (such as the credit card information). The merchant's software would add its own payment information to the order, digitally sign it, and then send it to the CyberCash gateway. The CyberCash gateway would decrypt the information. The order would be checked for duplicate requests. The gateway would verify that the customer's and the merchant's order information match (i.e. no fraud was committed on either side). Then it would perform the money transfer and send the approval message to the merchant.

The main point of this scheme was to prevent merchant's fraud, and thus allow customers to do business with more merchants without fear of scam. However, CyberCash and CyberCoin were not able to find the market. The main reasons for the failure were the large size of customer's software and the fact that very few merchants would accept CyberCash payment. The company was eventually bought by VeriSign.

SET (Secure Electronic Transactions). SET is the Secure Electronic Transaction protocol for sending money over Internet. It has been developed jointly by MasterCard, Visa, and several computer companies. SET uses mechanisms similar to CyberCash. However, being a standard protocol, it is built into a wide variety of commercial products.

In SET the order information consists of two parts — the part which is private between the customer and the merchant (such as the items being ordered) and information which is private between the customer and the bank (such as the included in a single signed transaction). The part private between the customer and the merchant is encrypted using the merchant's private key, and the part private between the customer and the bank is encrypted using the bank's public key.

To prevent changing the order information, the customer computes message digests of each part of the message separately, then takes the message digest of the two message digests, and then signs the resulting message digest. This mechanism, called a dual signature, allows either the merchant or the bank to read and validate the signature on its half of the purchase request without having to decrypt the other half. The reason why SET never became popular was pretty much the same as for CyberCash the trouble of getting a digital wallet software and setting it up for each credit card was not worth it for a customer, because very few merchants would accept SET payments.

PayPal is an electronic payment system which can transfer money between its accounts. In order to use PayPal, one has to obtain a PayPal account, which is associated either with the customer's credit card or with their regular bank account. The validity of a credit card is checked by the usual ways. The validity of a checking account is checked as follows the customer gives PayPal their account number; PayPal makes two small-amount (less than $1) deposits to the account. If the customer is able to tell PayPal the value of these deposits, then the customer is assumed to be a legitimate user of the account.

The working of PayPal service. PayPal provides easy interface to send money to anyone by giving the person's e-mail account. In order for the person to retrieve the money, they must have a PayPal account. To avoid fraud, PayPal sends an e-mail message to both the initiator and the recipient of the transaction.
PayPal is used to settle online auctions, such as eBay auctions. The ease of use and the fact that no credit card is required to use it makes PayPal increasingly popular.

Unit 4. *Organizational Considerations for E-business*

Text 1. Developing business/IT solutions

The Wikipedia encyclopedia has defined the Management Information System (MIS) as the subset of the overall internal controls of a business covering the application of people, documents, technologies, and procedures by management accountants to solving business problems such as costing a product, service or a business-wide strategy. In a larger view, a management information system is a system or process that provides the information necessary to manage an organization effectively. MIS and the information it generates, are generally considered essential components of prudent and reasonable business decisions. MIS is also popularly known as the Information System, the Information and Decision System, the Computer-based Information System.

Information System (IS) refers to a system of people, data records and activities that process the data and information in an organization, and it includes the organization's manual and automated processes. In a narrow sense, the term information system (or computer-based information system) refers to the specific application software that is used to store data records in a computer system and automates some of the information-processing activities of the organization. Computer-based information systems are in the field of information technology. The discipline of business process modeling describes the business processes supported by information systems.

The term information system refers to information technology that is used by people to accomplish a specified organizational or individual objective. The technology may be used in the gathering, processing, storing and/or dissemination of information, and the users are trained in the use of that technology, as well as in the procedures to be followed in doing so. The specific technologies that collectively comprise information technology are computer technology and data communications technology. Computers provide most of the storage and processing capabilities, while data communications – specifically networks – provide the means for dissemination and remote access of information.

Advances in computer hardware, software, and networking technologies have spurred an evolution in the structure, design, and use of corporate information systems.

Computer Hardware. When computers first began moving into the business world in the late 1950s and early 1960s, the computing environment was best described as centralized, host-based computing. In this environment, the typical organization had a large mainframe computer (the centralized host) connected to a number of "dumb" terminals scattered throughout the organization or at remote sites. The mainframe did all the data processing for all the user terminals connected to it.

In the mid-1960s, Digital Equipment Corporation (DEC) announced the development of the mini-computer. Smaller than the mainframe, the mini-computer ushered in the era of distributed data processing (DDP). In this new processing environment, an organization could connect one or more mini-computers to its mainframe. Thus, the organization's data-processing function was no longer localized in a single, centralized computer (the mainframe) but, rather, distributed among all the computers.

The commercial introduction of the personal computer by IBM in the early 1980s revolutionized organizational data processing. The personal computer carried the distributed processing concept even further within organizations — it brought data processing to the desktop. Also, it eclipsed the dumb terminal as the terminal of choice by users. The commercial success of the IBM personal computer led other computer manufacturers to develop their own personal computers that were compatible with the IBM PC (these are usually described as IBM clones or IBM-compatible computers).

One notable exception is Apple Computers, Inc., which developed its own line of non-IBM-compatible computers, namely the Apple and Macintosh line of computers. The all- inclusive term microcomputer is sometimes used to encompass all makes and models of desktop computers, including the IBM PC (and its clones) and the Apple/ Macintosh computers.

It is important to note that, despite their proliferation and ubiquity, personal computers have not replaced minicomputers or mainframes. A large number of organizations still rely on these larger computers for significant aspects of their day-today operations.

Computer Software. Computer software is the set of programs and associated data that drive the computer hardware to do the things that it does, such as performing arithmetic calculations or generating and printing a report. Software typically comes in one of two forms of custom-written application programs or off-the-shelf software packages.

Custom-written application programs are usually written by an organization's own programming team or by professional contract programmers to satisfy unique organizational requirements. Off-the-shelf software packages are produced by software development companies and made commercially available to the public. They usually fall in one of two main categories, namely system software or application software. The former includes such specialized programs as operating systems, compilers, utility programs, and device drivers. While these programs are important — and necessary — to the overall performance of an information system (especially from the "machine" perspective), they are not the primary focus of corporate information systems. Their basic functions are more machine-oriented than human-oriented.

Application software is designed to more directly help human users in the performance of their specific job responsibilities, such as business decision making, inventory tracking, and customer record keeping. From a software perspective, this is what corporate information systems are primarily concerned with.

One of the very important information systems functions is systems analysis and design, that is, analyzing a client's business situation (or problem), with respect to information processing, and designing and implementing an appropriate — usually computerized — solution to the problem. Information systems professionals who specialize in this area are known as systems analysts. The process begins with a detailed determination of the client's information requirements and business processes. The solution frequently involves some programming, as well as the use of an appropriate application software package(s), such as a database management system (DBMS) for designing and implementing a database for the client. It may also involve some networking considerations, depending on the user's requirements and goals. Some typical organizational information systems that can result from a systems analysis and design effort include the following.

Computer Networks. Together with computer technology, data communications technology has had a very significant impact on organizational information processing. There have been tremendous increases in the bandwidths (i.e., signal-carrying capacities) of all data communications media, including coaxial cables, fiber-optic cables, microwave transmission, and satellite transmission.

Wide area networks (WANs) provide access to remote computers and databases, thus enabling organizations to gain access to global markets, as well as increase their information sources for decision making purposes. The Internet in particular — the worldwide network of computer networks — has greatly facilitated this globalization phenomenon by making it possible to connect any computer to virtually any other computer in any part of the world. Advances in networking technologies have also enabled organizations to connect their in-house personal computers to form local area networks (LANs). This greatly facilitates organizational communication and decision-making processes.

Role of Management Information System. Role of MIS in organization can be compared with the role of heart in the body. It plays following important roles in the organization. It ensures that the appropriate data is collected from the various sources, proceeds and sent further to all needy destinations. It helps in Strategic Planning, Modeling Systems, Decision Support Systems, Management Control, Operational Control and Transaction Processing etc. It helps junior management personnel by providing the operational data for planning, scheduling and control and helps them further in decision-making at the operational level to correct and out of control situation. It helps the top management in goal setting, strategic planning and evolving the business plans and their implementation. It plays the role of information generation, communication, problem identification and helps in the process of decision-making.

Impact of Management Information System. With a good MIS support the management of marketing, finance, production and personnel becomes more efficient. The tracking monitoring of the functional targets becomes easy.

Since Management Information System uses a dictionary, there is a common understanding of terms and terminology in the organization bringing clarity in the communication and similar understanding of an event in the organization. It calls for a systemization of the business operation for an effective system design. That is it helps indirectly to pull the entire organization in one direction towards the corporate goals and objectives by providing the relevant information to the people in the organization.

The MIS has a direct impact on many overheads in the organization. It creates an information-based work culture in the organization. The field of information system encompasses many complex technologies, abstract behavioral concepts and specialized applications in several business and non-business areas.

Text 2. IT and competitive advantage

In today's highly competitive business environment, budget-oriented planning or forecast-based planning methods are insufficient for a large corporation to survive and prosper. The firm must engage in strategic planning that clearly defines objectives and assesses both the internal and external situation to formulate strategy, implement the strategy, evaluate the progress, and make adjustments as necessary to stay on track.

Marketing and Competitive Advantage. 'Marketing is the Guardian of the customer' and therefore best placed to determine the deliverables that will contribute most to building strong relationships between customers and organization. Fluctuating customer requirements and competitive forces are putting more pressure on marketing and are demanding superior sales and marketing strategy and tactical execution. The cycle time from product creation, to product launch, for a winning go-to-market strategy, leaves no margin for error.

Two means by which competitive advantage can be gained are as follows.

▪ Through differentiation. A focus on differentiation was and would always have been the vehicle to achieve Sustainable Competitive Advantage. There are different ways with which the organizations can achieve differentiation and can create competitive advantage. These are:

1. Consider marketing in the bigger picture context to maximize the uncovering of differentiation opportunities.
2. Differentiation can arise from a wide range of areas of an organization, in its interaction with customers, including, achieving competitive advantage from products, brands, pricing, promotion, geographic location, communication, manufacturing efficiencies, sales capabilities, distribution, financial strength, proper business performance measurement, people etc.
3. Recognize that differentiation in marketing initiatives changes the 'value equation' for customers when they make choices between a firm and its competitors.
4. Understand the relevance and importance of differentiation opportunities to customers before making them part of strategy to maximize impact and the profitable appropriation of marketing funds.
5. Make market knowledge a critical and ongoing part of the marketing disciplines and ensure this knowledge is interpreted by people with appropriate marketing experience able to convert it into actionable differentiation strategies.

▪ Using web technology. Many firms underestimate the value of using their websites to gain significant competitive advantage in their given markets. Most businesses only utilize their website as a means of displaying their corporate profile, list of products as well as things like their contact details and email address. But a firm's website, when used as an effective Internet Marketing Channel, can enhance competitive advantage.

It is fairly safe to say that managers should always view web technology in the light of the whole marketing mix instead of merely as an extension of their existing advertising efforts. A firm's website indeed can positively impact each of these marketing mix elements ― product, price, place and promotion.

Business Model and its components. Business model converts innovation to economic value for the business. The business model spells-out how a company makes money by specifying where it is positioned in the value chain. It draws on a multitude on business subjects including entrepreneurship, strategy, economics, finance, operations, and marketing. In short, a business model is nothing else than a representation of how an organization makes (or intends to make) money. Simply put, a business model describes how a business positions itself within the value chain of its industry and how it intends to sustain itself that is to generate revenue.

According to Chesbrough and Rosenbloom, there are six components of the business mode.

1. Value Proposition – a description of the customer problem, the solution that addresses the problem, and the value of this solution from the customer's perspective.
2. Market Segment – the group to target, recognizing that different market segments have different needs. Sometimes the potential of an innovation is unlocked only when a different market segment is targeted.
3. Value Chain Structure – the firm's position and activities in the value chain and how the firm will capture part of the value that it creates in the chain.
4. Revenue Generation and Margins – how revenue is generated (sales, leasing, subscription, support, etc.), the cost structure, and target profit margins.
5. Position in the Value Network – identification of competitors, complementors, and any network effects that can be utilized to deliver more value to the customer, and
6. Competitive Strategy – how the company will attempt to develop a sustainable competitive advantage and use it to improve the enterprise's competitive position in the market.

Business planning. Business planning is the process of setting goals, explaining the objectives and then mapping out a document to achieve these goals and objectives. A well-written business plan lays out the best growth path and strategy, as well as the rationale for the selection of the strategy over other alternatives. In essence, a business plan is the articulation and explanation of why the chosen game plan for building the company makes sense, what resources it will need to implement the vision, who will comprise the team (those who will have the skills and leadership to execute the vision), and what path they will follow to get there.

As the document that tells the company's story, the business plan also helps shape and modifies the entrepreneurial company's Business Model, the elements of which will be driven by the answers to the following questions: Who are we? (Team) What are we trying to do? (Mission) What problem do we solve? (Faster/Better/Easier/Cheaper)

How are we going to get it done? (Operations) How do we reach our customers? (Sales/Marketing/Distribution Channel) Who else is doing this? How do we obtain our initial customers? Which are the easiest to reach? What are the target customers' decision-making processes? What relationships do they currently have in place that will need to be terminated for them to do business with us? (Competition/Competitive Analysis) What market research have we done to be sure that anyone wants to buy this product or service at this price - or at all? (Substantiation) Do we truly modify the way business is being done in our industry (as a change agent) or is this more of a fad or a trend? (Market Trends/First Mover Advantage (FMA)) Are these targeted customer relationships profitable? How do we make money? (Business Model) What do we need to accomplish our goals? (Budget/Resources) When are we profitable? (Breakeven/Timetable).

Text 3. Strategic HRM

Much of what we know about general human resource management (HRM) — the management of people through formal policy, structures, systems and procedures within a clear strategic framework — has largely been developed for 'bricks and mortar' companies. Typically, one might consider a number of HRM subsystems, such as recruitment and selection, reward management, performance management. Further considerations would also be the impact on organizational efficiency and effectiveness, and also the realization of strategic goals.

There is no single or simple account of HRM. There are many models that exist, and that have been developed in the United Kingdom and the United States in particular. J. Storey's account of human resource management is particularly helpful, as it highlights two important characteristics of HRM in particular. The first is the shift towards more strategic HRM from the more 'traditional' personnel management activities, which were a model of people management that was far more 'supportive' in nature and operated in tandem in unionized firms with industrial relations (concerned with the relationship between managers, trade unions and the labour market). Lundy and Cowling have developed a more detailed model of strategic HRM in which they make more explicit the key functional activities that support any strategic position. These include selection, performance assessment, training and development, rewards, employee relations.

What is also important within the Lundy and Cowling model is the importance of a proactive approach to strategic HRM issues, which they argued might be pursued by:
• paying attention to developments in the external environment and how stable or dynamic conditions are;
• the identification of what an organization is really good at, its core capabilities;
• the link between an organization's general strategic plan and the 'people management' aspects of this: in other words, strategic human resource management.

What was the pressure for this shift? Storey suggests that greater competition has forced those organizations that wish to respond more strategically to move their people management activities from more 'handmaiden', reactive, support roles to those that are more strategic, change-initiating and proactive.

Put simply, strategic HRM itself can be thought of as the marshalling of human resources in order to afford sustainable competitive advantage. This can be done through a variety of formal HRM systems, such as recruitment and selection, or through more informal systems, such as culture change. To be effective, SHRM needs to be an integral and proactive part of a company's strategic planning processes. The essence of SHRM can be set down in the company's mission, as well as strategic and related operational objectives. However, we should remember that most of these models have been developed for large bricks-and-mortar organizations. What we know about HRM in smaller companies is far more limited, and we certainly know that our understanding of how best to manage such companies is poorer. Furthermore, there is precious little which relates to 'hybrid' organizational structures within which we might place most 'clicks and mortar' operations. The information becomes even more 'thin on the ground' when 'dotcoms' are considered.

None the less, not even a dotcom is technology alone: people are an important and integral part of such organizations. However, the danger with any kind of e-business is if the technology is regarded as both the primary ends and the means. This would not be the first time that technologically led change has resulted in the people management aspects being left behind. Business process re-engineering, Total Quality Management and cellular manufacturing are all examples of significant technological redesign of organizational processes where many companies have underestimated the impact of the 'people factor', and where subsequently the interventions have underperformed or failed outright. Many e-businesses appear to be also rather slow in addressing HRM issues. Carter conducted a number of interviews with key informants in the HRM and e-Business fields, and there appeared to be a consensus that many businesses were simply not putting the right HRM infrastructure in as the company grew. As a result, many employees in such businesses were dissatisfied, felt undervalued and suffered from high turnover as disgruntled employees knew that there were often work opportunities elsewhere.

Text 4. Employees as stakeholders

The basic premise behind internal marketing is that a company's communications with its customers and other external stakeholders are unlikely to be effective unless employees within the firm are aware of (and prepared to buy into) the message that the firm is trying to put across. It is fashionable to refer to employees as 'internal customers'. If all employees are clear about the company's mission, objectives and strategy then there is a much better chance that customers will get the same message. Research has shown that firms where employees understand organizational goals had considerably higher returns on capital than those where employees felt excluded or uninformed. It has been estimated that more than 20 per cent of a firm's communications are actually with itself rather than with external stakeholders. Yet internal communications are rarely accorded the same degree of attention and resources as external communications. Sometimes very basic errors are made. For example, if a person responsible for mailing out corporate brochures is not told that a facility for customers to e-mail such requests to the firm has been

implemented, incoming messages may well be ignored by that person in the mistaken assumption that someone else is dealing with them. It should now be evident that the principles of internal marketing mirror those of human resource management, discussed earlier in the chapter.

Organizational structure was once the way in which companies could control the flow of information within the firm. Clear hierarchies of responsibility meant that information flowed slowly up and down functional areas, but was often not made available to other parts of the organization, or could be excluded from certain individuals. Individuals' position in the management hierarchy could be ascertained by the degree of access they had to important information. Powerful fiefdoms could be established by individuals who controlled access to such information. With the development of internal company intranets, it is possible (in theory at least) for such information access barriers to be transcended. Real-time access to information can be available to any employee with Internet access, and the activities of diverse functional areas may become transparent to employees at all hierarchical levels. In practice, of course, decision makers can still choose to restrict access through passwords or firewalls. There are obvious benefits here to a marketer analysing market conditions or customer behaviour, but the sheer volume of information now available to organizations can create problems of its own.

For established firms looking to add online channels to their existing marketing activities, many of the marketing challenges are internal. Significant organizational change may be involved and effective communication within the firm of the need for change and the role of each employee in effecting it is essential to ensure staff commitment. Internal customers can be segmented into supporters, neutrals and opponents of change and communications with each group phrased appropriately. It is particularly vital to ensure 'buy-in' from key decision makers with the authority to enforce change, as well as from potential champions (sometimes referred to as 'rainmakers') who will drive the project forward and communicate their enthusiasm to others.

It is often suggested that internal communications can be enhanced through induction programmes, training courses, benefits, the use of intranets or through working in cross-functional teams. However, things are rarely that simple. Payne regards a supportive organizational culture as a key ingredient in the success of internal marketing. Internal marketing involves creating, developing and maintaining an organizational service culture that will lead to the right service personnel performing the service in the right way. It tells employees how to respond to new, unforeseen and even awkward situations. Service culture has a vital impact on how service-oriented employees act and thus how well they perform their tasks as 'part-time marketers'.

Inappropriate cultural norms can militate against successful relationship building. Too often, customer care programmes are instigated as a 'quick fix', without making any changes in management behaviour, or attempts to evaluate the success of the programme. While press attention has focused on the achievements (and, more recently, the struggles) of Internet entrepreneurs, little mention has been made of the service workers who make up the bulk of the demand for labour in new technology industries. Many work in call centres that have been dubbed 'the new sweatshops'. In service-intensive organizations the power is in the hands of lower-level, front-line

employees, upon whose handling of service encounters managers must depend for the achievement of organizational objectives. As Piercy notes: 'Too many employees who deal directly with customers are damaging the product, service or corporate brand every time they open their mouths.' For example, the technique of 'mystery shopping', where researchers anonymously check out the quality of service provided by staff, may well be feared and resented. Dissatisfied or demotivated staff can try to sabotage enforced 'smiling' policies or even wear their name badges upside down. One major UK DIY retailer implemented a customer care programme that required shop floor staff to be much more proactive in serving customers and suggesting suitable products. What management failed to note was the limited extent of employee commitment and willingness to accept the extra pressures associated with such responsibility. Instead of feeling empowered and motivated by the 'upgrading' of their jobs, many staff resented the interference and preferred the security and predictability of sitting at the till all day.

Although 'clicks and mortar' organizations might be expected to struggle with integrating online relationship building, it is interesting that the 'dotcom' brigade does not seem to be immune to the problem. Leibovich provides an interesting account of employment conditions at Amazon, world-famous for its ground-breaking policies of online customer relationship building. Staff are pressured to work as quickly as possible in order to achieve customer satisfaction targets, particularly those who earn low wages packing books at the firm's distribution centres or answering e-mails from customers. The author notes: 'Customer service employees work in a patchwork of cubicles scattered over three downtown Seattle buildings. The quarters have an old industrial feel, with gritty exteriors that belie the company's sleek online identity'.

The principles of internal marketing can also be extended to prospective employees with the notion of employer branding, in recognition that employees are a significant source of competitive advantage in a market place where products and services are easily copied. Employer branding involves treating staff and potential staff as internal customers. The aim is to acquire a reputation as a good firm to work for, thereby attracting and retaining the brightest and most dedicated employees, enabling the firm to stand out from its competitors. In an age where people expect to work for a number of firms (or indeed for themselves) during the course of their career, retaining key staff is becoming more and more difficult. Some firms are experimenting with paternity leave, flexible work arrangements and empowerment of staff or open communications through simplified management hierarchies in order to be seen as a 'good employer'. Forward-looking companies are working on the assumption that they have to do a continuous selling job on the employee.

The 'four Ps' of marketing can also be applied to the internal market:

• *Product* to be sold to staff is the values, attitudes and behaviours that are required if the plan is to work effectively.

• *Price* is what employees have to pay in terms of changing their behaviour, learning new skills and stepping outside comfort zones.

• *Promotion* is the media and message used to advise of changes required and the reasons for implementing them. It may take the form of written documents, verbal presentations, road shows or videos. It also includes paying attention to feedback from employees and responding to problems experienced.

• *Place* is the distribution channel through which the communication messages are delivered, for example meetings, committees, training sessions and social occasions.

In what may be regarded as the ultimate integration of internal marketing and customer relationship marketing, Ulrich advises giving customers a major role in staff recruitment, promotion and development, appraisal and reward systems. While this policy may be too radical for many organizations, it can be seen from this discussion that a suitable internal climate is a necessary first step in the development of a customer orientation, rarely a simple task for an established organization.. Employee – employee relationships are extremely important for organizations for many reasons, as they can help to create a positive and constructive company climate and culture, provide an important source of allegiance to the company through commitment to colleagues, create channels for knowledge exchange, particularly informal or tacit knowledge, vital for product and service delivery and quality.

Perhaps one of the most over-hyped assertions made by organizations is the desire to have motivated staff committed to the company. In reality, there are numerous examples of organizations in which such statements are mere rhetoric not backed up by action. What are the sources of employee commitment? In practice, this can be achieved through a variety of means that have to be very carefully tailored to specific types of work and whether or not employees are working individually or within groups. Very broadly, we can think of the ways in which motivation — making employees more willing to undertake their work for the good of themselves and the company as a result of personal drive and commitment, making them identify more strongly with, and be more loyal to, their work, their work teams and the company — is generated as follows.

'Hard' reward strategies. These might include:

• Reward for performance above the standards or targets set, such as financial bonuses, or forms of remuneration over and above the basic wage, which can be offered on a regular basis (e.g. daily, monthly or yearly).

• One-off rewards such as all-expenses-paid holidays, meals, shopping vouchers, etc., for good performance. Such rewards are often used for staff performance that is well regarded by customers as a signal of what kind of care is valued by customers and, in turn, by the organization.

• Share options are an excellent way of getting employees literally to 'buy into' the company's business performance. It also helps to draw employees' attention to aspects of a company's performance that lie outside their immediate job (e.g. changes and opportunities in the competitive environment).

'Soft' formal reward strategies. These might include deciding on and then publicizing 'Employee of the Month/ Year' winners, where the winners are made known to the organization in newsletters, posters or on the company intranet. A 'hard' reward may be given, but a primary objective is to publicize good performance and to share knowledge about how that good performance was achieved with both employees and, of course, customers.

'Soft' informal reward strategies. These may include:

• Team meetings. Time for reflection is difficult in a busy environment, but 'time out' not only to seek improvements but also to share success can provide positive and constructive feedback on individual and team performance.

• Regular positive feedback. How can employees know if they are doing a good job or not? The good colleague, supervisor or manager will not just wait until the annual

appraisal but can provide such feedback as frequently as they wish. Informal feedback and praise for a job well done are a primary source of maintaining motivation among staff, often referred to as the organizational climate. A strong motivational climate is very important at any time, but can be vital at times of crisis and change, in order to maintain focus when things may become uncertain or difficult.

Involvement and participation. Again, it would be easy to be cynical about gaining employee commitment. It could be argued that commitment is often thought about as a one-way street where the employee is expected to commit heavily to the company but the company expects to put in the minimum of effort. Some of the rewards listed earlier can provide commitment, but more can also be done. The most effective mechanisms operate through involvement and participation processes. Blackburn and Cornelius have suggested that involvement and participation can add value to workplace organizations, certainly by generating employee commitment but also by encouraging workplace learning. So, for example, problem-solving meetings can help information exchange about actual and potential problems and their solutions. The key is really how 'participative' are participation processes?

In unionized firms there may be joint consultation between management and unions on matters such as pay and conditions. In non-unionized firms, involvement and participation are often achieved through the following:

• Team briefings where managers brief employees on actual or possible changes, and feedback and suggestions are sought.

• Problem-solving and quality circles in which front-line issues are discussed and suggestions for improvement and change made.

• Empowerment interventions where employees are given the autonomy to make decisions about specific aspects of their work without having to consult with their supervisors or managers.

The value-added of e-HRM. Perhaps one of the most exciting developments that all organizations can exploit is e-HRM. e-HRM concerns the use of electronic means for managing key aspects of HRM. Once again, a note of caution: the technology may be the means but it is not the end: the value of e-HRM is highly dependent upon a number of factors, including:

• The basic quality and relevance of the e-HRM systems in use.

• Whether employees, managers and HR professionals are adequately trained to use e-HRM systems.

• How effectively e-HRM is integrated with other more conventional systems of HRM, including strategic HRM.

• Identification of the most appropriate Internet and intranet systems that meet the organization's needs.

Text 5. Customers as stakeholders

Relationship marketing is a highly topical area, with the prolific use of 'relationship' terminology in company literature, corporate announcements, advertisements and even job titles. It can be defined as a business strategy that proactively builds a bias or preference with its individual employees, channels and customers resulting in increased retention and increased performance. In theory, any short-term losses accrued by gathering and analysing the necessary data to build

relationships are mitigated over time by the return on investment from lasting customer relationships and their ensuing profitability. Gummesson prescribes RM as a 'universal panacea' that is applicable to all organization types. Some theorists argue that 'traditional' marketing is defunct and relationship marketing represents a dramatic change in marketing focus over the past two decades. The key factors that lead them to this conclusion are:
• higher returns from repeat sales over time;
• increasing levels of competition mean service quality may be the only differentiator;
• employee self-management of aspects of HRM, such as seeking job opportunities in the internal labour market;
• higher costs associated with recruiting new customers than managing existing ones;
• scope for cross-selling increased;
• it creates possibilities for strategic partnerships;
• loyal customers will recommend the company to others.

In order to develop a relationship marketing programme within an organization, the following actions are necessary:
• Identify key customers (i.e. the sources of highest potential profit over the long term).
• Examine the expectations of both sides.
• Identify ways in which you can work more closely with these customers.
• Think about how operating procedures may need to be changed in order to facilitate closer communication.
• Appoint a relationship manager as a natural focal point.
• Be satisfied with small gains in the early stages — build over time.
• Recognize from the outset that different customers have different needs and this should be reflected in the way the relationship is developed.

The differences between transactional marketing and relationship marketing. Relationship marketing proponents criticize traditional marketing as a 'narrow, transactional, one-sale-at-a-time view of marketing. Thus an overly short-term orientation towards marketing activity is taken and 'the unit of analysis is a single market transaction' with 'profits expected to follow from today's exchanges, although sometimes some long-term image development occurs'.

In recent years, speculation about the potential of the Internet to facilitate relationship marketing through communication with customers on an individual basis has ensured that the debate remains prominent in both theoretical and practitioner circles. Personalized e-mail messages can be distributed to highly targeted groups of customers at very low cost. Personalization software allows the name of the user to be incorporated into the Web pages, any previous transaction details to be displayed and related areas of interest to be flagged. Research by Cyber Atlas (www.cyberatlas.com) in 1999 found that Web users who configure, personalize or register on Web sites are more than twice as likely to buy online as those that do not.

Peppers and Rogers highlight the importance of the following relationship marketing issues, which are greatly facilitated by the Internet:
• Using the technology to achieve mass customization of the marketing message — and even of the product itself. Mass customization can range from minor cosmetic choices to a collaborative process facilitated by ongoing dialogue.

• The learning relationship, by which they mean a continuous two-way dialogue that allows the offering to be adapted to meet specific needs. This can be achieved by means of online feedback forms, analysis of queries to customer service facilities, or through use of increasingly sophisticated software that analyses customer site searching behaviour before purchase.

• An incentive for the customer to engage in the dialogue. It must also be easy and convenient for the customer to engage with the company, so lengthy registration forms are often counterproductive. The best incentive is good, free, up-to-date content.

• Acknowledging the privacy of the customer and the other demands upon their time. This means communicating only with customers who have requested information, and making it easy for customers to 'opt out' if they wish. It also means guaranteeing not to pass on customer details to other companies in the form of online mailing lists.

However, despite the obvious value that the Internet adds to relationship marketing, there are a number of challenges for 'clicks and mortar' firms that are still also committed to customer interaction either face-to-face or by telephone:

• How to integrate 'online' and 'offline' relationship marketing strategies to ensure commonality of message and create synergies. A simple example of such integration concerns the use of 'callback' buttons where a customer can request, through the Web site, a telephone call from a salesperson in order to discuss the purchase request in more detail. See www.facetime. com for a demonstration! There are also implications for the way in which marketing departments are staffed in terms of the allocation of 'online' and 'offline' duties and the additional training requirements necessary.

• There can be a significant additional cost burden associated with providing an extra channel to market. Many firms fear 'cannibalization', whereby, instead of attracting new business, Internet channels merely provide additional choice to existing customers, adding to costs but not revenue. The danger is that competitors will offer customers the choice, making anything less look inadequate in comparison.

• Marketing departments are traditionally organized by geography (which of course is limited in importance on the Web) or by product. In the latter case it is difficult to implement strategies of personalization when the customer relationship crosses product line boundaries. Organization by customer group makes the most sense in terms of personalizing interactions and assessing lifetime customer value, regardless of the customer's physical location or specific product choices. However, this is not a simple undertaking because it may require significant re-engineering of business processes and organizational structures.

• While 'dotcoms' such as Amazon can track wide-ranging purchases back to a single customer account and customize future promotional campaigns and cross-selling opportunities accordingly, 'clicks and mortar' firms often lack the necessary sophisticated and integrated computer systems. These developments require a feel for the whole product range and geographical spread of the business that is beyond the scope of an individual marketer. They also imply a need for cross-functional team working to improve the organization's internal communication effectiveness. To address these difficulties, the sharing of information through intranets and extranets can help staff acquire, update and develop the customer profiles necessary for relationship building campaigns to work.

• Customer expectations are rising; many now expect an immediate response to queries at any time of the day or night, and are unimpressed if the Web site does not display the most up-to-date product information and availability. This puts pressure on firms to ensure customer service centres are adequately staffed and that their sites are easy to navigate and contain the information that the customer seeks.

Furthermore, even such radical restructuring cannot be regarded as just a one-off activity. Firms looking to remain competitive in the e-business arena have to be prepared to reorganize and restructure themselves more or less continuously. If the restructuring of traditional businesses really is so central to their development of successful e-Business strategies, it is essential to understand how to manage change effectively in order to sustain competitive advantage. This is because it is easier for a newly formed organization to operate in 'virtual' or 'networked' ways than it is to impose massive organizational change upon a long established, hierarchical and inflexible organization. Siegel warns that the customer-led company has a broad interface across which all employees can get to know their customers. Employees invite customers in to collaborate on new products, support systems, and methodologies. Facilitating those interactions will take new communication skills, new tools, and the ability to move people in and out of product teams easily.

Unit 5. *Management Challenges*

Text 1. Professional behaviour

The increasing power of information systems professionals, and correspondingly e-business professionals, requires a high degree of integrity. Codes of conduct, such as that of the British Computer Society, begin to acknowledge some of the difficult decisions faced by computer professionals. Such codes are, however, often too broad to give meaningful advice. Some take a more focused approach. Rosenberg reports on the 1996 Computer Professionals for Social Responsibility 'Electronic Privacy Principles' which suggest that 'Each employer should provide and act on clear policies regarding the privacy implications of the computing resources used in the workplace.' The policies should explicitly describe:
• Acceptable use of electronic mail and computer resources, including personal use.
• Practices that may be used to enforce these policies, such as the interception and reading of electronic mail or scanning of hard disks.
• Penalties for non-compliance with these policies.

Many argue that employees should at least be informed of any electronic monitoring systems that might be used on workplace computers. These principles suggest a basic position of transparency of any monitoring policy.

Codes of conduct are widely criticized for many reasons, for example that they are only for public relations purposes and just add to bureaucracy, that they ignore context and deny individual responsibility and moral diversity. Codes do have the advantage of offering some guidance, however, and this is desperately needed in an e-environment which so far lacks any common understanding of appropriate use.

Recommended features of a useful code of conduct are as follows. A good code of conduct:
- Is negotiated with stakeholders and acceptable to them.
- Consists of clear and well founded ethical rules.
- Is internally consistent and coherent with other policies and strategies.
- Should balance: rights and duties, the interests of internal and external stakeholders.
- Allows for exceptions (and shows how to deal with them).
- Anticipates conflicts (and shows how to deal with them).
- Respects individual freedom.
- Would not be used to indoctrinate.
- Is easy and inexpensive to apply.
- Is part of a process with regular review.

E-business managers of the future should take seriously their responsibilities in developing a professional approach to the new opportunities which the e-commerce environment affords. As a professional body develops, no doubt a specific ethical code will emerge. In the meantime, the socially responsible e-business professional would do well to aim to act with integrity for the good of others, in a way which is fair, honest, trustworthy, reliable, objective and competent.

Text 2. The ethics environment for e-business

Ethics is about understanding right and wrong. Business ethics is an increasingly acknowledged part of business life, and this is no less true for e-Business. In theoretical perspectives on business decision making, the dominant discourse is often focused on maximizing profit for company shareholders alone. This perspective is increasingly proving to be inadequate. In practice, profit maximization in the long term may best be achieved by making sustainable decisions that take the consequences for trust between stakeholders (including employees, competitors, suppliers, customers, the local community and shareholders) into account. This is called 'enlightened self-interest' — where business managers take 'ethical' decisions because of the positive impact on the financial bottom line. It is far from being the only reason for the increasing acknowledgement of business ethics. Some business people see the primary role of business as being other than profit maximization. Owner-managers of small firms, for example, have been found to be particularly concerned about the financial and personal welfare of their employees. Business and managers have increasing power as a result of their activities, and with it comes responsibility for their actions.

While there are common understandings of right and wrong in business life which we use every day and see in newspaper headlines, a detailed consideration of ethics in business cannot rely on shallow statements of how we ought to behave. It is necessary to draw on well established theories of ethics.

Ethical theories offer frameworks by which individuals can reflect on the acceptability of actions taken and evaluate moral judgements and moral character. The theories are normative, and outline ways of assessing good and bad behaviour, usually on the basis that decisions about moral practices can be cognitively arrived at. The purpose of the application of ethical theory is not to make blanket judgements about the rights or wrongs of the actions observed. The theory enables a systematic analysis using established structures for analysing behaviour from the perspective of moral philosophy.

Ethical egoism and utilitarianism are consequentialist theories. This means that, when considering whether an act is right or wrong, the actor considers the likely outcome of that act. Both theories suffer from the fact that outcomes can be difficult to predict and they also ignore the individual rights of others.

The ethical egoist acts in a way which furthers his or her own self-interest (although it may be 'enlightened' self-interest). Faced with the possibility, for example, of copying a competitor's Web page design, the ethical egoist will weigh up what the likely outcomes will be if he or she does so. If caught out and labelled with a bad reputation by employers, possibly even facing legal charges of violating copyright, the ethical egoist will not copy other people's work. If the egoist will not be found out and will save him or herself time and trouble while still fulfilling work obligations, then the outcome is positive for the egoist and he or she should act in order to further their own self-interest. The theory suffers from inconsistency, since the egoist simultaneously must expect that everyone else will further their own self-interests too, which may well conflict with their own advancement.

Utilitarianism promotes the notion of achieving maximum happiness for society (or avoidance of pain and pursuit of pleasure). The person acting ethically according to utilitarianism will weigh up carefully which act will result in the most positive outcomes for those individuals who will be affected by it, a kind of cost – benefit analysis for happiness. When deciding, for example, whether to undercut the prices of high-street booksellers, an Internet-based business that bases the ethics of its activities on utilitarianism would consider all the positive and negative impacts on individuals of not making their books cheaper, and all the positive and negative impacts on individuals of undercutting. In such an example, although a price cut might result in some job losses and reduced dividends for shareholders, the weight of advantage for many customers is likely to be widespread, hence utilitarianism might see price undercutting on the Web as ethical.

Kantianism is a very important ethical theory. Kant argued that every individual must seek to do his or her duty. He defined 'duty' very precisely as obedience to the 'categorical imperative', which is what an individual would consider to be the rational, universal, ethical action. The act is the focus of attention in Kantian ethics and an ethical act is one which complies with the categorical imperative:

• It is universalizable — if it is right in one situation for one person, it must be right in every situation for everyone.

• It respects other people and never uses them as a means to the actor's end.

This approach is clearly quite different from the consequentialist perspectives. For Kant the consequences of an act do not matter. It follows that it is our ethical duty not to lie, cheat or steal, to keep promises and not to use others.

Discourse ethics theory focuses on the process by which a decision is reached. Ethical actions are those which are reached by full, open discussion including all those who are connected in any way with a decision. For a business this means including all stakeholders actively in decision making. This is impracticable in some instances, and is not always culturally readily achievable, since some groups are more disposed to work towards consensus than others. The Chinese government, for example, seeks to block access by its citizens to Web sites containing material deemed inimical to the Chinese Communist Party. They do so by blocking access to

two Californian search engines, Google and Altavista, via Chinese internet service providers. This action, while no doubt well intentioned, also blocks the autonomy and free choice of the citizens. They have no opportunity to voice their preference, negotiate or discuss the issue. Power is held by one party, unless individuals have the technical ability to overcome the restrictions.

Virtue theory considers the character of the individual who acts. A virtuous person is one who classically possesses characteristics of justice, wisdom, temperance and courage. Modern-day virtues include cooperation, loyalty, friendliness and trustworthiness. However, there is no definitive list of virtues, and they may be culturally distinctive.

Illegal activities can be ethical, and unethical activities legal. In the realms of e-Business, many of the issues are still finding legal precedent. Most of the ethical theories incorporate reference to legal perspectives, for example Kantians will on the whole follow the law, as will ethical egoists, since it is likely to be in their own self-interest so to do. In the global context of e-commerce, the law simply does not provide sufficient, worldwide guidance on how e-business managers should behave. Ethics can help fill that gap.

Are there distinct ethical issues in e-Business? E-business enthusiasts will be well aware of the technical and financial advantages of e-Commerce. There are also ethical benefits. These include the potential to remove prejudice and barriers, as transactions are carried out via disembodied computer screens. The lack of need for a physical presence in a particular place, as long as computer access is available, opens up all kinds of possibilities for freedom of mobility and inclusion of those with physical needs which make working in an office environment difficult (ranging from physical disability to a distinct preference for working on a beach).

Internet-based business activities are opening up markets, improving information provision about different products, including non-corporate information. (For example, typing 'Nike' into a search engine finds company pages as well as sites about Nike products alleging human rights abuses by the company.) The Internet allows consumers much greater access to information, opening up the market and undermining monopolies. Such impacts are highly ethical according to a utilitarian perspective.

Freedom of speech is often cited as one of the benefits of cyberspace. Freedom of speech is a fundamental human right, yet it is not enjoyed by all. The Internet can be a means of increasing freedom of speech. Technology and law have been unsuccessful as a means of controlling what is on the Web. This means, at one extreme, that abhorrent pornography is available and that inaccurate claims made in relation to e-business products or services are equally difficult to control. We generally become aware of ethical issues through dilemmas, conflicts and discomfort with situations, behaviours and acts.

Text 3. E-business and the law

In order to balance the conflicting interests in any society it is necessary for businesses to operate within a legal framework. The criminal law consists of rules set down by and enforced by the state in respect of conduct which the state sees as being 'uncivilized' and contrary to society's best interests. In the context of business, this will clearly include matters such as theft and fraud in various forms, such as obtaining property/services without paying for them, or obtaining payment for property/services

which one intends never to supply. It may be that the particular nature of e-business — dealing at a distance with persons or organizations that one has never met, perhaps in remote parts of the world from you and giving them electronic access to your funds — is conducive to this sort of activity. Certainly, many individuals cite data insecurity as a reason for not conducting transactions via e-commerce. Even those happy to shop online with tried and trusted high-street presences such as Tesco or Sainsbury may be far more reticent in buying online from a supplier based in Tashkent or St Louis of whom they have no knowledge or experience.

As a general rule, states prosecute individuals or companies for crimes committed within their jurisdiction (area of judicial competence). Conviction will usually lead to a fine and/or imprisonment for individuals, although other consequences such as disqualification from being a director of a company may also follow.

In addition to the criminal law, all states also have a system of civil law whereby disputes between individuals (a company is an artificial legal person and thus counted as an individual for these purposes) can be resolved. Such disputes may well not involve criminal activity. Issues such as consumer rights will be dealt with by the civil law and are unlikely to be criminal activities. Examples of this include purchased goods that prove not to be of satisfactory quality or fit for the particular purpose made known at the time of the sale, or defective provision of services under a contract. They are examples of breaches of contract where one party to an agreement fails to honour it in full. Civil disputes may also arise outside contractual relationships and are covered in English law by the law of tort (for example, a case of negligent actions causing loss or harm to another, as in a road accident). In the context of e-commerce, this might well involve matters such as trade marks and copyright in areas such as domain names and Web pages where another's use of a property over which you claim exclusive rights could have devastating effects. For example, you might not be able to use a domain name on the Web corresponding to the name under which you have traded for some time and built up a considerable reputation and goodwill.

The claimant in a civil law case will sue in a court provided by the state for the settlement of such disputes, hoping to get either compensation (known as damages) for loss or harm suffered as a result of the defendant's actions, or a court order instructing the defendant not to act in a particular way (an injunction), or to carry out her/his contractual duties (a decree of specific performance). These latter orders will be granted at the court's discretion only where damages — the court's normal award to a successful claimant — would be insufficient or inappropriate in the circumstances.

Different countries will have different Acts to cover activities within their jurisdiction but the fundamental concepts of civil and criminal law and their purposes remain the same in all countries.

Text 4. Security and ethical challenges

Ethical Responsibility of a Business. Ethics are the moral code by which people live and conduct business. An entrepreneur should develop a written code of ethics to reduce the chance of unethical behavior occurring in his or her business. Employees should be involved in developing the code of ethics. Businesses often face ethical problems when there are conflicts of interest, when their economic survival is threatened, and when doing business abroad (where ethical practices may differ).

When business people speak about "business ethics" they usually mean one of three things:
– avoid breaking the criminal law in one's work-related activity;
– avoid action that may result in civil law suits against the company;
– avoid actions that are bad for the company image.

Businesses are especially concerned with these three things since they involve loss of money and company reputation. In theory, a business could address these three concerns by assigning corporate attorneys and public relations experts to escort employees on their daily activities. Anytime an employee might stray from the straight and narrow path of acceptable conduct, the experts would guide him back.

Obviously this solution would be a financial disaster if carried out in practice since it would cost a business more in attorney and public relations fees than they would save from proper employee conduct. Perhaps reluctantly, businesses turn to philosophers to instruct employees on becoming "moral." For over 2,000 years philosophers have systematically addressed the issue of right and wrong conduct. Presumably, then, philosophers can teach employees a basic understanding of morality which will keep them out of trouble.

However, it is not likely that philosophers can teach anyone to be ethical. The job of teaching morality rests squarely on the shoulders of parents and one's early social environment. By the time philosophers enter the picture, it is too late to change the moral predispositions of an adult. Also, even if philosophers could teach morality, their recommendations are not always the most financially efficient.

Although being moral may save a company from some legal and public relations nightmares, morality in business is also costly. A morally responsible company must pay special attention to product safety, environmental impact, truthful advertising, scrupulous marketing, and humane working conditions. This may be more than a tight-budgeted business bargained for.

This cannot easily resolve this tension between the ethical interests of the money-minded business person and the ideal-minded philosopher. In most issues of business ethics, ideal moral principles will be checked by economic viability. To understand what is at stake, look at three different ways of deriving standards of business ethics.

Deriving Business Ethics from the Profit Motive. Some business people argue that there is a symbiotic relation between ethics and business in which ethics naturally emerges from a profit-oriented business. There are both weak and strong versions of this approach. The weak version is often expressed in the dictum that good ethics results in good business, which simply means that moral businesses practices are profitable. For example, it is profitable to make safe products since this will reduce product liability lawsuits. Similarly, it may be in the best financial interests of businesses to respect employee privacy, since this will improve morale and thus improve work efficiency.

Robert F. Hartley's book 'Business Ethics' takes this approach. Using 20 case studies as illustrations, Hartley argues that the long-term best interests of businesses are served by seeking a trusting relation with the public. This weak version, however, has problems. First, many moral business practices will have an economic advantage only in the long run. This provides little incentive for businesses that are designed to exclusively to seek short-term profits.

As more and more businesses compete for the same market, short-term profits will dictate the decisions of many companies simply as a matter of survival. Second, some moral business practices may not be economically viable even in the long run. For example, this might be the case with retaining older workers who are inefficient, as opposed to replacing them with younger and more efficient workers. Third, and most importantly, those moral business practices that are good for business depend upon what at that time will produce a profit. In a different market, the same practices might not be economically viable. Thus, any overlap that exists between morality and profit is both limited and incidental.

The strong version of this profit approach takes a reverse strategy and maintains that, in a competitive and free market, the profit motive will in fact bring about a morally proper environment. That is, if customers demand safe products, or workers demand privacy, then they will buy from or work for only those businesses that meet their demands. Businesses that do not heed these demands will not survive.

Since this view maintains that the drive for profit will create morality, the strong version can be expressed in the dictum that good business results in good ethics, which is the converse of the above dictum. Proponents of this view, such as Milton Friedman, argue that this would happen in the United States if the government would allow a truly competitive and free market. But this strong view also has problems, since it assumes that consumers or workers will demand the morally proper thing. In fact, consumers may opt for less safe products if they know they will be saving money. For example, consumers might prefer a cheaper car without air bags, even though doing so places their own lives and the lives of their passengers at greater risk, which is morally irresponsible. Similarly, workers may forego demands of privacy at work if they are compensated with high enough wages. In short, not every moral business practice will simply emerge from the profit principle as suggested by either the weak or strong views.

Business Ethics Restricted to Following the Law. A second approach to business ethics is that moral obligations in business are restricted to what the law requires. The most universal aspects of Western morality have already been put into our legal system, such as with laws against killing, stealing, fraud, harassment, or reckless endangerment. Moral principles beyond what the law requires — or supra-legal principles — appear to be optional since philosophers dispute about their validity and society wavers about its acceptance. For any specific issue under consideration, such as determining what counts as responsible marketing or adequate privacy in the workplace, we will find opposing positions on our supra-legal moral obligations. It is, therefore, unreasonable to expect businesses to perform duties about which there is so much disagreement and which appear to be optional.

The unreasonableness of such a moral requirement in our society becomes all the more evident when considered societies that do have a strong external source of morality. Islam, for example, contains a broad range of moral requirements such as an alms mandate, prohibitions against sleeping partners that collect unearned money and restrictions on charging interest for certain types of loans, particularly for relief aid. Thus, in Muslim countries that are not necessarily ruled by Islamic law, there is a strong source of external morality that would be binding on Muslim businesses apart from what their laws would require.

Similarly, Confucianism has a strong emphasis on filial piety; thus, in Chinese and other Confucian societies, it is reasonable to expect their businesses to maintain a respect for elders even if it is not part of the legal system. In Western culture, or at least in the United States, we lack a counterpart to an external source of morality as is present in Muslim or Confucian societies. One reason is because of cultural pluralism and the presence of a wide range of belief systems. Even within Christianity, the diversity of denominations and beliefs prevents it from being a homogeneous source of Christian values. In short, without a widely recognized system of ethics that is external to the law, supra-legal moral obligations in our society appear to be optional; and, it is unreasonable to expect business people to be obligated to principles which appear to be optional.

In culturally pluralistic society, the only business-related moral obligations that are majority-endorsed by national social group are those obligations that are already contained in the law. These include a range of guidelines for honesty in advertising, product safety, safe working conditions, and fair hiring and firing practices. In fact, the unifying moral force of businesses within our diverse society is the law itself.

Beyond the law we find that the moral obligations of businesses are contextually bound by subgroups, such as with a business that is operated by traditional Muslims or environmental activists. In these cases, the individual businesses may be bound by the obligations of their subgroups, but such obligations are contingent upon one's association with these social subgroups. And, clearly, the obligations within those subgroups are not binding on those outside the subgroups. If a business does not belong to any subgroup, then its only moral obligations will be those within the context of society at large, and these obligations are in the law.

Corporations that assume an obligation beyond the law, either in their corporate codes or in practice, take on responsibilities that most outsiders would designate as optional. A good example is found in the mission statement of Ben & Jerry's Ice Cream, which includes the following

To operate the company in a way that actively recognizes the central role that business plays in the structure of society by initiating innovative ways to improve the quality of life of a broad community — local, national, and international. Strictly following this legal approach to business ethics may indeed prompt businesses to do the right thing, as prescribed by law. Nevertheless, there are two key problems with restricting morality solely to what the law requires.

Even in the best legal context, the law will lag behind our moral condemnation of certain unscrupulous, yet legal business practices. For example, in the past, drug companies could make exaggerated claims about the miraculous curative properties of their products. Now government regulations prohibit any exaggerated claims.

Thus, prior to the enactment of a law, there will be a period of time when a business practice will be deemed immoral, yet the practice will be legal. This would be a continuing problem since changes in products, technology, and marketing strategies would soon present new questionable practices that would not be addressed by existing legislation.

Problem with the law-based approach is that, at best, it applies only to countries such as those whose business-related laws are morally conscientious. The situation may be different for some developing countries with less sophisticated laws and regulatory agencies.

Deriving Business Ethics from General Moral Obligations. The third approach to business ethics is that morality must be introduced as a factor that is external from both the profit motive and the law. This is the approach taken by most philosophers who write on business ethics, and is expressed most clearly in the following from a well known business ethics essay.

Proper ethical behavior exists on a plane above the law. The law merely specifies the lowest common denominator of acceptable behavior. The most convenient way to explore this approach is to consider the supra-legal moral principles that philosophers commonly offer. Five fairly broad moral principles suggested by philosophers are as follows:

harm principle – businesses should avoid causing unwarranted harm.

fairness principle – business should be fair in all of their practices.

Human rights principle – businesses should respect human rights.

autonomy principle – businesses should not infringe on the rationally reflective choices of people.

veracity principle – businesses should not be deceptive in their practices.

The attraction of these principles is that they appeal to universal moral notions that no one would reasonably reject. But, the problem with these principles is that they are too general. These principles do not tell us specifically what counts as harm, unfairness, or a violation of human rights.

The above principles are abstract in nature. That is, they broadly mandate against harm, and broadly endorse autonomy. Because they are abstract, they will be difficult to apply to concrete situations and consequently not give clear guidance in complex situations. An alternative approach is to forget the abstract, and focus instead on concrete situations that affect the particular interests of consumers, workers, stockholders, or the community. The recent stakeholder approach to business ethics attempts to do this systematically. It may be expressed in the following.

Stakeholder Principle. Businesses should consider all stakeholders' interests that are affected by a business practice. A stakeholder is any party affected by a business practice, including employees, suppliers, customers, creditors, competitors, governments, and communities. Accordingly, the stakeholder approach to business ethics emphasizes that we should map out of the various parties affected by a business practice. But this approach is limited since proponents of this view give us no clear formula for how to prioritize the various interests once we map them out. Should all stakeholders' interests be treated equally – from the largest stockholder down to the garbage man who empties the factory dumpster? Probably no defenders of the stakeholder approach would advocate treating all interests equally. Alternatively, should the stockholders' interests have special priority? If we take this route, then the stakeholder principle is merely a revision of the profit principle.

Another way of looking at concrete moral obligations in business is to list them issue by issue. This is the strategy behind corporate codes of ethics that address specific topics such as confidentiality of corporate information, conflicts of interest, bribes, and political contributions.

Although corporate codes of ethics are often viewed cynically as attempts to foster good public relations or to reduce legal liability, a corporate code of ethics is a reasonable model for understanding how moral principles are articulated and introduce them into

business practice. The practical advantage of this approach is that it directly stipulates the morality of certain action types, without becoming ensnared in the problem of deriving particular actions from more abstract principles, such as the harm principle. But, the limitation of the corporate code model is that the principles offered will appear to be merely rules of prudence or good manners unless we can establish their distinctly moral character. And this requires relying on more general principles of ethic described above, which, we've seen, comes with its own set of problems.

All these three approaches to business ethics have limitations. If one hoped to find an approach to business ethics that is free from conceptual problems, he will not likely find any. Ethics is a complex subject and its history is filled with diverse theories that are systematically refuted by rival theories. However, following any of the above three approaches to business ethics will bring closer to acceptable moral behavior than might otherwise be. Close attention to one's profit motive and the moral interests of consumers might in fact generate some morally responsible business decisions. In gray areas of moral controversy that are not adequately addressed profit motives and the law, turning for guidance to a variety of general and specific moral principles is acceptable.

In addition to the above three approaches to business ethics, it also helps to examine stories of businesses that have been morally irresponsible. By citing specific cases of deceptive advertising, environmental irresponsibility, or unsafe products, insight for does/don't will be learnt. Such cases often reveal blatantly crude, insensitive, or reckless attitudes of businesses, which can be viewed as warning signs of unethical conduct.

Text 5.Internetworked Security Defenses

When a computer connects to a network and begins communicating with others, it is taking a risk. Internet security involves the protection of a computer's internet account and files from intrusion of an unknown user. Basic security measures involve protection by well selected passwords, change of file permissions and back up of computer's data.

Security concerns are in some ways peripheral to normal business working, but serve to highlight just how important it is that business users feel confident when using IT systems. Security will probably always be high on the IT agenda simply because cyber criminals know that a successful attack is very profitable. This means they will always strive to find new ways to circumvent IT security, and users will consequently need to be continually vigilant. Whenever decisions need to be made about how to enhance a system, security will need to be held uppermost among its requirements.

It takes a number of steps to detect and prevent an attack before it can shut down your network. Here we outline the process at a broad level. Some common questions may be addressed through the descriptions below.

Monitoring. VeriSign collects traffic flow data from the customer's Internet-connected routers. Samples of the customer's Internet traffic are incorporated into VeriSign's correlation engine for threat detection, alerts, and reporting. The frequency of packet sampling can be tailored based on customer size, type, and router performance. Packets are classified and analyzed using advance heuristics to profile normal versus anomalous traffic patterns. Threat detection is comprised of two primary components —signature analysis and dynamic profiling.

Signature Analysis. Signature analysis looks for predefined deviations that are signs of a DDoS attack. VeriSign uses a combination of industry best practices and proprietary intelligence to identify these signatures. Since attacks are always evolving, lessons learned from mitigating them feed into our ongoing research and development to help identify new threat signatures.

Dynamic Profiling. Because all customers are different and attack profiles are constantly changing, it is vital that VeriSign understand each customer's 'normal'.

Traffic Patterns. To do so, VeriSign works with the customer to establish a dynamic profile of its Internet traffic. Deviations from the established customer profile that exceed pre-defined thresholds automatically activate an alert for VeriSign 24/7 security teams, enabling VeriSign to respond to new and one-of- a-kind attack profiles.

Mitigation. Because timeliness is critical to protecting Web-based services, VeriSign works with the customer during the initial set-up and testing phases to seamlessly implement a combination of off-ramping, filtering, and on-ramping as needed to address the problem.

Off-Ramping Traffic. VeriSign security experts redirect Internet traffic destined for the customer to Internet Defense Network sites, so the traffic reaches VeriSign first. VeriSign offers several methods for off-ramping traffic, including BGP announcements or changes to customer Domain Name System (DNS) records.

Optimal solutions vary by customer and depend upon the size of the customer network, the types of services they utilize, and a host of other considerations.

Progressive Filtering. VeriSign employs a layered Fig approach to traffic filtering that progressively enhances rule sets over time. Instead of blocking all traffic to a customer, VeriSign helps legitimate traffic reach its intended destination.

Multiple filters are applied at various layers of the OSI stack. Although some attacks can be mitigated by implementing filters at the network layer, complex attacks now require analysis and filtering up through the application layers. VeriSign is able to complement commercially available products with custom, in-house development to create a world-class DDoS mitigation solution. Ultimately, malicious traffic is blocked while filtered traffic is sent to your network, helping you sustain normal business operations.

Once traffic is 'cleaned', VeriSign redirects it from the Internet Defense Network site to the customer's network. VeriSign network architects work with the customer to establish the best method for redirecting legitimate traffic back into its network, such as GRE tunneling, establishing a Virtual Private Network (VPN), or directly connecting to a site. VeriSign Internet Defense Network can help protect User online operations. User will have peace of mind knowing that legitimate users — including their employees and customers — can always access User's Web Site, email, and other services. Preventing a DDoS attack can save thousands, even millions, in lost revenue. It can also help keep your organization's brand, and reputation, strong.

Security Measures. When we talk about implementing basic security measures, one could think "And what are those?" And if that question would be asked, it would be a very, very difficult question to answer. If User is an system administrator, an IT security manager in a company, or just a regular information security enthusiast, recommended to read, as it addresses some of the most important issues in implementation of basic security measures in an IT environment.

Information security breaches have been rapidly rising over the past decade at an alarming level. For this reason, more and more IT companies have realized that securing their businesses is not something they should do, but something they have to do. The losses we read about in everyday news are too scary to let IT security of User's company be just the way it is - none! they can't do it once and for all, but rather by employing basic security measures and following some rules and policies User define for their organization.

According to the Internet Security Alliance (IS Alliance), there are about ten good security practices as a place to start. These ten practices include different kinds of information security, such as policy, process, people, and technology, all of which are necessary for deployment of a successful security process. With these techniques adopted, we can say we are moving towards our goal ensuring the security of critical information assets. It is proven that through adopting commonly accepted, good security practices, every organization can begin to successfully manage their security risks. These ten practices are: General Management Policy, Risk Management, Security Architecture and Design, User Issues, System and Network Management, Authentication and Authorization, Monitor and Audit Physical Security, Continuity Planning and Disaster Recovery.

User Issues. This practice involves a few sub practices as well, such as Accountability and Training and Adequate Expertise. Regarding Accountability and Training, User should establish accountability for user actions, train for accountability and enforce it, as reflected in organizational policies and procedures. When we say users, we mean all the users with active accounts, in example employees, partners, suppliers, and vendors.

Regarding Adequate Expertise, you should ensure that there is adequate in-house expertise or explicitly outsourced expertise for all supported technologies, including the secure operation of those technologies. one have to know whom to call if User have problems with operating system, laptop, and access to new project data, passwords, security applications, or custom applications that have been developed internally. One should also know whom to call when corporate firewall blocks accessory a service that User need, or something similar to that.

System and Network Management. This practice is built from few smaller practices, which are all very important. Those are Access Control, Software Integrity, Secure Asset Configuration and Backups.   It is recommended to:

– stablish a range of security controls to protect assets residing on systems and networks. Consider use of access controls at your network, and use of data encryption technologies (VPN too) as required;

– use removable storage media for critical data so that it can be physically secured. Do regular checks and verify the integrity of installed software. Do regular checks for viruses, worms, Trojans and other malicious software or unauthorized software. Also, regularly compare all file and directory cryptographic checksums with a securely stored, maintained, and trusted baseline;

– provide procedures and mechanisms to ensure the secure configuration of all deployed assets throughout their life cycle of installation, operation, maintenance, and retirement. This means one should apply patches to correct security and functionality problems, and establish standard, minimal essential configuration for each type of computer and service.

– keep network topology up to date, and provide some levels of logging. Before applying patches, consider the security implications for every change to systems and networks.

– perform vulnerability assessments on a periodic basis, and address vulnerabilities when they are identified. Mandate a regular schedule of backups for both software and data, which means to validate software and data before and after backup, and making sure the ability to restore from backups.

Authentication and Authorization. Protect critical assets when providing network access to users working remotely and to third parties such as contractors and service providers. Should use network-, system-, file-, and application-level access controls and restrict access to authorized times and tasks, as required. Also, consider using data encryption and virtual private network technologies, if it is required.

Monitor and Audit. Use appropriate monitoring, auditing, and inspection facilities and assign responsibility for reporting, evaluating, and responding to system and network events and conditions. This means that regular use of system and network monitoring tools and examine the results they produce; also use filtering and analysis tools and examine the results they produce, and learn how to response to events that warrants a response action.

Also, making sure employees are aware of whom to contact when they notice suspicious behavior. System administrators should be advised to up to date on the latest threats and attacks, and provide them with recourses on solutions over this problem.

Physical Security

Physical security is as important as network security. It is one of the most frequently forgotten forms of security because the issues that physical security encompasses – the threats, practices, and protections available – are different for practically every different site.

The real danger in having a computer stolen isn't the loss of the system's hardware but the value of the loss of the data that was stored on the computer's disks. As with legal files and financial records, if not having a backup - or if the backup is stolen with the computer - the data lost may well be irreplaceable. Even if there is a backup, it still needs to spend valuable time setting up a replacement system. Finally, there is always the chance that stolen information itself, or even the mere fact that information was stolen, will be used against.

There are several measures that need to be protected for the computer system against physical threats. Many of them will simultaneously protect the system from dangers posed by nature, outsiders, and inside saboteurs. So, it is suggested to use physical access controls (e.g., badges, biometrics, keys), where required.

Also, use password-controlled electronic locks for workstations, servers, and laptops that are enabled upon login and after specified periods of inactivity. Control access to all your critical hardware assets (e.g., routers, firewalls, servers, mail hubs).

Continuity Planning and Disaster Recovery. Hopefully, by following this tips mentioned above, it is hoped that systems or networks will never be stolen or damaged. But if that happens, you should have a plan for immediately securing temporary computer equipment and for loading your backups onto the new systems. This plan is known as disaster recovery. One should establish a plan for rapidly acquiring new equipment in the event of theft, fire, or equipment failure.

Glossary

Unit 1

Internet – an interactive online tutorial on Internet Terminology.
Intranet – private network that is contained within an enterprise.
Extranet – private network that uses Internet protocol.
Value chain – string of companies working together to satisfy market demands.
Blog – a lot like a journal except it is generally intended to be read by others
Social networking – practice of expanding the number of one's business by making connection through individuals.
E-business – electronic business, the conduct of business on the internet
E-commerce – electronic commerce is selling products online System any organized assembly of resources
Information system – any written of electronic graphical method of communicating information.
MSN – Microsoft Network; Internet based services from Microsoft.
Logistics – business planning framework for management of material, service etc.
ERP – the industry term used to describe a broad set of activities.
Supply chain – the network of retailers, distributors, transporters, storage facilities.
Warehouse – place in which goods or merchandise are stored.
Ethics – a theory of system of moral values
Virtual company – a business organization relying on telecommunication and computer technology for its operation.
Manpower – workers available for particular task.
Down time – period of time the system fails to function.
URL – Uniform Resource locator; some thing as a file which identifies resource.

Unit 2

Applet – A Java program that is executed on the client machine. It is loaded by the Web browser and restricted to the browser to prevent security breaches.
Bandwidth – the physical capacity of data cables to carry and transfer data, measured in bytes.
Client-server architecture – an arrangement of computers where a main computer, the server, provides the software to other computers, the clients, over a network is called client-server architecture.
Cryptography – cryptography is used to provide secure transmission of data over the Internet. Private data like credit card details or digital signatures are encrypted and then transmitted over the Internet.
Database – a computer database consists of records on specific items of interest, for example customers' contact details or the products they have bought. It is a collection of data stored to enable querying of the data for specific purposes such as targeting a particular customer for certain products.
Extensible mark-up language XML provides companies the capability to define tags that uniquely describe their products, services or customer service culture. Companies can design XML tags to display price or product or service descriptions that cannot be done in HTML.
Extranet – the networked connection of computers of two or more companies. It is a private communication system between two or more companies to support trade between them.

Hypertext mark-up language – a Web page is created by authoring information using a Web authoring programming language such as hypertext mark-up language (HTML). HTML documents are text files that are interpreted by a Web browser.

Information system – an information system is composed of computer hardware, software and people, and processes data into information.

Information technology – digital technology that is used to develop information systems.

Internet – the term is short for 'inter-networking' or an interconnected set of networks. It is the global network of computers, whether the computer is on a LAN in an office or a WAN in an industry extranet or an independent computer in a private home.

Internet service provider – an Internet service provider provides communication and hosting services for individuals and companies wanting to access the Internet.

Intranet – an Intranet consists of the networked internal connection of computers owned by a company and makes use of Web technology.

Java – a programming language originally intended for programming consumer electronic devices like microwave ovens, dishwashers or electronic clocks. Java is interpreted by virtual Java machines that are independent of operating systems, a feature which makes it ideal for Internet programming.

JavaScript – JavaScript is used to process data captured via forms on the Internet and to create interactive Web sites. Both the server and the client side use it. JavaScript is embedded in HTML and is interpreted by a browser.

Local area network – a computer network that is confined to a limited geographical area like an office or a company is called a local area network (LAN).

Protocol – the set of rules for moving information over the Internet.

Semantic Web – the Semantic Web enables contextual information to be captured in Web applications.

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Database – a computer database consists of records on specific items of interest, for example customers' contact details or the products they have bought. It is a collection of data stored to enable querying of the data for specific purposes such as targeting a particular customer for certain products.

Extensible mark-up language – XML provides companies the capability to define tags that uniquely describe their products, services or customer service culture. Companies can design XML tags to display price or product or service descriptions that cannot be done in HTML.

Extranet – the networked connection of computers of two or more companies. It is a private communication system between two or more companies to support trade between them.

Hypertext mark-up language – a Web page is created by authoring information using a Web authoring programming language such as hypertext mark-up language (HTML). HTML documents are text files that are interpreted by a Web browser.

Information system – an information system is composed of computer hardware, software and people, and processes data into information.

Information technology – digital technology that is used to develop information systems.

Internet – the term is short for 'inter-networking' or an interconnected set of networks. It is the global network of computers, whether the computer is on a LAN in an office or a WAN in an industry extranet or an independent computer in a private home.

Internet service provider – An Internet service provider provides communication and hosting services for individuals and companies wanting to access the Internet.

Intranet – an Intranet consists of the networked internal connection of computers owned by a company and makes use of Web technology.

Java – a programming language originally intended for programming consumer electronic devices like microwave ovens, dishwashers or electronic clocks. Java is interpreted by virtual Java machines that are independent of operating systems, a feature which makes it ideal for Internet programming.

JavaScript – JavaScript is used to process data captured via forms on the Internet and to create interactive Web sites. Both the server and the client side use it. JavaScript is embedded in HTML and is interpreted by a browser.

Local area network – a computer network that is confined to a limited geographical area like an office or a company is called a local area network (LAN).

Protocol – the set of rules for moving information over the Internet.

Semantic Web – the Semantic Web enables contextual information to be captured in Web applications.

Uniform resource locator – the uniform resource locator (URL) is the address of a particular Web site on the Internet. It consists of domain names and a pathway that locates a particular host computer that is connected to the Internet. An example URL is www.yahoo.com or www.dell.com.

Web browser – a graphical interface for searching, accessing and viewing hypertext and multimedia files on the Web.

Wide area network – a computer network that is spread over a wide geographical area like a region or between companies is called a wide area network (WAN).

World Wide Web – the World Wide Web, also known as the 'Web' or 'WWW', consists of pages of information depicted as text, graphics, sound, or video clips, and they contain Java applets – Java programs that are downloaded from the server and run on the local computer.

Unit 4

Cannibalization – the notion that sales will be compromised by offering an Internet channel to market, as existing customers simply alternate between a greater choice of delivery channel.

Clicks and mortar – a 'traditional' organization moving towards the inclusion of electronic trading operations to complement its core business.

Dotcom – an organization formed specifically to operate on the Internet, with no street presence.

Employer branding – application of attributes as per traditional product brands to the company as a whole, in order to attract and retain top-quality staff. In a nutshell, it means being known as 'a good place to work'.

Extranet – Intranet facilities which are extended to include suppliers, distributors, customers or business partners and allow relevant data to be shared beyond the usual boundaries of the firm.

Intranet – Intranets are internal company networks for the use of employees only which are based on the same technology as the global Internet. They are cordoned off from public access by software known as 'firewalls', permitting enhanced communications across management hierarchies and the boundaries of business functions.

Marketing mix – the traditional framework for managing a firm's relationships with customers, namely product, price, promotion and place (the four Ps).

Marketing orientation – a focus upon achieving organizational objectives through meeting customer needs more effectively than the competition.

Project champion (rainmaker) – a role as a key internal driver and enthusiast of project progress, often in the face of inertia or resistance if change is being instigated.

Stakeholders – the primary groups which have an interest in the activities of a firm and to which it has a moral obligation, i.e. employees, customers, business partners, suppliers and shareholders.

Unit 5

Vendor – someone who promotes or exchanges goods for money

Stake holder – a person, Group who affects or affected by an organization action.

Stock holders – one who own shares of stocks in a corporation or mutual fund.

Decentralization – process of dispersing decision making governance closer to people.

Act – perform an action

Monitor – someone who supervises

Authentication – process of determining whether some thing in fact who/what is done.

Authorization – giving some one permission to do or have.

VPN – virtual private network; a computer network implanted in additional software.

Access – control list of permission attached to an object

Software Integrity – a certification important for business

Cyber space – the electronic medium of computer network, for online communication.

Cyber crime – refers to criminal activity on a computer

Hacking – act refers to clever or quick fix to a computer programme.

Hacker – one who does hacking.

Deployment – distribution of forces in preparation of work.

Mitigation – act in such a way as to cause an offense to seem less serious.

Encrypting – activity of converting data or information into code.

Telnet – telecommunication network, a protocol used on local area network

Ergonomics – science relate to man and his work embodying the anatomic principle.

Web seals – high performance web server that applies fine grained security policy.

Blockers – something that obstructs the passage.

Anti-virus – protective software designed to defend computer against malicious Software.

Anti-spyware – software to detect unwanted spy ware programme.

Computer crime – illegal action where data in computer is used without permission.

Supra-legal – to refer a mater under current consideration.

Address – unique identifier to the location of a stored file, data source, or device as part of a computer system or network.

Applet – programs downloaded over a network and launched on the user's computer.

Application – a program that performs a specific function for a user.

Audio/Video Interleaved (AVI) – common format for video files.

Bandwidth – how much data you can send through a connection, measured in bits per second.

Bitmap – a common image format based on a rectangular pattern of pixels.

Bookmark – a browser tool that acts as a pointer to a defined web site.

Bounce – failed delivery of an email and its subsequent return to sender as undeliverable.

BPS (Bits per second) – the measure of data speed through a network, modem or Internet connection.

Broadband – high capacity communication paths capable of supporting a wide range of frequencies and multiple signals over independent channels usually with a speed greater than 1.544 Mbps.

Browser – graphically interactive software used to find, view and mange information over a network.

Bulletin Board System (BBS) – a computer system which provides information and messaging services for dial up users.

Capacity – the highest transmission speed that can be reliably carried through a circuit.

Compressed Files – Data files that have been compacted to save space and reduce transfer times.

Cookies – files which contain information about a user's browsing habits which are stored on a system by Web browsers.

Crackers – users with malicious intentions who gain unauthorized access to computer.

Dedicated Line – a private leased line from a telecommunications provider.

Dialup – a commonly used method of establishing temporary access to the Internet using standard phone lines and a modem.

Domain – subsets or logical regions of the internet which include the .com, .org, .net, .edu domains.

Download – the act of transferring data from a remote computer to a local computer.

E-mail – a method for the exchange of messages with other computer servers over a network.

E-mail address – the domain-based address used to direct email to a specific destination.

Electronic Commerce – commonly used term to describe emerging technologies used to conduct business over networks rather than through more traditional communication paths.

Encryption – network security based on the encoding of network data packets to prevent anyone but the intended recipient from accessing the data.

File Transfer Protocol (FTP) – a standardized system for transferring files across the Internet. Most commonly used for downloading software.

Firewall – a method of protecting one network from another network.

Frame – a named, scrollable region in which pages can be displayed.

Front End – in the client/server model, the front end refers to the client side or user.

Graphics Interchange Format (GIF) – a standard and popular format for image files on the web.

Hacker – a person with an in-depth understanding of computer systems and networks.

Home Page – the first page display of a Web site.

Hypertext – a term coined by computer author Ted Nelson to describe text that is linked, via an underlying URL, to other text, sound, video, or graphical images.

Hypertext Markup Language (HTML) – a tag language used as the standard for creation of web pages.

Hypertext Transfer Protocol (HTTP) – communications instruction set for the transfer of data between a server and a Web client.

Information Superhighway – commonly used term to describe the Internet and the access users will have to the networks that provide the information.

Integrated Services Digital Network (ISDN) – communication line that carries a combination of voice and data across a single line.

Internet – the worlds largest network sharing a common address scheme.

Joint Photographic Experts Group (JPEG) – a popular compressed format for photographic images used on Web pages.

Keyword – an indexed word that defines a document.

Local Area Network (LAN) – a network of computers in a relatively small area such as an office, department, or building.

Modem – shortened version of Modulated/DEModulator which is a device that enables a computer to transmit data over a phone line.

Network – A group of computers interconnected so they can transfer and share information between individual computers.

Plug-In – helper applications accessed by Web browsers to play multimedia and other resources.

Portals – a Web site or service, such as AOL, that offers an array of resources and services, such as e-mail, forums, search engines, and on- line shopping malls.

Real Time – the transmission and processing of transactional data as they occur, rather than in batches.

Secure Sockets Layers (SSL) – a protocol for transmitting private documents and confidential information via the Internet. Developed by Netscape, it is supported by both Netscape and Internet Explorer.

Secure Electronic Transaction (SET) – a relatively new standard that will enable secure credit card transactions on the internet. SET employs digital signatures which enables merchants to verify that buyers are who they claim to be. It also protects buyers by transferring their credit card number directly to the credit card issuer for verification and billing without the merchant being able to seeing it.

Uniform Resource Locater (URL) – the technical name of Internet addresses which include both the address of the Web server and the specific directory structure to locate an individual Web page.

Usenet – collection of thousands of bulletin boards/newsgroups on the internet.

Wide Area Network (WAN) – a network or system of connected computers covering a large geographic area.

World Wide Web (WWW or W3) – the subset of the Internet which uses text, graphics and multimedia (audio and video) to communicate.

WYSIWYG (wizzy-wig) – a WYSIWYG application enables you to see on the monitor exactly what the document will appear like when printed.

ZIP (.zip) – a compressed file format used to reduce storage requirements and data transfer times.

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