Independent Institute of Lay Adventists of Kigali (INILAK)

MANAGEMENT INFORMATION SYSTEMS & ELECTRONIC COMMERCE


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MANAGEMENT INFORMATION SYSTEMS & ELECTRONIC COMMERCE

Course description

This subject will help students to comprehend computer-based information systems and their role in organizations. Information systems are one of the major tools available to business managers for achieving operational excellence, developing new products and services, improving decision making, and achieving competitive advantage. This course aims to instill an appreciation of how the technology plays its role in the online business and also how to tackle the different laws allocated for the business. Students will gain a strong foundation of business systems fundamentals and the influence of the internet and web technologies on business stakeholders; customers, suppliers manufactures, service makers, regulators and employees.

Chapter 1. Introduction to Management Information system

1.1 Understanding MIS

MIS has many definitions. Their difference relies on the concept
2. Integrated system of man and machine for providing the information to support the operations, the management and the decision making function in the organization.
3. System based on the database of the organization evolved for the purpose of providing information to the people in the organization.

In today's world, MIS is a computerized business processing system generating information for the people in the organization to meet the information needed for decision making in order to achieve the objectives of the organization.

Though there are a number of definitions, all of them converge on one single point, i.e., the MIS is a system to support the decision making function in the organization. The difference lies in defining the elements of the MIS. However, in today's world MIS a computerized business processing system generating information for the people in the organization to meet the information needs decision making to achieve the corporate objective of the organization.

In any organization, small or big, a major portion of the time goes in data collection, processing, documenting it to the people. Hence, a major portion of the overheads goes into this kind of unproductive work in the organization. Every individual in an organization is continuously looking for some information which is needed to perform his/her task. Hence, the information is people-oriented and it varies with the nature of the people in the organization.
In order to get a better grip on the activity of information processing, it is necessary to have a formal system which should take care of the following points:

• Handling of a voluminous data.
• Confirmation of the validity of data and transaction.
• Complex processing of data and multidimensional analysis.
• Quick search and retrieval.
• Mass storage.
• Communication of the information system to the user on time.
• Fulfilling the changing needs of the information.

The management information system uses computers and communication technology to deal with these points of supreme importance.

### 1.1.1 Information system

An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization. In addition to supporting decision making, coordination, and control, information systems may also help managers and workers analyze problems, visualize complex subjects, and create new products.

Information systems contain information about significant people, places, and things within the organization or in the environment surrounding it.

### 1.1.2 Information and data

By information we mean data that have been shaped into a form that is meaningful and useful to human beings. Data, in contrast, are streams of raw facts representing events occurring in organizations or the physical environment before they have been organized and arranged into a form that people can understand and use.

A brief example contrasting information and data may prove useful. Supermarket checkout counters scan millions of pieces of data from bar codes, which describe each product. Such pieces of data can be totaled and analyzed to provide meaningful information, such as the total number of bottles of dish detergent sold at a particular store, which brands of dish detergent were selling the most rapidly at that store or sales territory, or the total amount spent on that brand of dish detergent at that store or sales region (see Figure 1-1).
1.1.3 Aim MIS

The main aim of MIS is to inform management and help them make informed decisions about management and the way the business is run.

1.1.4 Role of IS

The role of IS in an organization can be compared to the role of heart in the body. The information is the blood and IS is the heart. In the body the heart plays the role of supplying pure blood to all the elements of the body including the brain. The IS plays exactly the same role in the organization. The system ensures that an appropriate data is collected from the various sources, processed, and sent further to all the needy destinations.

The system is expected to fulfill the information needs of an individual, a group of individuals, the management functionaries: the managers and the top management. The MIS satisfies the diverse needs through a variety of systems such as Query Systems, Analysis Systems, Modeling Systems, and Decision Support Systems. The MIS helps in Strategic Planning, Management Control, Operational Control, and Transaction Processing.

1.1.5 Characteristics of MIS

- **Management-oriented**: The basic objective of MIS is to provide information support to the management in the organization for decision making.
- **Management directed**: When MIS is management-oriented, it should be directed by the management because it is the management who tells their needs and requirements more effectively than anybody else.
- **Integrated**: It means a comprehensive or complete view of all the subsystems in the organization of a company.
- **Common data flows**: The integration of different subsystems will lead to a common data flow which will further help in avoiding duplicacy and redundancy in data collection, storage and processing.
- **Heavy planning-element**: The preparation of MIS is not a one or two day exercise. It may even take some years.
- **Subsystem concept**: When a problem is seen in 2 sub parts, then the better solution to the problem is possible.
- **Common database**: This is the basic feature of MIS to achieve the objective of using MIS in business organizations.
- **Computerized**: MIS can be used without a computer. But the use of computers increases the effectiveness and the efficiency of the system.
- **User friendly/Flexibility**: An MIS should not be hard to use.
- **Information as a resource**: Information is the major ingredient of any MIS.

1.1.6 Features of MIS

To be useful, the MIS will not lack the following features:

1. **Timeliness**: With MIS, information should come in time
2. **Accuracy**: No errors in the information provided by MIS
3. **Completeness**: the MIS should generate a complete information
4. **Relevance**: the MIS and its output should be relevant to the organization

1.1.7 Components of IS

IS is an organized combination of people, hardware, software, communications networks, and data resources that collects, transforms, and disseminates information in an organization.

1.1.8 MIS and other Information Systems (ISs)

Management information systems are distinct from regular information systems in that they are used to analyze other information systems applied in operational activities in the organization. MIS involve three primary resources: technology, information, and people.

Management information systems are regarded to be a subset of the overall internal controls procedures in a business, which cover the application of people, documents, technologies, and procedures used by management accountants to solve business problems such as costing a product, service or a business-wide strategy.

In this course both terms MIS and IS will be used interchangeably.

1.2 Activities of IS

Four activities in an information system produce the information that organizations need to make decisions, control operations, analyze problems, and create new products or services. These activities are input, processing, and output (see Figure 1-2). **Input** captures or collects raw data from within the organization or from its external environment. **Processing** converts this raw input into a meaningful form. **Output** transfers the processed information to the people who will use it or to the activities for which it will be used.

Information systems also require **feedback**, which is output that is returned to appropriate members of the organization to help them evaluate or correct the input stage.

Although computer-based information systems use computer technology to process raw data into meaningful information, there is a sharp distinction between a computer and a computer program.
on the one hand, and an information system on the other. Electronic computers and related software programs are the technical foundation, the tools and materials, of modern information systems. Computers provide the equipment for storing and processing information. Computer programs, or software, are sets of operating instructions that direct and control computer processing. Knowing how computers and computer programs work is important in designing solutions to organizational problems, but computers are only part of an information system.

**Figure 1-2: Four activities of information system**

1.2.1 Typical Inputs and Outputs

- **Inputs**: Information from the Transaction Processing System
- **Outputs**: hard and softcopy reports
  - Scheduled reports that are produced periodically, or on a Schedule (daily, weekly, monthly).
  - On-demand reports that gives certain information at a manager’s request.
  - Key-indicator report that summarizes the previous day’s critical activities and also it is typically available at the beginning of each day.
  - Exception report which is automatically produced when a situation is unusual or requires management action.
1.3 Organizations and information systems

Information systems and organizations influence one another. Information systems are built by managers to serve the interests of the business firm. At the same time, the organization must be aware of and open to the influences of information systems to benefit from new technologies. The interaction between information technology and organizations is complex and is influenced by many mediating factors, including the organization’s structure, business processes, politics, culture, surrounding environment, and management decisions (see Figure 1-3). You will need to understand how information systems can change social and work life in your firm. You will not be able to design new systems successfully or understand existing systems without understanding your own business organization.

Figure 1-3: The relationship between organizations and information technology

This complex two-way relationship is mediated by many factors, not the least of which are the decisions made—or not made—by managers. Other factors mediating the relationship include the organizational culture, structure, politics, business processes, and environment.

As a manager, you will be the one to decide which systems will be built, what they will do, and how they will be implemented. You may not be able to anticipate all of the consequences of these decisions. Some of the changes that occur in business firms because of new information technology (IT) investments cannot be foreseen and have results that may or may not meet your expectations. Who would have imagined fifteen years ago, for instance, that e-mail and instant messaging would become a dominant form of business communication and that many managers would be inundated with more than 200 e-mail messages each day?
To deliver genuine benefits, information systems must be built with a clear understanding of the organization in which they will be used. In our experience, the central organizational factors to consider when planning a new system are the following:

• The environment in which the organization must function
• The structure of the organization: hierarchy, specialization, routines, and business processes
• The organization’s culture and politics
• The type of organization and its style of leadership
• The principal interest groups affected by the system and the attitudes of workers who will be using the system
• The kinds of tasks, decisions, and business processes that the information system is designed to assist

1.4 MIS and Information Technology

Information technology consists of all the hardware and software that a firm needs to use in order to achieve its business objectives. This includes not only computer machines, storage devices, and handheld mobile devices, but also software, such as the Windows or Linux operating systems, the Microsoft Office desktop productivity suite, and the many thousands of computer programs that can be found in a typical large firm.

“Information systems” are more complex and can be better understood by looking at them from both a technology and a business perspective.

Translating the real concept of the MIS into reality is technically an infeasible proposition unless computers are used. MIS relies heavily on the hardware and software capacity of the computer and its ability to process, retrieve communicate with no serious limitations.

**Hardware:** The variety of the hardware having distinct capabilities makes it possible to design the MIS for a specific situation.

Hardware for Processing, storage, and output for different architectures (centralized, distributed, or parallel)

**Security:**
The ability of a computer system to provide security of data brings a confidence in the management of the data storage and sharing
The computer system provides the facilities such as READ ONLY where you cannot delete to UPDATE. It provides an access to the selected information through a password and layered access facilities.
Therefore with computer system (i.e. technology), the MIS become a safe application in the organization.

**Software:** the software is used for the following reasons:
  - To handle the data processing.
  - To transfer the data from one computer system to another.
    - Hence, you can compute the results at one place and transfer them to a computer located at another place for some other use.
To make the MIS user-friendly
- The application of the management principles and practices in today’s complex business
  world is possible only when the MIS is based on computer system support.

1.5 Example of MIS

IS Case study: United Parcel Service

United Parcel Service (UPS) started out in 1907 in a closet-sized basement office. Jim Casey and
Claude Ryan—two teenagers from Seattle with two bicycles and one phone—promised the “best
service and lowest rates.” UPS has used this formula successfully for more than 100 years to
become the world’s largest ground and air package delivery company. It’s a global enterprise
with over 408,000 employees, 96,000 vehicles, and the world’s ninth largest airline.

Today, UPS delivers more than 15 million packages and documents each day in the United
States and more than 200 other countries and territories. The firm has been able to maintain
leadership in small-package delivery services despite stiff competition from FedEx and Airborne
Express by investing heavily in advanced information technology. UPS spends more than $1
billion each year to maintain a high level of customer service while keeping costs low and
streamlining its overall operations.

The shipping process starts with the scannable bar-coded label attached to a package, which
contains detailed information about the sender, the destination, and when the package should
arrive.

Customers can download and print their own labels using special software provided by UPS or
by accessing the UPS Web site.

Before the package is even picked up, information from the “smart” label is transmitted to one of
UPS’s computer centers and sent to the distribution center nearest its final destination.

Delivery strategy

Dispatchers at this center download the label data and use special software to create the most
efficient delivery route for each driver that considers traffic, weather conditions, and the location
of each stop. UPS estimates its delivery trucks save 28 million miles and burn 3 million fewer
gallons of fuel each year as a result of using this technology. To further increase cost savings and
safety, drivers are trained to use “340 Methods” developed by industrial engineers to optimize
the performance of every task from lifting and loading boxes to selecting a package from a shelf
in the truck.

The first thing a UPS driver picks up each day is a handheld computer called a Delivery
Information Acquisition Device (DIAD), which can access one of the wireless networks cell
phones rely on. As soon as the driver logs on, his or her day’s route is downloaded onto the
handheld. The DIAD also automatically captures customers’ signatures along with pickup and
delivery information. Package tracking information is then transmitted to UPS’s computer
network for storage and processing. From there, the information can be accessed worldwide to
provide proof of delivery to customers or to respond to customer queries. It usually takes less
than 60 seconds from the time a driver presses “complete” on a DIAD for the new information to
be available on the Web.
Monitoring

Through its automated package tracking system, UPS can monitor and even re-route packages throughout the delivery process. At various points along the route from sender to receiver, barcode devices scan shipping information on the package label and feed data about the progress of the package into the central computer. Customer service representatives are able to check the status of any package from desktop computers linked to the central computers and respond immediately to inquiries from customers. UPS customers can also access this information from the company’s Web site using their own computers or mobile phones.

Other information to customers

Anyone with a package to ship can access the UPS Web site to check delivery routes, calculate shipping rates, determine time in transit, print labels, schedule a pickup, and track packages. The data collected at the UPS Web site are transmitted to the UPS central computer and then back to the customer after processing. UPS also provides tools that enable customers, such as Cisco Systems, to embed UPS functions, such as tracking and cost calculations, into their own Web sites so that they can track shipments without visiting the UPS site.

The system must also provide information to satisfy the needs of managers and workers. UPS drivers need to be trained in both package pickup and delivery procedures and in how to use the package tracking system so that they can work efficiently and effectively. UPS customers may need some training to use UPS in-house package tracking software or the UPS Web site.

UPS’s management is responsible for monitoring service levels and costs and for promoting the company’s strategy of combining low cost and superior service. Management decided to use computer systems to increase the ease of sending a package using UPS and of checking its delivery status, thereby reducing delivery costs and increasing sales revenues.

Questions:

1. What are the inputs, processing, and outputs of UPS’s package tracking system?
2. Identify the users of UPS’s IS
3. What technologies are used by UPS? How are these technologies related to UPS’s business strategy?
4. What strategic business objectives do UPS’s information systems address?
5. What would happen if UPS’s information systems were not available?
6. Highlight the benefits of UPS’s IS users

1.6 Implication of MIS

As MIS is used in organization, it also affects the organization. In this section we are going to see the advantages of MIS and also some problems which can be related to the implementation of MIS in organization.
For the organization, the MIS
- Increases organizational control.
- Expedites problem solving (speed up the progress of problems solving in an organization).
- Generates new evidence in support of a decision.
- Creates a competitive advantage over competition.
- Encourages exploration and discovery on the part of the decision maker.
- Helps automate the Managerial processes.

For the employees, the MIS
- Makes the task easier: MIS works on the basic systems such as transaction processing and databases
  - It improves personal efficiency: with MIS, business processes are well elaborated and therefore the user can get expected results
  - Promotes learning or training.
  - Facilitates interpersonal communication
  - MIS provides information in a structured or unstructured format for the manager to react. For instance reports are made on time, information is correct, accurate, complete, relevant.

However the MIS may have a negative effect on employees (managers and other staff members). For the manager, MIS may create a fear of challenge and exposure. This is due to the fact that MIS makes competitors more effective as they have access to the information and have an ability to interpret. The risk of adverse exposure to the higher management also increases.

As for non managers staff, It is observed that at lower level, is a sense of insecurity. In fact the MIS takes away the drudgery of search, collection, writing, and reporting the data, the work vacuum, so created is not easily filled, thus creating a sense of insecurity. Also to some extent the importance of the person is also lost, giving rise to a fear of non-recognition in the organization.

1.7 Types of IS

Many types of information systems exist on the market. To illustrate this, this section first provides a broad classification of information systems. We then narrow our view to enterprise information systems and present for this class of information systems an overview of existing types of software systems. The problem is that classification is not clear; that is, a classification developed a few years ago is not necessarily current.

As another and main limiting factor, the categories of a classification are typically not disjointed: one type of information system belongs to multiple categories.

Given these problems, we present a high-level classification that distinguishes three classes of information systems. This classification is based on the owners of the IS.

**Personal information systems**: A personal IS can manage and store information for a private person.
Example: An address book or address database and an audio CD collection.
Public information systems: Can manage and store information that can be accessed by a community. E.g.: Public libraries, information systems for museums, Web-based community information systems, and Web-based stock-portfolio information systems,…

Enterprise (or organizational) information systems: IS tailored toward the support of an organization. They are in two types: “generic” and “certain”
1. Generic IS: supports functionality that can be used by a wide range of organizations. e.g.: workflow management systems, enterprise resource planning systems, data warehouse systems, and geographic information systems, accounting system,…
2. Certain IS: offer functionality that is tailored toward certain industries or organizations. E.g.: hospital information systems, airline reservation systems, and electronic learning systems.

Note: In this course, we focus on enterprise information systems

1.7.1 Enterprise IS

- Transaction processing systems: These systems process a large volume of routine, recurring transactions.
- Operations information systems: These systems gather comprehensive data, organize it and summarize it in a form that is useful for managers.
  o To facilitate the well execution of managerial tasks
- Decision support systems: These systems help managers with the necessary information to make intelligent decisions.
- Expert systems: They are meant to mimic humans in making decisions in a specific field.
- Procurement Systems: help an organization automate the purchasing process. With the available inventory, the expected arrival of ordered goods, and forecasts based on sales and production plans, the procurement system determines the requirements and generates new orders.
- Manufacturing Systems: They support the production processes in organizations. Driven by information, such as the bill of materials (BOM), inventory levels, and available capacity, they plan the production process.
- Sales and marketing systems: Process customer orders by taking into account issues such as availability.

Chapter 2 E-commerce overview

2.1 Introduction

E-commerce or Electronics Commerce (EC) refers to the use of the Internet and the Web to transact business. More formally, e-commerce is about digitally enabled commercial transactions between and among organizations and individuals. For the most part, this means transactions that occur over the Internet and the Web. Commercial transactions involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services.

Some of the definitions of e-commerce often heard and found in publications and the media are:
Electronic Commerce (EC) is where business transactions take place via telecommunications networks, especially the Internet. Electronic commerce describes the buying and selling of products, services, and information via computer networks including the Internet. Electronic commerce is about doing business electronically. E-commerce, ecommerce, or electronic commerce is defined as the conduct of a financial transaction by electronic means.

With the advent of the Internet, the term e-commerce began to include:
- Electronic trading of physical goods and of intangibles such as information.
- All the steps involved in trade, such as on-line marketing, ordering payment and support for delivery.
- The electronic provision of services such as after sales support or on-line legal advice.
- Electronic support for collaboration between companies such as collaborative on-line design and engineering or virtual business consultancy teams.

E-Commerce addresses the need of business organizations, vendors and customers to reduce cost and improve the quality of goods and services while increasing the speed of delivery. Electronic commerce is trading in products or services using computer networks, such as the Internet.

E-commerce refers to paperless exchange of business information using following ways:
- Electronic Data Exchange (EDI)
- Electronic Mail (e-mail)
- Electronic Bulletin Boards
- Electronic Fund Transfer (EFT)
- Other Network-based technologies

![Figure 2-1: Exchange of business information](image-url)
2.2 History of e-commerce

E-commerce began in 1995 when one of the first Internet portals, Netscape.com, accepted the first ads from major corporations and popularized the idea that the Web could be used as a new medium for advertising and sales. No one envisioned at the time what would turn out to be an exponential growth curve for e-commerce retail sales, which doubled and tripled in the early years.

E-commerce grew at double-digit rates until the recession of 2008–2009 when growth slowed to a crawl. In 2009, e-commerce revenues were flat (Figure 2-2), not bad considering that traditional retail sales were shrinking by 5 percent annually. In fact, e-commerce during the recession was the only stable segment in retail. Some online retailers forged ahead at a record pace: Amazon’s 2009 revenues were up 25 percent over 2008 sales. Despite the recession, in 2010, the number of online buyers increased by 6 percent to 133 million, and the average annual purchase is up 5 percent to $1,139. Amazon’s sales grew by 28 percent in the year.

Mirroring the history of many technological innovations, such as the telephone, radio, and television, the very rapid growth in e-commerce in the early years created a market bubble in e-commerce stocks. Like all bubbles, the “dot-com” bubble burst (in March 2001). A large number of e-commerce companies failed during this process. Yet for many others, such as Amazon, eBay, Expedia, and Google, the results have been more positive: soaring revenues, fine-tuned business models that produce profits, and rising stock prices. By 2006, e-commerce revenues returned to solid growth, and have continued to be the fastest growing form of retail trade in the United States, Europe, and Asia.

Figure 2-2: Retail e-commerce revenues grew 1995-2014

The impact of e-commerce on procurement, shopping, business collaboration, and customer services as well as on delivery of various services is so dramatic that almost every organization is affected. E-commerce is changing all business functional areas and their important tasks, ranging from advertising to paying bills. The nature of competition is also drastically changing, due to new online companies, new business models, and the diversity of EC-related products and services. EC provides unparalleled opportunities for companies to expand worldwide at a small cost, to increase market share, and to reduce costs. In this chapter we will explain the major applications of EC, the issues related to its successful implementation and to its failures, and what services are necessary for its support. We look at business-to-consumer (B2C) commerce,
business-to-business (B2B) commerce, intrabusiness commerce, and e-government. Also, we will demonstrate the impact on the various functional areas of organizations.

In this chapter, we address some essential strategic issues, describe the major themes tackled by this course, and outline the other chapters. Among the central issues we discuss are defining electronic commerce, identifying the extent of a firm's Internet usage, explaining how electronic commerce can address the three strategic challenges facing all firms, and understanding the parameters of disintermediation.

Electronic commerce, in a broad sense, is the use of computer networks to improve organizational performance. Increasing profitability, gaining market share, improving customer service, and delivering products faster are some of the organizational performance gains possible with electronic commerce. Electronic commerce is more than ordering goods from an on-line catalog. It involves all aspects of an organization's electronic interactions with its stakeholders, the people who determine the future of the organization. Thus, electronic commerce includes activities such as establishing a Web page to support investor relations or communicating electronically with college students who are potential employees. In brief, electronic commerce involves the use of information technology to enhance communications and transactions with all of an organization's stakeholders. Such stakeholders include customers, suppliers, government regulators, financial institutions, managers, employees, and the public at large.

2.3 Features of E-Commerce

E-Commerce provides following features

- **Non-Cash Payment:** E-Commerce enables use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website and other modes of electronics payment.
- **24x7 Service availability:** E-commerce automates business of enterprises and services provided by them to customers are available anytime, anywhere. Here 24x7 refers to 24 hours of each seven days of a week.
- **Advertising / Marketing:** E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products / services.
- **Improved Sales:** Using E-Commerce, orders for the products can be generated anytime, anywhere without any human intervention. By this way, dependencies to buy a product reduce at large and sales increases.
- **Support:** E-Commerce provides various ways to provide pre sales and post sales assistance to provide better services to customers.
- **Inventory Management:** Using E-Commerce, inventory management of products becomes automated. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.
- **Communication improvement:** E-Commerce provides ways for faster, efficient, reliable communication with customers and partners.
2.3.1 Traditional commerce versus e-commerce

The location, timing, and revenue models of business are based in some part on the cost and distribution of information. The Internet has created a digital marketplace where millions of people all over the world are able to exchange massive amounts of information directly, instantly, and for free. As a result, the Internet has changed the way companies conduct business and increased their global reach.

The Internet reduces information asymmetry. An information asymmetry exists when one party in a transaction has more information that is important for the transaction than the other party. That information helps determine their relative bargaining power. In digital markets, consumers and suppliers can “see” the prices being charged for goods, and in that sense digital markets are said to be more “transparent” than traditional markets.

Digital markets are very flexible and efficient because they operate with reduced search and transaction costs, lower menu costs (merchants’ costs of changing prices), greater price discrimination, and the ability to change prices dynamically based on market conditions. In dynamic pricing, the price of a product varies depending on the demand characteristics of the customer or the supply situation of the seller.

These new digital markets may either reduce or increase switching costs, depending on the nature of the product or service being sold, and they may cause some extra delay in gratification. Unlike a physical market, you can’t immediately consume a product such as clothing purchased over the Web (although immediate consumption is possible with digital music downloads and other digital products.)

Digital markets provide many opportunities to sell directly to the consumer, bypassing intermediaries, such as distributors or retail outlets. Eliminating intermediaries in the distribution channel can significantly lower purchase transaction costs. To pay for all the steps in a traditional distribution channel, a product may have to be priced as high as 135 percent of its original cost to manufacture.

Figure 3-3 illustrates how much savings result from eliminating each of these layers in the distribution process. By selling directly to consumers or reducing the number of intermediaries, companies are able to raise profits while charging lower prices. The removal of organizations or business process layers responsible for intermediary steps in a value chain is called disintermediation.
Disintermediation is affecting the market for services. Airlines and hotels operating their own reservation sites online earn more per ticket because they have eliminated travel agents as intermediaries. Table 2-1 summarizes the differences between digital markets and traditional markets.

<table>
<thead>
<tr>
<th></th>
<th>DIGITAL MARKET</th>
<th>TRADITIONAL MARKETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search costs</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Transaction costs</td>
<td>Low (sometimes nothing)</td>
<td>High (time, travel)</td>
</tr>
<tr>
<td>Delayed gratification</td>
<td>High (or lower in the case of a digital good)</td>
<td>Lower</td>
</tr>
<tr>
<td>Information sharing</td>
<td>Easy- via electronic communication channels making little dependency on person to person information exchange.</td>
<td>Heavy dependency on information exchange from person to person.</td>
</tr>
<tr>
<td>Price discrimination</td>
<td>Low cost, instant</td>
<td>High cost, delayed</td>
</tr>
<tr>
<td>Disintermediation</td>
<td>More possibly/likely</td>
<td>Less possible/unlikely</td>
</tr>
</tbody>
</table>

The features that specify online trading from regular trades materialize in three areas: information flow, cash flow and commodity flow. Information flow represents the means of trading, cash flow provides the conditions for trading, and commodity flow is the result of the trading process. There are three factors that make e-commerce unique:
– **Virtuality**: E-commerce is carried out in a virtual online environment where the buyer and seller do not engage in face-to-face contact. Instead, consumers use a computer to obtain information about sellers, the products and services they offer, terms and pricing.

– **Unboundedness**: As the Internet has no physical boundaries, online transactions can be performed wherever an Internet connection is available. For consumers this means that shopping on the Internet is not constrained by time or space, lowering the financial costs of searching for products and services as well as saving time and energy. For online traders this means that they are also not constrained by time or space.

– **Multiplicity** of actors involved: A number of actors in addition to the consumer and the seller are involved in the e-commerce trading process to ensure verification.

<table>
<thead>
<tr>
<th>Traditional Commerce</th>
<th>E-Commerce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy dependency on information exchange from person to person.</td>
<td>Information sharing is made easy via electronic communication channels making little dependency on person to person information exchange.</td>
</tr>
<tr>
<td>Communication/transaction are done in synchronous way. Manual intervention is required for each communication or transaction.</td>
<td>Communication or transaction can be done in asynchronous way. Electronics system automatically handles when to pass communication to required person or do the transactions.</td>
</tr>
<tr>
<td>It is difficult to establish and maintain standard practices in traditional commerce.</td>
<td>A uniform strategy can be easily established and maintain in ecommerce.</td>
</tr>
<tr>
<td>Communications of business depends upon individual skills.</td>
<td>In e-Commerce or Electronic Market, there is no human intervention.</td>
</tr>
<tr>
<td>Unavailability of a uniform platform as traditional commerce depends heavily on personal communication.</td>
<td>E-Commerce website provides user a platform where all information is available at one place.</td>
</tr>
<tr>
<td>No uniform platform for information sharing as it depends heavily on personal communication.</td>
<td>E-Commerce provides a universal platform to support commercial/business activities across the globe.</td>
</tr>
</tbody>
</table>
2.4 Example of e-commerce transaction – online shopping

![Diagram of online shopping process]

Figure 2-4: Online Shopping - Steps to place an order

Resource: [http://onlineshoppingproducts.blogspot.in/2010/10/onlineshopping-steps-to-place-order.html](http://onlineshoppingproducts.blogspot.in/2010/10/onlineshopping-steps-to-place-order.html)

2.5 Digital Goods

The Internet digital marketplace has greatly expanded sales of digital goods. **Digital goods** are goods that can be delivered over a digital network. Music tracks, video, Hollywood movies, software, newspapers, magazines, and books can all be expressed, stored, delivered, and sold as pure digital products.

Currently, most of these products are sold as physical goods, for example, CDs, DVDs, newspapers, and hard-copy books. But the Internet offers the possibility of delivering all these products on demand as digital products.

In general, for digital goods, the marginal cost of producing another unit is about zero (it costs nothing to make a copy of a music file). However, the cost of producing the original first unit is relatively high—in fact, it is nearly the total cost of the product because there are few other costs of inventory and distribution.

Costs of delivery over the Internet are very low, marketing costs remain the same, and pricing can be highly variable. (On the Internet, the merchant can change prices as often as desired because of low menu costs.)

The impact of the Internet on the market for these kinds of digital goods is nothing short of revolutionary, and we see the results around us every day.

Businesses dependent on physical products for sales—such as bookstores, book publishers, music labels, and film studios—face the possibility of declining sales and even destruction of their businesses. Newspapers and magazines are losing readers to the Internet, and losing
advertisers even as online newspaper readership soars. Record label companies are losing sales to music download sites and Internet piracy, and music stores are going out of business. Video rental firms, based on a physical DVD market and physical stores, lost sales to other companies using an Internet catalog and streaming video model.

2.6 Advantages of E-Commerce

Commerce advantages can be broadly concerning organizations, consumers, and society.

2.6.1 Advantages to Organizations

• Using E-Commerce, organization can expand their market to national and international markets with minimum capital investment. An organization can easily locate more customers, best suppliers and suitable business partners across the globe.
• E-Commerce helps organization to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.
• E-commerce improves the brand image of the company.
• E-commerce helps organization to provide better customer services.
• E-Commerce helps to simplify the business processes and make them faster and efficient.
• E-Commerce reduces paper work a lot.
• E-Commerce increased the productivity of the organization. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.

2.6.2 Advantages to Customers

• 24x7 support. Customer can do transactions for the product or enquiry about any product/services provided by a company anytime, anywhere from any location. Here 24x7 refers to 24 hours of each seven days of a week.
• E-Commerce application provides user more options and quicker delivery of products.
• E-Commerce application provides user more options to compare and select the cheaper and better option.
• A customer can put review comments about a product and can see what others are buying or see the review comments of other customers before making a final buy.
• E-Commerce provides option of virtual auctions.
• Readily available information. A customer can see the relevant detailed information within seconds rather than waiting for days or weeks.
• E-Commerce increases competition among the organizations and as result organizations provides substantial discounts to customers.

2.6.3 Advantages to Society

• Customers need not to travel to shop a product thus less traffic on road and low air pollution.
• E-Commerce helps reducing cost of products so less affluent people can also afford the products.
• E-Commerce has enabled access to services and products to rural areas as well which are otherwise not available to them.
• E-Commerce helps government to deliver public services like health care, education, social services at reduced cost and in improved way.
2.7 Limitations of E-Commerce

E-Commerce limitation can be technical or non-technical.

2.7.1 Technical limitation

- There can be lack of system security, reliability or standards owing to poor implementation of e-Commerce.
- Software development industry is still evolving and keeps changing rapidly.
- In many countries, network bandwidth might cause an issue as there is insufficient telecommunication bandwidth available.
- Special types of web server or other software might be required by the vendor setting the e-commerce environment apart from network servers.
- Sometimes, it becomes difficult to integrate E-Commerce software or website with the existing application or databases.
- There could be software/hardware compatibility issue as some E-Commerce software may be incompatible with some operating system or any other component.

2.7.2 Non-Technical limitation

- **Initial cost:** The cost of creating / building E-Commerce application in-house may be very high. There could be delay in launching the E-Commerce application due to mistakes, lack of experience.
- **User resistance:** User may not trust the site being unknown faceless seller. Such mistrust makes it difficult to make user switch from physical stores to online/virtual stores.
- **Security / Privacy:** Difficult to ensure security or privacy on online transactions.
- Lack of touch or feel of products during online shopping.
- E-Commerce applications are still evolving and changing rapidly.
- Internet access is still not cheaper and is inconvenient to use for many potential customers like one living in remote villages.

2.8 Key drivers of e-commerce

It is important to identify the key drivers of e-commerce to allow a comparison between different countries. It is often claimed that e-commerce is more advanced in some countries than in others. These key drivers can be measured by a number of criteria that can highlight the stages of advancement of e-commerce in each of the respective countries. The criteria that can determine the level of advancement of e-commerce are summarized in Table 2-2 and can be categorized as:

1. **Technological factors:** The degree of advancement of the telecommunications infrastructure which provides access to the new technology for business and consumers.
2. **Political factors:** Including the role of government in creating government legislation, initiatives and funding to support the use and development of e-commerce and information technology.
3. **Social factors:** Incorporating the level and advancement in IT education and training which will enable both potential buyers and the workforce to understand and use the new technology.
4. **Economic factors:** The general wealth and commercial health of the nation and the elements that contribute to it.
Table 2-3: Key drivers of E-commerce

<table>
<thead>
<tr>
<th>Key drivers</th>
<th>Measurement criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological factors</td>
<td>- Telecommunication infrastructure:</td>
</tr>
<tr>
<td></td>
<td>- Access to new technology developments</td>
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<tr>
<td></td>
<td>- Bandwidth</td>
</tr>
<tr>
<td></td>
<td>- Speed of development and implementation of new technology by industry sector</td>
</tr>
<tr>
<td>Political factors</td>
<td>- Number and type of government incentives and programs to support the use of new</td>
</tr>
<tr>
<td></td>
<td>technology</td>
</tr>
<tr>
<td></td>
<td>- Legislation: number and type of supportive or restrictive laws and policies that</td>
</tr>
<tr>
<td></td>
<td>govern electronic data, contacts and financial transactions.</td>
</tr>
<tr>
<td></td>
<td>- Public policies: whether government support the growth of electronic transactions</td>
</tr>
<tr>
<td></td>
<td>and processes.</td>
</tr>
<tr>
<td>Social</td>
<td>- Skills of workforce</td>
</tr>
<tr>
<td></td>
<td>- Number of users online</td>
</tr>
<tr>
<td></td>
<td>- Penetration rate of computers (and related devices)</td>
</tr>
<tr>
<td></td>
<td>- Level of education; computer literacy and IT skills</td>
</tr>
<tr>
<td></td>
<td>- Willingness and ability to adopt new technology and the speed at which technology</td>
</tr>
<tr>
<td></td>
<td>achieves critical mass.</td>
</tr>
<tr>
<td>Economic factors</td>
<td>- Economic growth –GDP</td>
</tr>
<tr>
<td></td>
<td>- Average income</td>
</tr>
<tr>
<td></td>
<td>- Cost of technology (hardware and software)</td>
</tr>
<tr>
<td></td>
<td>- Cost of access to telecommunications infrastructure: pricing structures and rates</td>
</tr>
<tr>
<td></td>
<td>- Commercial infrastructure: advancement of banking sector; payment systems</td>
</tr>
<tr>
<td></td>
<td>- Innovative business models</td>
</tr>
</tbody>
</table>

2.9 Impact of electronic commerce

E-commerce is not solely the Internet or websites. It is about a new business concept that incorporates all previous business management and economic concepts. As such, e-commerce impacts on many areas of business and disciplines of business management studies. For example:

Marketing – issues of on-line advertising, marketing strategies and consumer behavior and cultures. One of the areas in which it impacts particularly is direct marketing. In the past this was mainly door-to-door, home parties and mail order using catalogues or leaflets. This moved to telemarketing and TV selling with the advances in telephone and television technology and finally developed into e-marketing spawning a customer relationship management data mining and the like by creating new channels for direct sales and promotion.

Computer sciences: development of different network and computing technologies and languages to support e-commerce and e-business, for example linking front and back office legacy systems with the ‘web based’ technology.
Finance and accounting: on-line banking; issues of transaction costs; accounting and auditing implications where ‘intangible’ assets and human capital must be tangibly valued in an increasingly knowledge based economy.

Economics: the impact of e-commerce on local and global economies; understanding the concepts of a digital and knowledge-based economy and how this fits into economic theory.

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

Production and operations management (manufacturing): Moving from mass production to demand-driven, mass customization customer pull rather than the manufacturer push of the past. Web-based Enterprise Resource Planning systems (ERP) can also be used to forward orders directly to designers and/or production floor within seconds, thus cutting production cycle times by up to 50 per cent, especially when manufacturing plants, engineers and designers are located in different countries. In sub-assembler companies, where a product is assembled from a number of different components sourced from a number of manufacturers, communication, collaboration and coordination are critical – so electronic bidding can yield cheaper components and having flexible and adaptable procurement systems allows fast changes at a minimum cost so inventories can be minimized and money saved.

Management information systems: Analysis, design and implementation of e-business systems within an organization; issues of integration of front-end and back-end systems.

Human resource management: issues of on-line recruiting, home working and ‘intrapreneurs’ working on a project by project basis replacing permanent employees.

Business law and ethic: The different legal and ethical issues that have arisen as a result of a global ‘virtual’ market. Issues such as copyright laws, privacy of customer information, legality of electronic contracts, etc.

Wireless Advertising and Retailing: The mobile advertising market is rapidly growing as more and more companies seek ways to exploit new databases of location-specific information. Alcatel-Lucent offers a new service to be managed by 1020 Placecast that will identify cell phone users within a specified distance of an advertiser’s nearest outlet and notify them about the outlet’s address and phone number, perhaps including a link to a coupon or other promotion. Nowadays, a big number of retailers have m-commerce Web sites—simplified versions of their Web sites that make it possible for shoppers to use cell phones to place orders.

Games and Entertainment
Cell phones have developed into portable entertainment platforms. Smartphones like the iPhone and Droid offer downloadable and streaming digital games, movies, TV shows, music, and ringtones.
Users of broadband services from the major wireless vendors can stream on-demand video clips, news clips, and weather reports.
Chapter 3 Types of E-commerce and Business models

The capabilities enabled by e-commerce technologies are driving the creation of new business models or roles that companies can take on. Several e-commerce models are changing the way value is delivered. Organizations implementing e-commerce must take on one or more of these models. Let's start with a basic understanding of the types of e-commerce, and then describe e-commerce business and revenue models. Each of these models is being implemented in business-to-consumer and business-to-business environments (see the section about e-business types). The models are not mutually exclusive. The most successful e-commerce organizations take on multiple business models concurrently.

3.1 Types of e-commerce

There are many ways to classify electronic commerce transactions. One is by looking at the nature of the participants in the electronic commerce transaction. The three major electronic commerce categories are business-to-consumer (B2C) e-commerce, business-to-business (B2B) e-commerce, and consumer-to-consumer (C2C) e-commerce. However, there are some others.

3.1.1 Business-to-Consumer (B2C)

In this type, the business organization sells its product directly to a customer. A customer can view products shown on the website of the business organization. The customer can choose a product and order the same. Website will send a notification to the business organization via email and organization will dispatch the product/goods to the customer.

3.1.2 Business-to-business (B2B)

B2B electronic commerce involves sales of goods and services to intermediate buyers who then sell the product to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to the final customer who comes to buy the product at wholesaler's retail outlet.
3.1.3 Consumer-to-consumer (C2C)

Electronic commerce involves consumers selling directly to consumers. Website following C2C business model helps consumer to sell their assets like residential property, cars, motorcycles etc. or rent a room by publishing their information on the website. For example, eBay, the giant Web auction site, enables people to sell their goods to other consumers by auctioning their merchandise off to the highest bidder, or for a fixed price. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.
3.1.4 Consumer-to-Business (C2B)

With this type, a consumer approaches website showing multiple business organizations for a particular service. Consumer places an estimate of amount he/she wants to spend for a particular service. For example, comparison of interest rates of personal loan/car loan provided by various banks via website. Business organization who fulfills the consumer's requirement within specified budget approaches the customer and provides its services.

3.1.5 Business - to - Government (B2G)

B2G type is a variant of B2B model. Such websites are used by government to trade and exchange information with various business organizations. Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government.

3.1.6 Government-to-Business (G2B)

Government uses B2G model website to approach business organizations. Such websites support auctions, tenders and application submission functionalities.

3.1.7 Government - to - Citizen (G2C)

Government uses G2C type website to approach citizen in general. Such websites support auctions of vehicles, machinery or any other material. Such website also provides services like registration for birth, marriage or death certificates. Main objectives of G2C website are to reduce average time for fulfilling people requests for various government services.
Another way of classifying electronic commerce transactions is in terms of the platforms used by participants in a transaction. Until recently, most e-commerce transactions took place using a personal computer connected to the Internet over wired networks. Two wireless mobile alternatives have emerged: smart phones and dedicated e-readers using cellular networks, and smart phones and small tablet computers using Wi-Fi wireless networks. The use of handheld wireless devices for purchasing goods and services from any location is termed mobile commerce or m-commerce. Both business-to-business and business-to-consumer e-commerce transactions can take place using m-commerce technology.

### 3.2 E-commerce business models

Changes in the economics of information have created the conditions for entirely new business models to appear, while destroying older business models. Table 3-1 describes some of the most important Internet business models that have emerged. All, in one way or another, use the Internet to add extra value to existing products and services or to provide the foundation for new products and services.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DESCRIPTION</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-tailer</td>
<td>Sells physical products directly to consumers or to individual businesses</td>
<td>Amazon</td>
</tr>
<tr>
<td>Transaction broker</td>
<td>Saves users money and time by processing online sales transactions and generating a fee each time a transaction occurs</td>
<td>ETrade.com Expedia</td>
</tr>
<tr>
<td>Market creator</td>
<td>Provides a digital environment where buyers and sellers can meet, search products, display products, and establish prices for those products. Can serve consumers or B2B e-commerce, generating revenues for transaction fees.</td>
<td>eBay Priceline.com ChemConnect.com Taobao.com</td>
</tr>
<tr>
<td>Content provider</td>
<td>Create revenue by providing digital content such as news, music, photos, or video, over the web. The customer may pay to access the content, or revenue may be generated by selling advertising space.</td>
<td>WSJ.com gettyImages.com iTunes.com Games.com</td>
</tr>
<tr>
<td>Community provider</td>
<td>Provides an online meeting place where people with similar interests can communicate and find useful information</td>
<td>Facebook MySpace iVillage, Twitter</td>
</tr>
<tr>
<td>Portal</td>
<td>Provides initial point of entry to Web along with specialized content and other services</td>
<td>Yahoo Bing Google</td>
</tr>
<tr>
<td>Service provider</td>
<td>Provide web applications such as photo sharing, video sharing, and user-generated content as services.</td>
<td>Google Apps Photobucket.com</td>
</tr>
</tbody>
</table>
3.2.1 E-tailer

An e-tailer is similar to the typical bricks-and-mortar storefront, except that customers only need to connect to the Internet to check their inventory and place an order. Online retail stores, often called e-tailers, come in all sizes, from giant Amazon with 2010 revenues of more than $24 billion, to tiny local stores that have Web sites.

3.2.2 Transaction Broker

Sites that process transactions for consumers normally handled in person, by phone, or by mail are transaction brokers. The largest industries using this model are financial services and travel services. The online transaction broker’s primary value propositions are savings of money and time, as well as providing an extraordinary inventory of financial products and travel packages, in a single location. Online stock brokers and travel booking services charge fees that are considerably less than traditional versions of these services.

3.2.3 Market Creator

Market creators build a digital environment in which buyers and sellers can meet, display products, search for products, and establish prices. The value proposition of online market creators is that they provide a platform where sellers can easily display their wares and where purchasers can buy directly from sellers. Online auction markets like eBay and Priceline are good examples of the market creator business model.

3.2.4 Content Provider

While e-commerce began as a retail product channel, it has increasingly turned into a global content channel. “Content” is defined broadly to include all forms of intellectual property. Intellectual property refers to all forms of human expression that can be put into a tangible medium such as text, CDs, DVDs, or stored on any digital (or other) media, including the Web. Content providers distribute information content, such as digital video, music, photos, text, and artwork, over the Web. The value proposition of online content providers is that consumers can find a wide range of content online, conveniently, and purchase this content inexpensively, to be played, or viewed, on multiple computer devices or smart phones. Providers do not have to be the creators of the content (although sometimes they are, like Disney.com), and are more likely to be Internet-based distributors of content produced and created by others. For example, Apple sells music tracks at its iTunes Store, but it does not create or commission new music.

3.2.5 Portal

Initially, portals were primarily “gateways” to the Internet. Today, however, the portal business model provides a destination site where users start their Web searching and linger to read news, find entertainment, and meet other people, and be exposed to advertising. Portals generate revenue primarily by attracting very large audiences, charging advertisers for ad placement, collecting referral fees for steering customers to other sites, and charging for premium services. Portals such as Google, Bing, Yahoo, MSN, and AOL offer powerful Web search tools as well as
an integrated package of content and services, such as news, e-mail, instant messaging, maps, calendars, shopping, music downloads, video streaming, and more, all in one place. In 2010, portals generated an estimated $13.5 billion in revenues. Although there are hundreds of portal/search engine sites, the top five sites (Google, Yahoo, MSN/Bing, AOL, and Ask.com) gather more than 95 percent of the Internet traffic because of their superior brand recognition.

3.2.6 Service Provider

While e-tailers sell products online, service providers offer services online. There’s been an explosion in online services. Web 2.0 applications, photo sharing, and online sites for data backup and storage all use a service provider business model. Software is no longer a physical product with a CD in a box, but increasingly software as a service (SaaS) that you subscribe to online rather than purchase from a retailer. Google has led the way in developing online software service applications such as Google Apps, Gmail, and online data storage services.

3.2.7 Community Provider

Community providers are sites that create a digital online environment where people with similar interests can transact (buy and sell goods); share interests, photos, videos; communicate with like-minded people; receive interest-related information; and even play out fantasies by adopting online personalities called avatars. The social networking sites Facebook, MySpace, LinkedIn, and Twitter; online communities such as iVillage; and hundreds of other smaller, niche sites such as Doostang and Sportsvite all offer users community-building tools and services. Social networking sites have been the fastest growing Web sites in recent years, often doubling their audience size in a year. However, they are struggling to achieve profitability.

3.3 E-commerce revenue models

A firm’s revenue model describes how the firm will earn revenue, generate profits, and produce a superior return on investment. Although there are many different e-commerce revenue models that have been developed, most companies rely on one, or some combination, of the following six revenue models: advertising, sales, subscription, free/freemium, transaction fee, and affiliate.

3.3.1 Advertising Revenue Model

In the advertising revenue model, a Web site generates revenue by attracting a large audience of visitors who can then be exposed to advertisements. The advertising model is the most widely used revenue model in e-commerce, and arguably, without advertising revenues, the Web would be a vastly different experience from what it is now. Content on the Web—everything from news to videos and opinions—is “free” to visitors because advertisers pay the production and distribution costs in return for the right to expose visitors to ads. In the last five years, advertisers have increased online spending and cut outlays on traditional channels such as radio and newspapers. Television advertising has expanded along with online advertising revenues. Web sites with the largest viewership or that attract a highly specialized, differentiated viewership and are able to retain user attention (“stickiness”) are able to charge higher advertising rates. Yahoo, for instance, derives nearly all its revenue from display ads (banner ads) and to a lesser extent search engine text ads. Ninety-eight percent of Google’s revenue derives from selling keywords to advertisers in an auction-like market.
3.3.2 Sales Revenue Model

In the sales revenue model, companies derive revenue by selling goods, information, or services to customers. Companies such as Amazon (which sells books, music, and other products), and Gap.com, both have sales revenue models. Content providers make money by charging for downloads of entire files such as music tracks (iTunes Store) or books or for downloading music and/or video streams. Apple has pioneered and strengthened the acceptance of micropayments. Micro-payment systems provide content providers with a cost-effective method for processing high volumes of very small monetary transactions (anywhere from $.25 to $5.00 per transaction).

3.3.3 Subscription Revenue Model

In the subscription revenue model, a Web site offering content or services charges a subscription fee for access to some or all of its offerings on an ongoing basis. Content providers often use this revenue model. For instance, the Wall Street Journal has the largest online subscription newspaper with more than 1 million online subscribers. To be successful, the subscription model requires that the content be perceived as a having high added value, differentiated, and not readily available elsewhere nor easily replicated.

3.3.4 Free/Freemium Revenue Model

In the free/freemium revenue model, firms offer basic services or content for free, while charging a premium for advanced or special features. For example, Google offers free applications, but charges for premium services. The Flickr photo-sharing service offers free basic services for sharing photos with friends and family, and also sells a $24.95 “premium” package that provides users unlimited storage, high-definition video storage and playback, and freedom from display advertising. The idea is to attract very large audiences with free services, and then to convert some of this audience to pay a subscription for premium services.

3.3.5 Transaction Fee Revenue Model

In the transaction fee revenue model, a company receives a fee for enabling or executing a transaction. For example, eBay provides an online auction marketplace and receives a small transaction fee from a seller if the seller is successful in selling an item. E*Trade, an online stockbroker, receives transaction fees each time it executes a stock transaction on behalf of a customer. The transaction revenue model enjoys wide acceptance in part because the true cost of using the platform is not immediately apparent to the user.

3.3.6 Affiliate Revenue Model

In the affiliate revenue model, Web sites (called “affiliate Web sites”) send visitors to other Web sites in return for a referral fee or percentage of the revenue from any resulting sales. For example, MyPoints makes money by connecting companies to potential customers by offering special deals to its members. When members take advantage of an offer and make a purchase, they earn “points” they can redeem for free products and services, and MyPoints receives a referral fee. Community feedback sites such as Epinions and Yelp receive much of their revenue from steering potential customers to Web sites where they make a purchase. Amazon uses affiliates who steer business to the Amazon Web site by placing the Amazon logo on their blogs. Personal blogs may be involved in affiliate marketing. Some bloggers are paid directly by manufacturers, or receive free products, for speaking highly of products and providing links to sales channels.
3.4 Case Study: Twitter searches for a business model


Twitter, the social networking site based on 140-character text messages, is the buzz social networking phenomenon of the year. Like all social networking sites, such as Facebook, MySpace, YouTube, Flickr, and others, Twitter provides a platform for users to express themselves by creating content and sharing it with their “followers,” who sign up to receive someone’s “tweets.” And like most social networking sites, Twitter faces the problem of how to make money. As of October 2010, Twitter has failed to generate earnings as its management ponders how best to exploit the buzz and user base it has created.

Twitter began as a Web-based version of popular text messaging services provided by cell phone carriers. Executives in a podcasting company called Odeo were searching for a new revenue-producing product or service. In March 2006, they created a stand-alone, private company called Twitter.

The basic idea was to marry short text messaging on cell phones with the Web and its ability to create social groups. You start by establishing a Twitter account online, and identifying the friends that you would like to receive your messages. By sending a text message called a “tweet” to a short code on your cell phone, you can tell your friends what you are doing, your location, and whatever else you might want to say. You are limited to 140 characters, but there is no installation and no charge. This social network messaging service to keep buddies informed is a smash success.

Coming up with solid numbers for Twitter is not easy because the firm is not releasing any “official” figures. By September 2010, Twitter, according to comScore, had around 30 million unique monthly users in the United States, and perhaps 96 million worldwide, displacing MySpace as the number three global social network (behind Facebook and Microsoft’s Live Profile).

The number of individual tweets is also known only by the company. According to the company, by early 2007, Twitter had transmitted 20,000 tweets, which jumped to 60,000 tweets in a few months. During the Iranian rebellion in June 2009, there were reported to be over 200,000 tweets per hour worldwide. In October 2010, Twitter was recording over 1.2 million tweets a month. On the other hand, experts believe that 80 percent of tweets are generated by only 10 percent of users, and that the median number of tweet readers per tweet is 1 (most tweeters tweet to one follower). Even more disturbing is that Twitter has a 60 percent churn rate: only 40 percent of users remain more than one month. Obviously, many users lose interest in learning about their friends’ breakfast menu, and many feel “too connected” to their “friends,” who in fact may only be distant acquaintances, if that. On the other hand, celebrities such as Britney Spears have hundreds of thousands of “friends” who follow their activities, making Twitter a marvelous, free public relations tool. Twitter unfortunately does not make a cent on these activities.

The answer to these questions about unique users, numbers of tweets, and churn rate are critical to understanding the business value of Twitter as a firm. To date, Twitter has generated losses
and has unknown revenues, but in February 2009, it raised $35 million in a deal that valued the company at $255 million. The following September, Twitter announced it had raised $100 million in additional funding, from private equity firms, previous investors, and mutual fund giant T. Rowe Price, based on a company valuation of a staggering $1 billion!

So how can Twitter make money from its users and their tweets? What’s its business model and how might it evolve over time? To start, consider the company’s assets and customer value proposition. The main asset is user attention and audience size (eyeballs per day). The value proposition is “get it now” or real-time news on just about anything from the mundane to the monumental. An equally important asset is the database of tweets that contains the comments, observations, and opinions of the audience, and the search engine that mines those tweets for patterns. These are real-time and spontaneous observations.

Yet another asset has emerged in the last year: Twitter is a powerful alternative media platform for the distribution of news, videos, and pictures. Once again, no one predicted that Twitter would be the first to report on terrorist attacks in Mumbai, the landing of a passenger jet in the Hudson River, the Iranian rebellion in June 2009, or the political violence in Bangkok and Kenya in May 2010.

How can these assets be monetized? Advertising, what else! In April 2010, Twitter announced its first foray into the big-time ad marketplace with Promoted Tweets. Think Twitter search engine: in response to a user’s query to Twitter’s search function for, say netbooks, a Best Buy ad for netbooks will be displayed. The company claims Promoted Tweets are not really ads because they look like all other tweets, just a part of the tweet stream of messages. These so-called “organic tweets” differ therefore from traditional search engine text ads, or social network ads which are far from organic. So far, Best Buy, Bravo, Red Bull, Sony, Starbucks, and Virgin American have signed up. If this actually works, thousands of companies might sign up to blast messages to millions of subscribers in response to related queries.

A second Twitter monetization effort announced in June 2010 is called Promoted Trends. Trends is a section of the Twitter home page that lets users know what’s hot, what a lot of people are talking about. The company claims this is “organic,” and a true reflection of what people are tweeting about. Promoted Trends are trends that companies would like to initiate. A company can place a Promoted Trends banner on the bottom of the page and when users click on the banner, they are taken to the follower page for that movie or product. Disney bought Promoted Trends for its film *Toy Story 3*, according to Twitter.

In July 2010, Twitter announced its third initiative of the year: @earlybird accounts, which users can follow to receive special offers. Walt Disney Pictures has used the service to promote *The Sorcerer's Apprentice* by offering twofers (buy one ticket, get another one free). The service could work nicely with so-called real-time or “flash” marketing campaigns in entertainment, fashion, luxury goods, technology, and beauty products. So far, Twitter has over 50,000 @earlybird followers and hopes to reach “influential,” people who shape the purchasing decisions of many others.

Another monetizing service is temporal real-time search. If there’s one thing Twitter has uniquely among all the social network sites, it’s real-time information. In 2010, Twitter entered
into agreements with Google, Microsoft, and Yahoo to permit these search engines to index tweets and make them available to the entire Internet. This service will give free real-time content to the search engines as opposed to archival content. It is unclear who’s doing who a service here, and the financial arrangements are not public.

Other large players are experimenting. Dell created a Twitter outlet account, @DellOutlet, and is using it to sell open-box and discontinued computers. Dell also maintains several customer service accounts. Twitter could charge such accounts a commission on sales because Twitter is acting like an e-commerce sales platform similar to Amazon. Other firms have used their Twitter followers’ fan base to market discount air tickets (Jet Blue) and greeting cards (Somecards).

Freemium is another possibility: ask users to pay a subscription fee for premium services such as videos and music downloads. However, it may be too late for this idea because users have come to expect the service to be free. Twitter could charge service providers such as doctors, dentists, lawyers, and hair salons for providing their customers with unexpected appointment availabilities. But Twitter’s most likely steady revenue source might be its database of hundreds of millions of real-time tweets. Major firms such as Starbucks, Amazon, Intuit (QuickBooks and Mint.com), and Dell have used Twitter to understand how their customers are reacting to products, services, and Web sites, and then making corrections or changes in those services and products. Twitter is a fabulous listening post on the Internet frontier.

The possibilities are endless, and just about any of the above scenarios offers some solution to the company’s problem, which is a lack of revenue (forget about profits). The company is coy about announcing its business model, what one pundit described as hiding behind a “Silicon Valley Mona Lisa smile.” These Wall Street pundits are thought to be party poopers in the Valley. In a nod to Apple’s iTunes and Amazon’s merchant services, Twitter has turned over its messaging capabilities and software platform to others, one of which is CoTweet.com, a company that organizes multiple Twitter exchanges for customers so they can be tracked more easily. Google is selling ad units based around a company’s last five tweets (ads are displayed to users who have created or viewed tweets about a company). Twitter is not charging for this service. In the meantime, observers wonder if Twitter is twittering away its assets and may not ever show a profit for its $160 million investment.

Case study questions
1. Based on your reading in this chapter, how would you characterize Twitter’s business model?
2. If Twitter is to have a revenue model, which of the revenue models described in this chapter would work?
3. What is the most important asset that Twitter has, and how could it monetize this asset?
4. What impact will a high customer churn rate have on Twitter’s potential advertising revenue?

3.5 E-marketplaces, online auctions and exchanges

3.5.1 Introduction

An e-marketplace is a virtual online market where organizations register as buyers or sellers to conduct business-to-business e-commerce over the internet.
There are many types of e-marketplace based on a range of business models. They can be operated by an independent third party, or be run by some form of industry consortium that has been set up to serve a particular sector or marketplace. Services offered by e-marketplaces include electronic catalogues for online purchasing of goods and services, business directory listings and online auctions. This guide will describe the main components of an e-marketplace, list the main benefits that can be delivered and discuss the issues to consider prior to participating in an e-marketplace.

3.5.2 Types of e-marketplace

There are many different types of e-marketplace based on a range of business models. They can be broadly divided into categories based on the way in which they are operated.

**Independent e-marketplace**

An independent e-marketplace is usually a business-to-business online platform operated by a third party which is open to buyers or sellers in a particular industry. By registering on an independent e-marketplace, you can access classified ads or requests for quotations or bids in your industry sector. There will typically be some form of payment required to participate.

**Buyer-oriented e-marketplace**

A buyer-oriented e-marketplace is normally run by a consortium of buyers in order to establish an efficient purchasing environment. If you are looking to purchase, participating in this sort of e-marketplace can help you lower your administrative costs and achieve the best price from suppliers. As a supplier you can use a buyer-oriented e-marketplace to advertise your catalogue to a pool of relevant customers who are looking to buy.

**Supplier-oriented e-marketplace**

Also known as a supplier directory, this marketplace is set up and operated by a number of suppliers who are seeking to establish an efficient sales channel via the internet to a large number of buyers. They are usually searchable by the product or service being offered. Supplier directories benefit buyers by providing information about suppliers for markets and regions they may not be familiar with. Sellers can use these types of marketplace to increase their visibility to potential buyers and to get leads.

3.5.3 Online auctions

Online auctions are computerized versions of traditional auctions where buyers bid against each other. What makes online auctions so powerful is that vast numbers of businesses or individuals can bid - allowing sellers to get the best price. Conversely, the speed, simplicity and variety of auctions mean that shrewd buyers can cut the time and cost of procurement.

The two main types of auction are:

- forward auctions - where lots are sold to the highest bidder
- reverse auctions - where suppliers compete on price and the lowest bid for a tender wins

**Forward auctions**

Using a forward auction can be a cost-effective way of acquiring new customers, testing new products or establishing pricing points. Excess inventory can be disposed of quickly and sales costs are reduced because of the minimal amount spent on marketing. You can price your goods according to demand and stock levels. Some businesses trade solely online using forward auctions on websites such as eBay.
Forward auctions can also bring benefits when making business purchases. You may be able to source non-critical or specialist equipment at a more competitive rate. You can also reduce procurement time by setting up automated searches and bids.

**Reverse auctions**
If you supply larger companies, you may be asked to compete for their business in a reverse auction. Reverse auctions allow businesses to compete for business globally. Businesses can also make savings by gaining access to customers who are ready to buy, without having to launch a sales campaign. Reverse auctions are a good way to offload stock or build market share - however, they are normally by invitation only.
It is unusual for smaller businesses to make purchases using reverse auctions. However, using a reverse auction can save you time and administrative costs and you may attract a larger pool of suppliers. Reverse auctions can also help you manage complex procurement contracts and reduce your overall costs.

**Best practice in auctions**
Before entering an online auction, check:
- accreditation - some auctions have qualifying criteria
- fee structures - there may be a registration fee
- how payment is managed - sometimes this is between the parties, sometimes through the auction site itself
- supplier reputation - monitor feedback from previous bidders
- the bidding system - how to place or withdraw bids
- what's on offer - if the description is vague, contact the seller for more information
- costs - factor in all the costs including taxes, packing and shipping charges

Spend some time browsing what is on offer and what it costs. Narrow your search down by specifying a category or using the advanced search criteria. When bidding, set yourself a maximum price you are willing to pay for an item and stick to it.

### 3.6 Catalogues and directory listings

Catalogues and directories are used in many e-marketplaces, providing searchable databases of information about suppliers, products and services.

#### 3.6.1 Catalogues

There are various types of catalogue including:
- lists of general product information
- detailed product information
- information sources
- promotional catalogues

Pricing information is sometimes only available to registered users of the e-marketplace. Some e-marketplaces provide a single catalogue of all suppliers and products, while others have links to individual supplier catalogues.
With e-marketplace catalogues, customers can research a wide range of products and suppliers from a central source. They can then buy in one transaction from a single site.
3.6.2 Directories

Some e-marketplaces offer a directory of suppliers listed by products or services provided, with links to supplier websites. If you are listed in a directory, make sure your company is in the right industry sector, and that you are in all relevant listings, which will help customers find you and improve your website's search engine rankings.

Chapter 4. Legal and ethical issues in E-commerce

4.1 Introduction

E-commerce is subject to legislation and regulation which can be complex and changes regularly. This guide introduces you to the various regulations and provides advice on where to get additional information.

4.1.1 Major Legal and Ethical Issues in Electronic Commerce

- Privacy
- Intellectual Property
- Free Speech
- Taxation
- Computer Crimes
- Consumer Protection
- Miscellaneous

4.1.2 Legality vs. Ethics

- Illegal acts break the law while unethical acts may not be illegal
- Ethics
  - Branch of philosophy that deals with what is considered right or wrong
  - Right and wrong not always clear
  - Consider
    - Company sells profiles of customers with information collected through cookies
    - Company allows personal use of Web but secretly monitors activity
    - Company knowingly sells tax software with bugs

4.2 Ethical Issues

In general, many ethical and global issues of Information Technology apply to e-business. So, what are the issues particularly related to e-commerce? Let’s list some of the ethical issues spawned with the growing field of e-commerce.

4.2.1 Web tracking

E-businesses draw information on how visitors use a site through log files. Analysis of log file means turning log data into application service or installing software that can pluck relevant information from files in-house. Companies track individual’s movement through tracking
software and cookie analysis. Programs such as cookies raise a batch of privacy concerns. The tracking history is stored on your PC’s hard disk, and any time you revisit a website, the computer knows it. Many smart end users install programs such as Cookie cutters, Spam Butcher, etc which can provide users some control over the cookies. The battle between computer end users and web trackers is always going on with a range of application programs. For example, software such as Privacy Guardian, My Privacy, etc can protect user’s online privacy by erasing browser’s cache, surfing history and cookies. To detect and remove spyware specially designed programs like Ad-Aware are present.

4.2.2 Privacy

Most Electronic Payment Systems knows the identity of the buyer. So it is necessary to protect the identity of a buyer who uses Electronic Payment System. Public’s right to know superseded individual’s right to privacy. A privacy issue related to the employees of company is tracking. Monitoring systems are installed in many companies to monitor e-mail and other web activities in order to identify employees who extensively use business hours for non-business activities. The e-commerce activities performed by a buyer can be tracked by organizations. For example, reserving railway tickets for their personal journey purpose can be tracked. Many employees don’t want to be under the monitoring system even while at work. As far as brokers and some of the company employees are concerned, E-Commerce puts them in danger zone and results in elimination from their jobs. The manner in which employees are treated may raise ethical issues, such as how to handle displacement and whether to offer retraining programs.

How is private information collected?

• Reading your newsgroup postings
• Finding you in an Internet Directory
• Making your browser collect information about you
• Recording what your browser says about you
• Reading your email
• Most common methods are cookies and site registration

Web Site Registration

• Must fill in registration to get to site
• Sometimes this information is sold to third parties

Cookies

• Help maintain user status
• A temporary passport
• Used for
  – Customizing sites (Yahoo)
  – Improve online services (Amazon)
  – Collect demographics and usage statistics (Doubleclick)
• Protection
  – Delete cookies
  – Anti-cookie software
    • PGP’s Cookie Cutter
- Luckman’s Anonymous Cookie
- CookieCrusher
- Cookie Monster

**Five Principles of Privacy Protection**
- **Notice/Awareness**
  - Notice of collection practices prior to collecting information
- **Choice/consent**
  - Consumers to be made aware of options and give consent
- **Access/participation**
  - Must be able to access and challenge information
- **Integrity/Security**
  - Must be assured data is secure
- **Enforcement/Redress**
  - Government legislation or legal remedies

**Data Privacy Directive**
- Stronger protection of personal data such as race, politics, finances, religion, health and union membership
- Companies must tell consumers how and why personal data is collected and who it’s shared with
- Consumers must be able to request their data not be shared
- Companies must provide notice and choice before data is given to third parties
- Consumers must have access to data about them and have the ability to correct mistakes
- Companies must take reasonable measures to protect data
- Personal data must be relevant to its intended purpose
- Procedures must be in place to settle complaints and resolve disputes

4.2.3 **Disintermediation and Re-intermediation**

Intermediation is one of the most important and interesting e-commerce issue related to loss of jobs. The services provided by intermediaries are
(i) Matching and providing information.
(ii) Value added services such as consulting.
The first type of service (matching and providing information) can be fully automated, and this service is likely to be in e-marketplaces and portals that provide free services. The value added service requires expertise and this can only be partially automated. The phenomenon by which Intermediaries, who provide mainly matching and providing information services are eliminated is called Disintermediation.
The brokers who provide value added services or who manage electronic intermediation (also known as infomediation), are not only surviving but may actually prosper, this phenomenon is called Reintermediation.
The traditional sales channel will be negatively affected by disintermediation. The services required to support or complement e-commerce are provided by the web as new opportunities for reintermediation. The factors that should be considered here are the enormous number of participants, extensive information processing, delicate negotiations, etc. They need a computer mediator to be more predictable.
4.3 Legal Issues

Where are the headlines about consumers defrauding merchants? What about fraud e-commerce websites? Internet fraud and its sophistication have grown even faster than the Internet itself. There is a chance of a crime over the internet when buyers and sellers do not know each other and cannot even see each other. During the first few years of e-commerce, the public witnessed many frauds committed over the internet. Let’s discuss the legal issues specific to e-commerce.

4.3.1 Fraud on the Internet

E-commerce fraud popped out with the rapid increase in popularity of websites. It is a hot issue for both cyber and click-and-mortar merchants. The swindlers are active mainly in the area of stocks. The small investors are lured by the promise of false profits by the stock promoters. Auctions are also conducive to fraud, by both sellers and buyers. The availability of e-mails and pop up ads has paved the way for financial criminals to have access to many people. Other areas of potential fraud include phantom business opportunities and bogus investments.

4.3.2 Copyright

A copyright gives the creator of an original work exclusive rights to it, usually for a limited time. Copyright may apply to a wide range of creative, intellectual, or artistic forms, or "works". Copyright does not cover ideas and information themselves, only the form or manner in which they are expressed. Example, pull-down menus cannot be copyrighted. Copyrighting confers owner exclusive right to copy the work and distribute to the public.

Items appearing on a website, including photos, artwork and written content may be protected by a copyright. Each day, people post vast quantities of creative material on the Internet — material that is available for downloading by anyone who has the right computer equipment. Because the information is stored somewhere on an Internet server, it is fixed in a tangible medium and potentially qualifies for copyright protection. Whether it does, in fact, qualify depends on other factors that you would have no way of knowing about, such as when the work was first published (which affects the need for a copyright notice), whether the copyright in the work has been renewed (for works published before 1978), whether the work is a work made for hire (which affects the length of the copyright) and whether the copyright owner intends to dedicate the work to the public domain. If you want to download the material for use in your own work, you should be cautious. It's best to track down the author of the material and ask for permission. Generally, you can claim a fair use right for using a very small portion of text for commentary, scholarship or similar purposes.

Copyright protection rules are fairly similar worldwide, due to several international copyright treaties, the most important of which is the Berne Convention. Under this treaty, all member countries — and there are more than 100, including virtually all industrialized nations — must afford copyright protection to authors who are nationals of any member country. This protection must last for at least the life of the author plus 50 years, and must be automatic without the need for the author to take any legal steps to preserve the copyright.

In addition to the Berne Convention, the GATT (General Agreement on Tariffs and Trade) treaty contains a number of provisions that affect copyright protection in signatory countries.
It is very difficult to protect Intellectual property in E-Commerce. For example, if you buy software you have the right to use it and not the right to distribute it. Also, copying contents from the website also violates copyright laws.

4.3.3 Domain Names

The competition over domain names is another legal issue. Internet addresses are known as domain names and they appear in levels. A top level name is like microsoft.com. A second level name will be microsoft.com/product. Top level domain names are assigned by a central non-profit organization which also checks for conflicts or possible infringement of trademarks. Problems arise when several companies having similar names competing over the same domain name.

4.4 The law and selling online

If you are selling online, there are a number of pieces of legislation you need to be familiar with. These are designed to ensure customers' personal data is kept secure, goods and services meet quality and suitability standards and online contracts are legally binding.

The Data Protection Act regulates how you use and protect personal information held about living people, e.g. in customer records. The Act affects information that you have on computer as well as some paper-based records. To comply with the rules you need to follow the eight data protection principles.

The Consumer Protection (Distance Selling) Regulations require you to give your customers specified information before they place an order. You are also required to send the buyer an order confirmation and give them a 'cooling off period' in which they can cancel their purchase if they wish.

The E-commerce Regulations are designed to ensure online contracts are legally binding. They specify what information about your business and contract you must share with online customers and sets out guidelines for advertising and promotions.

In some countries, if your business is a limited company or limited liability partnership (LLP), your website must show:

- the full name of the company or LLP
- the registered office address of the company or LLP
- the registered number of the company or LLP
- the place of registration of the company or LLP
- if the company is being wound up
- the VAT number (if VAT registered)
- membership details of any trade or professional association

4.5 E-commerce and consumer protection

As a consequence of the commercialization of the Internet, the world of the consumer has experienced a fundamental change. The ubiquity of the Internet involves several advantages with regard to the availability of markets. However some challenges arise with this expansion. In this section we highlight the risks encountered by the consumer and the consumer protection.
4.5.1 Risks for consumer

An e-commerce trading process comprises of three main stages: pre-contractual, contractual process and post-contractual. Each of these stages carries with it certain risks for consumers:

- **Pre-contractual stage**: Consumers might be misled about the identity of the trader, the products and services offered, and/or terms and pricing. He might also be subject to a lack of information on availability of offers.

- **Contractual stage**: Consumers face irregularities related to contract terms such as missing information or use of pre-checked boxes (e.g. for insurances). Especially problems of consent evolve at the contractual stage: Personal information may be exposed and consumer behaviour may be tracked without the knowledge or consent of the consumer.

- **Post-contractual stage**: Products or services might not be delivered, or may be damaged in the transportation process, delivered products or services, may not be as wanted, sellers may deal with complaints in an unsatisfactory manner, consumers may face challenges to return goods.

4.5.2 Approaches to consumer protection in e-commerce

To address the risks outlined above, a number of instruments may be applied:

- Government regulation, supervision and enforcement,
- Self-, or co-regulation,
- Technology,
- Prudent behavior,
- Market surveillance.

Key regulations address, among other things,

- Licensing, information duties, misleading advertising, duties of platform operators (pre-contractual);
- Conclusion of contract, form, contract terms, burden of proof (contractual process);
- Remedies, the right to withdrawal, data protection (post-contractual).

Furthermore, in order to be effective, compliance with regulation is a major issue. Businesses and their associations may engage in self-regulation. These schemes have their own rules and methods for monitoring conduct. Technology, such as encryption, can be employed to reduce risks in the payment system. In principle, technology can be prescribed by law-makers, through schemes, or selected by individual actors. In practice, it is most often agreed to at the scheme-level, or evolves in an uncoordinated fashion at the market-level. The introduction of the Payment Card Industry Data Security Standard (PCI DSS) is an example of scheme-level decision-making whereas the common use of Secure Sockets Layer (SSL) is an example of the uncoordinated, ‘spontaneous’ adoption of a standard.

Finally, even elaborate rules and highly sophisticated technologies are insufficient if consumers do not behave prudently. If consumers are not aware of the risks posed when conducting transactions on the Internet, including the risks when simply using the Internet to send and receive emails, little can be done to make the Internet and Internet payments safe. Therefore, one important precondition for secure Internet payments is consumer education. Consumers have to be educated on the use of technical devices and the application of common sense when dealing on the Internet. Furthermore, they need to be aware of their rights and responsibilities and where to turn to when they need assistance.
Organizations such as European Union and countries normally have their own legal system of consumer protection rules in e-commerce. Therefore it is better to understand the legal system of country before doing business in it.

Chapter 5 E Commerce Technology and Payment Systems

This chapter provides the wherewithal to understand the technology that enables an organization to use e-commerce and the payment system for e-commerce.

There are many technologies required in order for a business to build and operate a successful e-commerce system. Several of these technologies (including both hardware and software) are explained below.

5.1 Database

Convenient storage and retrieval of information about products and customers require a database. A database is a collection of data organized in such a way that it can be easily accessed, managed, and updated.

A database management system is a collection of programs that enables you to store, modify and extract information from a database. In an eCommerce context, a database might store information about products, orders, staff, customers, suppliers. All products may have a name, description, price, images, color, and quantity. Upon ordering an item, a customer may have to create an account which could require name, address, phone number, email address etc... This may be required in order to send an invoice to the customer and deliver the item.

A secure, robust database system is an integral part of any eCommerce website. Custom queries can be written to extract useful information from the database which can help business owners understand more about customer behavior. For example it may be useful to know how many sales took place between certain dates, which day of the week is the most popular sales day, what are the top 10 most ordered products etc... Popular database management systems include MySQL, Oracle and Microsoft SQL server.

5.2 Data interface

It refers to a convenient interface to the database from the web site. A customer does not need to know anything even about the existence of the database, not to mention details of its organization. He should be able to get all necessary information by typing in keywords and filling in electronic forms. An interface has to provide way for customers to fill in forms, press buttons, etc. Nowadays the interface is made using web browsers.

A web browser is a software application used to locate, receive and display content received from web servers. HTML code, css, javascript and media files are all rendered by a browser to make the website display as the web developer intended in the browser window. Popular web browsers include Google Chrome, Mozilla Firefox, Safari and Internet Explorer.
5.3 Server and its software

A server is a computer that provides a remote access to some service, for instance a web page server "serves" web pages, i.e. sends HTML files, graphics files, etc. in response to http requests, a database server provides responses to database queries, and so on. One machine can provide several different services at the same time. A client is a computer that makes a request for a service.

In an e-commerce application, a server will process user's forms, for instance order forms, and produce various web pages, depending on the request. There will also be a database server from which all the data will be stored and retrieved by users.

5.3.1 Cookie

A web site responds to requests for web pages. It doesn't "know" where the requests have come from, so it can't tell if two requests for web pages have been made by the same user. To keep track of a user during a session (and sometimes between sessions), a web server uses cookies.

A cookie is a small text file placed by a web server on the client machine. The file gets sent back every time the client requests a web page from the server. A cookie has an expiration time, which may be just for the session or longer.

Cookies are a useful way of collecting data to provide visitors with better service. Without accurate information about people's interest, it is very difficult to provide good service. Some browsers such as Internet Explorer allow surfers to set options for various levels of warnings about the use of cookies. Visitors who are concerned about the misuse of cookies can reject them totally, with the consequent loss of service.

5.4 Network and hardware

Users in e-commerce are not in the same place. They use computers and other devices which are connected remotely. The TCP/IP protocol defines how computers should be connected to each other over the internet and how they should transfer information. TCP stands for 'Transfer Control Protocol', IP stands for 'Internet Protocol'.

Everyone using the internet to access websites uses the TCP/IP protocol without realizing it. Common TCP/IP protocols are HTTP, HTTPS and FTP. HTTP (hyper text transfer protocol) handles communication between a web server and a web browser. HTTPS (the S stands for 'secure') handles secure communication between a server and a browser (such as credit card data and personal information). FTP (file transfer protocol) takes care of the transmissions of files between computers. This is used any time you download files in a browser such as a pdf document, a piece of software, an image etc…

5.4.1 The mobile digital platform and mobile e-commerce

The mobile phones and tablets are becoming the main primary device to access the internet.

In 2010, m-commerce represented less than 10 percent of all e-commerce, with about $5 billion in annual revenues generated by selling music, videos, ring tones, applications, movies, television, and location-based services like local restaurant locators and traffic updates. However, m-commerce is the fastest growing form of e-commerce, with some areas expanding at a rate of 50 percent or more per year, and was estimated to grow to $19 billion in 2014 (see Figure below).
5.4.2 M-commerce services and applications

The main areas of growth in mobile e-commerce are location-based services, software application sales at stores such as iTunes, entertainment downloads of ring tones, music, video, and TV shows; mobile display advertising; direct shopping services; and e-book sales.

M-commerce applications have taken off for services that are time-critical, that appeal to people on the move, or that accomplish a task more efficiently than other methods. They are especially popular in Europe, Japan, South Korea, China, and other countries with strong wireless broadband infrastructures. The following sections describe some examples.

Location-Based Services

Nowadays smart phones are equipped with a built-in global positioning system (GPS) and compass that can identify your precise location and where the phone is pointed. Using information from over 800,000 points of interest available on Wikipedia, plus thousands of other local sites, the browser overlays information about points of interest you are viewing, and displays that information on your smart phone screen, superimposed on a map or photograph that you just snapped. For example, in some areas (countries) users can point their smart phone cameras towards mountains from a tour bus and see the names and heights of the mountains displayed on the screen.

Banking and Financial Services

Banks and credit card companies are rolling out services that let customers manage their accounts from their mobile devices. Nowadays, there are some banks which allow their customers to use their cell phones to check account balances, transfer funds, and pay bills.

5.5 Encryption and security

Encryption is the translation of data into a secret code. To read an encrypted file, you must have access to a secret key or password that enables you to decrypt it. Unencrypted data is called plain text; encrypted data is referred to as cipher text. Nowadays, most of online application encrypt critical data before sending them over internet. The information includes password, credit card numbers,…
5.6 Electronic Payment system

Electronic payment systems are based on customer's accounts with one of trusted vendors. A customer obtains certificates "signed" by the vendor which are analogous to checks ("personal money") and cash ("anonymous money"). The implementation should be such that mere copying of any piece of information transmitted in the transaction does not allow the thief to use the "money".

5.6.1 Electronic money

When commerce goes electronic, the means of paying for goods and services must also go electronic. Paper based payment systems cannot support the speed, security, privacy, and internationalization necessary for electronic commerce. Electronic money is a digital equivalent of cash, stored on an electronic device or remotely at a server. Electronic cash has been developed as settlement system to support Internet commerce and enable people to pay money over the Internet securely.

The electronic cash systems are categorized from several viewpoints, one of which is hardware classifying the electronic money.

– Electronic money stored in integrated circuit (IC) cards: The value of money is put onto an IC card. The security of the system is guaranteed by how physically tamper-proof the IC card is.

– Electronic money on the network: The security of the system is guaranteed by crypt systems and the certification agent.

– Hybrid: This system combines the IC cards and network and thus has merits of both. A method that does not depend on an IC card is desirable from the viewpoint of flexibility of settlement and forgery prevention.

Another viewpoint is the currency of the cash flow.

Closed loop: The recipient of the money cannot transfer it to a third party. The received money must be returned to its issuer.

Open loop: The money is transferred between users one after another.

The next viewpoint is the timing in which the settlement is completed.

Pay later: The settlement is completed after a transaction, such as when using a credit card.

Pay now: The settlement is completed immediately, such as when using cash and debit cards.

Pay before: The settlement is completed before a transaction, such as when using a prepaid card. With the typical prepaid card, the money is moved from a bank account to an IC card and taken to a store to pay for goods. Credit cards reduce the amount of money handled and lost purchasing opportunities. However, it is easy to store customer information and follow the flow of money. In other words, anonymity is low. For this reason, the electronic money settlements must finish immediately.

In this section, we discuss four methods of electronic payment: Electronic funds transfer, Digital cash, eCash, Credit card
There are four fundamental concerns regarding electronic money: security, authentication, anonymity, and divisibility. Consumers and organizations need to be assured that their on-line orders are protected, and organizations must be able to transfer securely many millions of dollars. Buyers and sellers must be able to verify that the electronic money they receive is real; consumers must have faith in electronic currency.

Any money system, real or electronic, must have a reasonable level of security and a high level of authentication, otherwise people will not use it. All electronic money systems are potentially divisible. There is a need, however, to adapt some systems so that transactions can be automated. For example, you do not want to have to type your full credit card details each time you spend one-tenth of a cent. A modified credit card system, which automatically sends previously stored details from your personal computer, could be used for small transactions. The technical problems of electronic money have not been completely solved, but many people are working on their solution because electronic money promises efficiencies that will reduce the costs of transactions between buyers and sellers. It will also enable access to the global marketplace. In the next few years, electronic currency will displace notes and coins for many transactions.

**Electronic funds transfer**

Electronic funds transfer (EFT), introduced in the late 1960s, uses the existing banking structure to support a wide variety of payments. For example, consumers can establish monthly checking account deductions for utility bills, and banks can transfer millions of dollars. EFT is essentially electronic checking. Instead of writing a check and mailing it, the buyer initiates an electronic checking transaction (e.g., using a debit card at a point-of-sale terminal). The transaction is then electronically transmitted to an intermediary (usually the banking system), which transfers the funds from the buyer's account to the seller's account. A banking system has one or more common clearinghouses that facilitate the flow of funds between accounts in different banks.

Electronic checking is fast; transactions are instantaneous. Paper handling costs are substantially reduced. Bad checks are no longer a problem because the seller's account balance is verified at the moment of the transaction. EFT is flexible; it can handle high volumes of consumer and commercial transactions, both locally and internationally. The international payment clearing system, consisting of more than 100 financial institutions, handles more than one trillion dollars per day.

The major shortfall of EFT is that all transactions must pass through the banking system, which is legally required to record every transaction. This lack of privacy can have serious consequences.

**Digital cash**

Digital cash is an electronic parallel of notes and coins. Two variants of digital cash are presently available: prepaid cards and smart cards. The phonecard, the most common form of prepaid card, was first issued in 1976 by the forerunner of Telecom Italia. The problem with special-purpose cards, such as phone and photocopy cards, is that people end up with a purse or wallet full of cards. A smart card combines many functions into one card. A smart card can serve as personal identification, credit card, ATM card, telephone credit card, critical medical information record and as cash for small transactions. A smart card, containing memory and a microprocessor, can store as much as 100 times more data than a magnetic-stripe card. The microprocessor can be programmed.
The stored-value card, the most common application of smart card technology, can be used to purchase a wide variety of items (e.g., fast food, parking, public transport tickets). Consumers buy cards of standard denominations (e.g., USD 50 or USD 100) from a card dispenser or bank. When the card is used to pay for an item, it must be inserted in a reader. Then, the amount of the transaction is transferred to the reader, and the value of the card is reduced by the transaction amount.

The problem with digital cash, like real cash, is that you can lose it or it can be stolen. It is not as secure as the other alternatives, but most people are likely to carry only small amounts of digital cash and thus security is not so critical. As smart cards are likely to have a unique serial number, consumers can limit their loss by reporting a stolen or misplaced smart card to invalidate its use. Adding a PIN number to a smart card can raise its security level.

**Ecash**

Digicash of Amsterdam has developed an electronic payment system called ecash that can be used to withdraw and deposit electronic cash over the Internet. The system is designed to provide secure payment between computers using e-mail or the Internet. Ecash can be used for everyday internet transactions, such as buying software, receiving money from parents, or paying for a pizza to be delivered. At the same time, ecash provides the privacy of cash because the payer can remain anonymous.

To use ecash, you need a digital bank account and ecash client software. The client is used to withdraw ecash from your bank account, and store it on your personal computer. You can then spend the money at any location accepting ecash or send money to someone who has an ecash account.

The security system is based on public-key cryptography and passwords. You need a password to access your account and electronic transactions are encrypted.

**Credit card**

Most of online purchases are paid for by a credit card. Merchants like credit card payments because an instant authorization guarantees that the card is valid (as opposed to a check which may bounce). Customers like paying by credit cards because they can easily cancel a transaction in case when they don't receive products or services according to the agreement in the transaction.

While some of credit card payments for online services are performed by phone, most of such payments are made by filling in an online form.

Credit card information submitted by the customer is sent to the bank which has issued the credit card to verify. If the transaction is approved, the merchant notifies the customer that the order has been placed. The actual transfer of money from the credit card bank to the merchant may happen in a few hours, or even in a few days.

Merchants who accept credit card payments pay fee for each card charge. In addition, in some cases merchants pay authorization fee for each credit card authorization attempt, as well as other fees related to credit card processing.

In case when a customer is not satisfied with the product or a service, or for other reasons, merchants may issue a refund or a charge-back to the customer's account.

Credit cards are a safe, secure, and widely used remote payment system. Millions of people use them every day for ordering goods by phone. The development of secure servers and clients has made transmitting credit card numbers extremely safe. The major shortcoming of credit cards is that they do not support person-to-person transfers and do not have the privacy of cash.
5.6.2 Requirement for electronic money

There are some desirable conditions in which to implement an electronic money system.
1) **Independence**: The electronic money is not physical, so it can be sent through a network.
2) **Safety**: Coping and forgery are prohibited.
3) **Anonymity and non-traceability**: The users and records of transaction must not be identified. The flow of money cannot be traced. The privacy of users must be protected. For example, information must be protected about who shopped at which store or which two companies traded.
4) **Negotiability and currency**: The electronic money does not return to its issuer immediately but circulates among users.
6) **Division**: The face value of money can be divided when users use it.

5.7 The Internet Payment Processing System

Understanding how best to address the need for Internet payment gateway services requires first briefly examining the participants in an Internet payment processing system.

Participants in a typical online payment transaction include:

- **The customer**: typically, a holder of a payment card — such as a credit card or debit card — from an issuer.
- **The issuer**: a financial institution, such as a bank, that provides the customer with a payment card. The issuer is responsible for the cardholder's debt payment.
- **The merchant**: the person or organization that sells goods or services to the cardholder via a Web site. The merchant that accepts payment cards must have an Internet Merchant Account with an acquirer.
- **The acquirer**: a financial institution that establishes an account with a merchant and processes payment card authorizations and payments. The acquirer provides authorization to the merchant that a given card account is active and that the proposed purchase does not exceed the customer's credit limit. The acquirer also provides electronic transfer of payments to the merchant's account, and is then reimbursed by the issuer via the transfer of electronic funds over a payment network.
- **The payment gateway**: This function, operated by a third-party provider, processes merchant payments by providing an interface between the merchant and the acquirer's financial processing system.
- **The processor**: a large data center that processes credit card transactions and settles funds to merchants, connected to the merchant on behalf of an acquirer via a payment gateway.
The basic steps of an online payment transaction include the following:

1. The customer places an order online by selecting items from the merchant's Web site and sending the merchant a list. The merchant often replies with an order summary of the items, their price, a total, and an order number.

2. The customer sends the order to the merchant, including payment data. The payment information is usually encrypted by an SSL pipeline set up between the customer's Web browser and the merchant's Web server SSL certificate.

3. The merchant requests payment authorization from the payment gateway, which routes the request to banks and payment processors. Authorization is a request to charge a cardholder, and must be settled for the cardholder's account to be charged. This ensures that the payment is approved by the issuer, and guarantees that the merchant will be paid.

4. The merchant confirms the order and supplies the goods or services to the customer.

5. The merchant requests payment, sending the request to the payment gateway, which handles the payment processing with the processor.

6. Transactions are settled, or routed by the acquiring bank to the merchant's acquiring bank for deposit.

Chapter 6 E commerce and marketing

Ecommerce marketing is, in simple terms, an array of different methods used to raise awareness about an individual online store's product lines and encourage potential customers to buy merchandise. Marketing can include many different components, ranging from market research that involves no direct appeals for purchase to the advertising geared specifically to sell items online. While e-commerce and the Internet have changed entire industries and enable new business models, no industry has been more affected than marketing and marketing communications. The Internet provides marketers with new ways of identifying and communicating with millions of potential customers at costs far lower than traditional media, including search engine marketing, data mining, recommender systems, and targeted e-mail. The Internet enables long tail marketing. Before the Internet, reaching a large audience was very
expensive, and marketers had to focus on attracting the largest number of consumers with popular hit products, whether music, Hollywood movies, books, or cars. In contrast, the Internet allows marketers to inexpensively find potential customers for which demand is very low, people on the far ends of the bell (normal) curve. For instance, the Internet makes it possible to sell independent music profitably to very small audiences. There’s always some demand for almost any product. Put a string of such long tail sales together and you have a profitable business.

As organizations stampede to the Internet, they need a systematic way to examine opportunities and relate them to available Internet tools. In particular, they need a cohesive marketing strategy for exploiting Internet technologies. Integrated Internet Marketing (I2M) is a structured approach to combining marketing strategy with Internet technology. I2M promotes creation of a strategy that synergistically exploits the range of Internet technologies (e.g., text, audio, video, and hyperlinking) to achieve marketing goals.

This chapter, abundantly illustrated with instances of how companies are using the Internet to market wisely, presents the I2M model. A concluding case study demonstrates how one company, Benetton, is fashioning a coherent Internet-based strategy.

### 6.1 Internet technology for supporting marketing

To understand the potential of Internet marketing, knowledge of the different Internet tools is necessary. For convenience, some of these tools are grouped together and treated collectively because of common features (see See Internet technologies).

<table>
<thead>
<tr>
<th>Technology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asynchronous text</td>
<td>E-mail is generally used for one-to-one and one-to-few communications. A bulletin board (in the form of a newsgroup) can handle one-to-many and many-to-many communication.</td>
</tr>
<tr>
<td>Synchronous text</td>
<td>Chat enables several people to participate in a real-time text-based discussion. A chat session is conducted on a channel, and those connected to the channel receive all messages broadcast. E.g.: Groups on social networks such as Whatsapp, Facebook,…</td>
</tr>
<tr>
<td>File transfer</td>
<td>File transport protocol (FTP) permits the exchange of files across the internet. Example: using FTP to distribute a 30-days trial for a software product</td>
</tr>
<tr>
<td>Audio or Video</td>
<td>Audio or video files are either downloaded and then played, or played as downloaded (called streaming audio (or video). Companies can use this method to broadcast its message (advertisement).</td>
</tr>
<tr>
<td>Search engine</td>
<td>A search engine supports finding information on the web. Simple engines find web pages. More advanced engines locate information based on defined attributes (e.g., cheapest model of a certain camera).</td>
</tr>
<tr>
<td>Virtual reality</td>
<td>The visitor can look around a location through a full 360 degrees, as well as zoom in and out.</td>
</tr>
</tbody>
</table>

### 6.2 Integrated Internet Marketing

The interactive and multimedia capabilities of the Web, combined with other Internet facilities such as e-mail’s support for personal and mass communication, present a range of tools for interacting with customers.
Furthermore, the Web can provide an interface to back-end applications (e.g., databases and expert systems technology). Consequently, the Internet offers an excellent basis for a variety of marketing tactics, which permits the development of a model for Integrated Internet Marketing (I2M). The concepts of integrated Internet communication apply to all forms of communication, not just that between seller and buyer.

I2M (see table 6-1) is the coordination of Internet facilities to market products and services, shape stakeholders' (customers, in particular) attitudes, and establish or maintain a corporate image. The central idea of I2M is that an organization should coordinate its use of the Internet to develop a coherent, synchronous marketing strategy.

The Web offers a unique way to shape corporate image because it provides a means of communicating with so many stakeholder groups. For example, most organizations are interested in the ambiance or atmospherics that their establishment creates for the customer, where the term atmospherics refers to an organization's retail environment. The Web provides an opportunity for customers to experience an organization's atmospherics without actually being there (as the case later in this chapter demonstrates).

In the same way, the Web provides new opportunities in terms of signs, word of mouth, personal experiences, and public relations. Traditional marketing theory and practice have discovered that it is very difficult to manage a corporate image so that the identical image is communicated to every stakeholder group. The Web provides a powerful tool to assist managers in communicating a unified image.

6.3 Trends in digital advertising

In an era of advertising overload, website visitors are bombarded by all kinds of messages, but consumers’ time and attention spans are limited and they have started to filter things out. This, in turn, reduces the impact of mass marketing messages. Therefore, sending fewer yet more personalized messages is an absolute priority for advertisers. This means adopting a conversion-driven approach, where relevant messages help optimize marketing budgets.

6.3.1 Personalization

Advertisers need to differentiate themselves through highly targeted and personalized campaigns. They must strive for relevance and avoid advertising saturation. In order to attain an efficient click-through rate, they need to pay extreme attention to what is sent, to whom and when. Thus, delivering the right message, to the right person, at the right moment and through the right channel is now key more than ever. Each message needs to bring relevant information and value. This can only be attained by knowing the customer you’re talking to.

The good news for advertisers is that technology and the massive amount of data discharged every second by each Internet user allows them to do this. There are many possible applications of this customer knowledge, but the most popular trends in online marketing are web targeting, email retargeting, and real time bidding.
9.3.2 Behavior targeting

The Internet also provides new ways—often instantaneous and spontaneous—to gather information from customers, adjust product offerings, and increase customer value. Many e-commerce marketing firms use behavioral targeting techniques to increase the effectiveness of banner, rich media, and video ads. Behavioral targeting refers to tracking the click-streams (history of clicking behavior) of individuals on thousands of Web sites for the purpose of understanding their interests and intentions, and exposing them to advertisements that are uniquely suited to their behavior. Proponents believe this more precise understanding of the customer leads to more efficient marketing (the firm pays for ads only to those shoppers who are most interested in their products) and larger sales and revenues. Unfortunately, behavioral targeting of millions of Web users also leads to the invasion of personal privacy without user consent. When consumers lose trust in their Web experience, they tend not to purchase anything.

Behavioral targeting takes place at two levels: at individual Web sites and on various advertising networks that track users across thousands of Web sites. All Web sites collect data on visitor browser activity and store it in a database. They have tools to record the site that users visited prior to coming to the Web site, where these users go when they leave that site, the type of operating system they use, browser information, and even some location data. They also record the specific pages visited on the particular site, the time spent on each page of the site, the types of pages visited, and what the visitors purchased (see Figure 6-1). Firms analyze this information about customer interests and behavior to develop precise profiles of existing and potential customers.

This information enables firms to understand how well their Web site is working, create unique personalized Web pages that display content or ads for products or services of special interest to each user, improve the customer’s experience, and create additional value through a better understanding of the shopper (see Figure 6-2). By using personalization technology to modify the Web pages presented to each customer, marketers achieve some of the benefits of using individual salespeople at dramatically lower costs. For instance, General Motors will show a Chevrolet banner ad to women emphasizing safety and utility, while men will receive different ads emphasizing power and ruggedness.
The shopper clicks on the home page. The store can tell that the shopper arrived from the Yahoo! portal at 2:30 PM (which might help determine staffing for customer service centers) and how long she lingered on the home page (which might indicate trouble navigating the site).

The shopper clicks on blouses, clicks to select a woman’s white blouse, then clicks to view the same item in pink. The shopper clicks to select this item in a size 10 in pink and clicks to place it in her shopping cart. This information can help the store determine which sizes and colors are most popular.

From the shopping cart page, the shopper clicks to close the browser to leave the Web site without purchasing the blouse. This action could indicate the shopper changed her mind or that she had a problem with the Web site’s checkout and payment process. Such behavior might signal that the Web site was not well designed.

Figure 6- 1: web site visitor tracking

E-commerce Web sites have tools to track a shopper’s every step through an online store. Close examination of customer behavior at a Web site selling women’s clothing shows what the store might learn at each step and what actions it could take to increase sales.

Figure 6- 2: website personalization

What if you are a large national advertising company with many different clients trying to reach millions of consumers? What if you were a large global manufacturer trying to reach potential
consumers for your products? With millions of Web sites, working with each one would be impractical. Advertising networks solve this problem by creating a network of several thousand of the most popular Web sites visited by millions of people, tracking the behavior of these users across the entire network, building profiles of each user, and then selling these profiles to advertisers. Popular Web sites download dozens of Web tracking cookies, bugs, and beacons, which report user online behavior to remote servers without the users’ knowledge. For example looking for young, single consumers, with college degrees, living in a specific region, in the 18–34 age range who are interested purchasing a European car? Not a problem. Advertising networks can identify and deliver hundreds of thousands of people who fit this profile and expose them to ads for European cars as they move from one Web site to another. Estimates vary, but behaviorally targeted ads are 10 times more likely to produce a consumer response than a randomly chosen banner or video ad (see Figure 6-3). So-called advertising exchanges use this same technology to auction access to people with very specific profiles to advertisers in a few milliseconds.

![Figure 6-3: Advertising network](image)

### 9.3.3 Retargeting

Retargeting is a subset of behavioral targeting, which consists of addressing individual consumers with relevant advertising, based on their previous online behavior. Retargeting by email relies on a three step process: (1) tagging websites and loyalty emails; (2) matching browsing behavior with individuals; and (3) sending personalized emails to those individuals. It can be used either as a retention tool or as an acquisition tool.

It is possible to target visitors who are already part of the advertiser’s database, usually subscribers to a newsletter or existing customers. If tracked, stored and used properly, individual browsing behavior can be considered a proxy for purchase intentions. The results are improved customer conversion rates thanks to more focused campaigns.
When visitors are not opt-ins to an advertiser’s brand, they might be to someone else’s. To take advantage of it, third party opt-in email databases, help target these potential customers. Using calls to an advertiser’s website, such programs can match visitors with their own opt-in database thanks to cookies. Matches can then be contacted by the third party database on the advertiser’s behalf, with the specific offer of the product they saw but didn’t buy yet.

![Figure 6-4: Fundamental of retargeting process](image)

### 9.3.4 Real-time bidding

Real-time bidding (RTB) allows you to implement the same kind of strategies, and much more, with display advertising. RTB is a method of buying online display advertising by auctioning at the best price and in real time on a large and growing network, as on a stock-exchange market. It optimizes media buying. Any impression of a banner with RTB is based on criteria associated with a cookie. While traditional media buys impressions en-masse on a website-by-website basis, RTB automatically buys impressions based on the profile of the user visiting a website, thanks to the user’s cookie. In other words, you are not targeting the audience on a specific website anymore, but you are targeting a specific individual, thanks to a cookie, on any website in the RTB network. Thus, data and cookies become a crucial element for the advertiser. When they can link this cookie to their CRM database, it’s not only a powerful tool to acquire new targeted customers, but also a new relationship channel for advertisers that want to display a personalized message to their customers, anywhere on the web.
6.4 Delivering on promises

Research indicates that a large proportion of the complaints made by e-commerce customers relate to fulfillment and delivery issues. So companies that offer the best customer experience from point-of-sale to delivery are often those that will maintain customer loyalty. This section presents some advices to sellers to keep company's reputation.

6.4.1 Think about your fulfillment and delivery strategy

Late and incorrect delivery of products is a frequently cited complaint, so e-commerce providers must be realistic about the delivery promises they make to customers, especially when demand is high. There are pros and cons to handling fulfillment in-house or outsourcing it. It really depends on the size, scalability, and flexibility of the business, but it’s a decision that requires a lot of thought.

The importance attached to on-time delivery by customers means that you must select your distribution partner service very carefully. Research shows that order under the Distance Selling Regulations, but customers demand much more than just what they are entitled to. Successful e-commerce sites make a point of confirming orders immediately by email and provide the customer with a way to track down the progress and availability of their order. Many carriers now use email and SMS messages to notify a customer that an order has been dispatched, and an online tracking system that allows the customer to log on to their website in order to check on progress.

6.4.2 Have an acceptable returns policy

With almost a quarter of orders being returned, online retailers must put in place an acceptable means of handling customer returns and ensuring that any customer dissatisfaction is
professionally resolved. In fact customers will often identify a returns policy as a key reason for placing an order with a particular retailer.

6.4.3 International orders

Expanding your market across borders can provide significant opportunities for sales growth, and with the power of Google it is often not that difficult. The barriers that retailers often face are related to delivery and returns. It is easy to pay a lot of money for international delivery if you are not careful and this can make you uncompetitive, and if you don’t have a robust returns policy what happens to those people that struggle to get their money back? Will they buy again, or will they post about their negative experience on social media sites?

Many national postal operators provide a growing number of international mail distribution services specifically aimed at the e-commerce market as well as advice on international cross border trade.

Chapter 7 Planning for Electronic Commerce

7.1 Introduction

Once it has been determined that a business can benefit from an online presence, the business type, the product line, the business’s organization, and the budget then it will be time to start the development of the electronic commerce system. Companies can choose from a number of different types of Web sites, including B2C, B2B, exchanges, and the like. Sites of a particular type (e.g., retailer, provider of business services, manufacturer, distributor/wholesaler, media, travel/entertainment) usually use the same underlying applications and provide similar sorts of functionality. Although this simplifies the task of creating the underlying application architecture, the site requirements must still be considered carefully. Before discussing the best approach to developing the site, it is useful to consider the major characteristics, functionalities, and requirements of an EC system.

A well-developed Web site not only adds to the value of the product or service being offered; it also enhances the worth of the company. Therefore, it is important that a firm choose the correct development strategy in order to obtain the greatest return on its investment. The diversity of e-business models and applications, which vary in size from small stores to global exchanges, requires a variety of development methodologies and approaches.

The traditional systems development life cycle (SDLC) systematically leads developers through six analysis and design stages: problem identification, analysis, logical design, physical design, implementation, and maintenance. The SDLC is the basis for development of the majority of traditional business systems. However, innovative new software and hardware are enabling a move to a more streamlined approach to e-commerce development.

E-commerce systems such as your website can be used to market and sell to customers, and to provide after-sales support. E-commerce can also be an important part of strengthening relationships and improving the efficiency of your dealings with suppliers and other key trading partners.
This chapter looks at the key issues to consider when planning for the introduction of e-commerce. It provides advice on how best to identify the opportunities for e-commerce within your business and the solutions available. It also emphasizes the need to plan for the ongoing development and maintenance of any e-commerce system at the outset.

Topics covered here are:

- Identifying e-commerce opportunities
- Making an e-commerce site easy to use
- Implementing e-commerce
- Recognizing the ongoing commitment
- Identifying partners in an e-commerce project?

### 7.2 Identifying e-commerce opportunities

There are several different ways you might use e-commerce in your business.

#### 7.2.1 Direct sales

Many businesses use e-commerce for the direct selling of goods or services online. For some businesses such as those selling software or music, the sale and delivery of goods can be made online. For most the supply of goods will continue to require a physical delivery. If you plan to sell online, you may need to rethink many of your business activities. You will fundamentally change the way in which you interact with your customers - for example, if customers place orders online instead of talking to a salesperson. You will also need to work out how every aspect of a transaction is handled - including order confirmation, invoicing and payment, and deliveries and returns.

#### 7.2.2 Pre-sales

You can use your website for pre-sales activities - exploiting the widespread use of the internet to generate sales leads. At its most basic this can be through the use of 'brochureware' - having an online version of your promotional materials on your site. Other options include email campaigns, search marketing or online advertising to attract visitors to your website.

#### 7.2.3 Post-sales support

You can also use the internet to automate aspects of your customer support to reduce the number of routine customer service calls. This can be achieved by using your site to answer the most frequently asked questions, or by putting technical information online.

However you decide to use e-commerce, it is important to define your expectations from the outset. What level of sales are you hoping to make? How many sales leads are you looking to generate? What percentage reduction in customer telephone calls are you expecting to achieve? Ensure that targets are put in place so that you can measure the success, or otherwise, of your e-commerce activities.

### 7.3 Making an e-commerce site easy to use

The ease with which a customer is able to use an e-commerce site is an important part of its success. It's also an important part of your online brand image.
There are three elements of the shopping process that influence how easy and enjoyable the customer finds it to shop on an e-commerce site - the shop front, shopping cart and payment software.

7.3.1 Shop front

The shop front is the interface presented to the customer. This often incorporates an online catalogue that enables them to browse for products and identify those they wish to purchase. Customers should be able to find the product they are looking for quickly. An eight-second guideline is frequently cited - if customers are unable to find the product within that time, they are likely to go to an alternative site.

The design of the shop front should make shopping intuitive, with the customer knowing at all times what stage of the buying process they are at. Always give the end user the ability to search your site to locate the product.

7.3.2 Shopping cart

This is the software that facilitates easy selection and payment for products purchased by a customer from an e-commerce website. Once the goods have been selected, the customer should find the checkout clearly signposted, so that they can proceed to pay for the goods.

The system should process the order speedily and provide you with a summary, including any packing and shipping requirements. It should also generate a printable receipt and allow you to send a confirmation email to the customer.

7.3.3 Payment software

Most customers will wish to pay for their purchases with credit or debit cards. There are three options for accepting such payments - you can:

- open a merchant account
- use a payment processing company
- set up an online shop within a virtual shopping mall

7.3.4 Supply chain management

The concept of supply chain management revolves around having the right product in the right place, at the right time, and in the right condition.

The key aspects of supply chain management include the ability of businesses to:

- exchange information on stock levels
- fulfill orders more quickly
- minimize excess inventory
- improve customer service
- use a networking infrastructure to ensure good response times and speed

7.3.5 E-marketplaces

There are many online exchanges that enable suppliers, buyers and intermediaries to come together and offer products or services to each other, according to set criteria. Buyers and sellers work interactively with bids and offers. When a deal is made, it is a match between the buyer and seller on variables such as price, volume and delivery costs.
Reverse auctions are buyer-controlled events and are used to attract bids, with the lowest bid winning. Buyers post details of the goods they want to buy and suppliers compete to provide them.

7.4 Implementing e-commerce

The key tool for delivering e-commerce services is the business website. This must be specified, designed, hosted and maintained.

7.4.1 Specification

Your website specification should clearly identify what the site is trying to achieve, and how its various components will contribute to this and who your target audience is for both technical and marketing purposes.

7.4.2 Domain name

Your domain name should be memorable, easy to spell and indicate what your business does so that potential customers can find your site.

You should also use search engine optimization techniques to ensure your website appears high in search engine listings.

7.4.3 Website hosting

You can host your own website but most businesses opt to have an internet service provider (ISP) host it on their behalf.

7.5 Recognizing the ongoing commitment

Even in the planning stages of an e-commerce project, it is important to understand how the website will be maintained on a day-to-day basis. There are also various marketing and security issues that need to be taken into account.

7.5.1 Site maintenance

Changes in product details, product ranges, special offers, up-to-date advertisements and sales information will all need to be maintained throughout the life of the site. In addition, you should consider redesigning the site on a periodic basis in order to improve the features offered to customers and keep the site looking fresh.

It is important that the site evolves to meet the needs of your customers. There are a number of actions you can take to encourage customer feedback, including carrying out surveys and putting feedback forms on the site.

7.5.2 Marketing

No matter how well designed your e-commerce site is and how competitive your products and prices are, if the customers are unaware of its existence then you will fail to exploit its potential. Popular methods of promoting a website include:

- Email advertising campaigns.
- Search marketing - improving visibility of your site in search engine results pages. Web advertising - including display advertising, affiliate marketing and pay per click.
- Using social media, such as blogs and online communities.
7.5.3 Security considerations

Using the internet for business purposes is fraught with risks to security. Hackers can attack systems at any time. Whatever your business, there's a real risk that your system may become the target of an attack that could affect your organization. You should recognize the need for effective security controls to prevent your site from falling victim to hackers or fraudsters.

7.5.4 Contingency planning

The more successful your e-commerce service becomes, the more reliant you will become upon it. You should consider what risks and threats your e-commerce site might be open to and have contingency plans to ensure that you can continue trading should anything go wrong.

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- Using social media, such as blogs and online communities.
- Digital coupons offering discounts.
- Online directories.

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7.6.5 Work with business partners

E-commerce impacts upon almost every function within a business. Marketing and IT need to work together to plan and create your website and related materials such as any email marketing campaign. You'll also want to involve other areas such as accounting, stock control and delivery, particularly if your e-commerce site is going to be directly integrated into their systems.

It's a good idea to discuss your plans with key business partners such as major customers and suppliers.

Before starting an e-commerce project, you need to ensure that you are fully committed. Top-level involvement in the team can help demonstrate your commitment and encourage different employees to work together effectively.

7.9 Technical planning

Depending on the level of in-house technical expertise, you will almost certainly need to involve external IT suppliers. Your requirements may include additional hardware and software, website design and training for your employees. You may also need to review or renegotiate your relationship with your internet service provider.

If several different technology suppliers are involved in the project, it's important to plan and manage how they will work together. You also need to ensure that any solutions work with your existing IT systems.

References