CHAPTER ONE

E-Commerce Overview

1.1   INTRODUCTION

In its simplest form ecommerce is the buying and selling of products and services by businesses or consumers over the World Wide Web (WWW). People use the term "E-Commerce" or "Online Shopping" to describe the process of searching for and selecting products in online catalogues and then "checking out" using a credit card and encrypted payment processing.

1.3   What is e-commerce?

The use of the Internet, the World Wide Web (Web), and mobile apps to transact business. Although the terms Internet and Web are often used interchangeably, they are actually two very different things.

The Internet is a worldwide network of computer networks, and the Web is one of the Internet's most popular services, providing access to billions of Web pages. An app (short-hand for application) is a software application. The term is typically used when referring to mobile applications, although it is also sometimes used to refer to desktop computer applications as well.

More formally, we focus on digitally enabled commercial transactions between and among organizations and individuals. Each of these components of our working definition of e-commerce is important. Digitally enabled transactions include all transactions mediated by digital technology. For the most part, this means transactions that occur over the Internet, the Web, and/or via mobile apps. Commercial transactions involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services. Exchange of value is important for understanding the limits of e-commerce. Without an exchange of value, no commerce occurs.

The professional literature sometimes refers to e-commerce as "digital commerce" in part to reflect the fact that in 2013, apps account for a growing amount of e-commerce revenues. For our purposes, we consider "e-commerce" and "digital commerce" to be synonymous.

1.4 Definition of e-commerce

Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to "any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact."

A more complete definition is:

- **E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals.**

- **E-commerce the buying and selling of products and services by businesses and consumers through an electronic medium, without using any paper documents. E-commerce is widely considered the buying and selling of products over the internet, but any transaction that is completed solely through electronic measures can be considered e-commerce**

1.5   Definition of Traditional Commerce

Traditional Commerce or Commerce is a part of business, which encompasses(تشمل) all those activities that facilitate exchange. Two kinds of activities are included in commerce, i.e. trade and auxiliaries to trade. The term trade refers to the buying and selling of goods and services for cash or kind and auxiliaries to trade, implies all those activities like banking, insurance, transportation, advertisement, insurance, packaging, and so on, that helps in the successful completion of exchange between parties.

In finer terms, commerce encompasses all those activities that simplify the exchange of goods and services, from manufacturer to the final consumer. When the goods are produced, it does not reach to the customer directly rather it has to pass from various activities, which are included under commerce. Its main function is to satisfy the wants of consumers by making goods available to them, at the right time and place.

1.6   Differences between e-commerce and traditional commerce

Electronic commerce is very much like traditional commerce. It also involves and exchange of goods. But the exchange of goods is conducted online. Technologies such as email, electronic data interchange and electronic fund transfer (تحويل الاموال الكترونيا) are used to track transactions and receive payments. Some of the differences between electronic commerce and traditional commerce are explained briefly below.

Traditional commerce vs E-Commerce

1. **Cost effective**

E-commerce is very cost effective when compared to traditional commerce. In traditional commerce, cost has to be incurred for the role of middlemen to sell the company's product. The cost incurred on middlemen is eliminated in e-commerce as there is a direct link between the business and the customer. The total overhead cost required to run e-business is comparatively less, compared to traditional business.

For example, in running an e-business, only a head office is required. Whereas in traditional method, a head office with several branches are required to cater to the needs of customers situated in different places. The cost incurred on labour, maintenance, office rent can be substituted by hosting a website in e-business method.

2. **Time saving**

It takes a lot of time to complete a transaction in traditional commerce. E-commerce saves a lot of valuable time for both the consumers and business. A product can be ordered and the transaction can be completed in few minutes through internet.

3. **Convenience**

E-commerce provides convenience to both the customers and the business. Customers can browse through a whole directories of catalogues, compare prices between products and choose a desired product any time and anywhere in the world without any necessity to move away from their home or work place.

E-commerce provides better connectivity for its prospective and potential customers as the organization's website can be accessed virtually from anywhere, any time through internet. It is not necessary to move away from their work place or home to locate and purchase a desired product.

4. Geographical accessibility

In traditional commerce, it may be easy to expand the size of the market from regional to national level. Business organizations have to incur a lot of expenses on investment to enter international market. In e-commerce it is easy to expand the size of the market from regional to international level.

By hosting a website, by placing advertisements on the internet and satisfying certain legal norms, a business can penetrate into global market. It is quite easy to attract customers from global markets at a marginal cost.

5. Introduction of new products

In traditional commerce, it takes a lot of time and money to introduce a new product and analyze the response of the customers. Initially, cost has to be incurred to carry out pilot surveys to understand the taste of the customers. In e-commerce, it is easy to introduce a product on the website and get the immediate feedback of the customers. Based on the response, the products can be redefined and modified for a successful launch.

6. Profit

E-commerce helps to increase the sales of the organization. It helps the organization to enjoy greater profits by increasing sales, cutting cost and streamlining operating processes.

The cost incurred on the middlemen, overhead, inventory and limited sales pulls down the profit of the organization in traditional commerce.

7. Physical inspection

E-commerce does not allow physical inspection of goods. In purchasing goods in e-commerce, customers have to rely on electronic images whereas in traditional commerce, it is possible to physically inspect the goods before the purchase.

8. Time accessibility

Business is open only for a limited time in traditional commerce. Round the clock (24 x 7) service is available in e-commerce.

9. Product suitability

E-commerce is not suitable for perishable goods and high valuable items such as jewelry and antiques. It is mostly suitable for purchasing tickets, books, music and software. Traditional commerce is suitable for perishables and touch and feel items. Purchasing software, music in traditional commerce may appear expensive,

10. Human resource

To operate in electronic environment, an organization requires technically qualified staff with an aptitude to update themselves in the ever changing world. E-business has difficulty in recruiting and retaining talented people.

Traditional commerce does not have such problems associated with human resource in non electronic environment.

11. Customer interaction

In traditional commerce, the interaction between the business and the consumer is a "face-to-face".In electronic commerce, the interaction between the business and the consumer is "screen-to-face". Since there is no personal touch in e-business, companies need to have intimate relationship with customers to win over their loyalty.

12. Process

There is an automated processing of business transactions in electronic commerce. It helps to minimize the clerical errors.There is manual processing of business transactions in traditional commerce. There are chances of clerical errors to occur as human intervention takes place.

13. Business relationship

The business relationship in traditional commerce is vertical or linear, whereas in electronic commerce the business relationship is characterized by end-to-end.

14. Fraud

Lot of cyber frauds take place in electronic commerce transactions. People generally fear to give credit card information. Lack of physical presence in markets and unclear legal issues give loopholes for frauds to take place in e-business transactions.
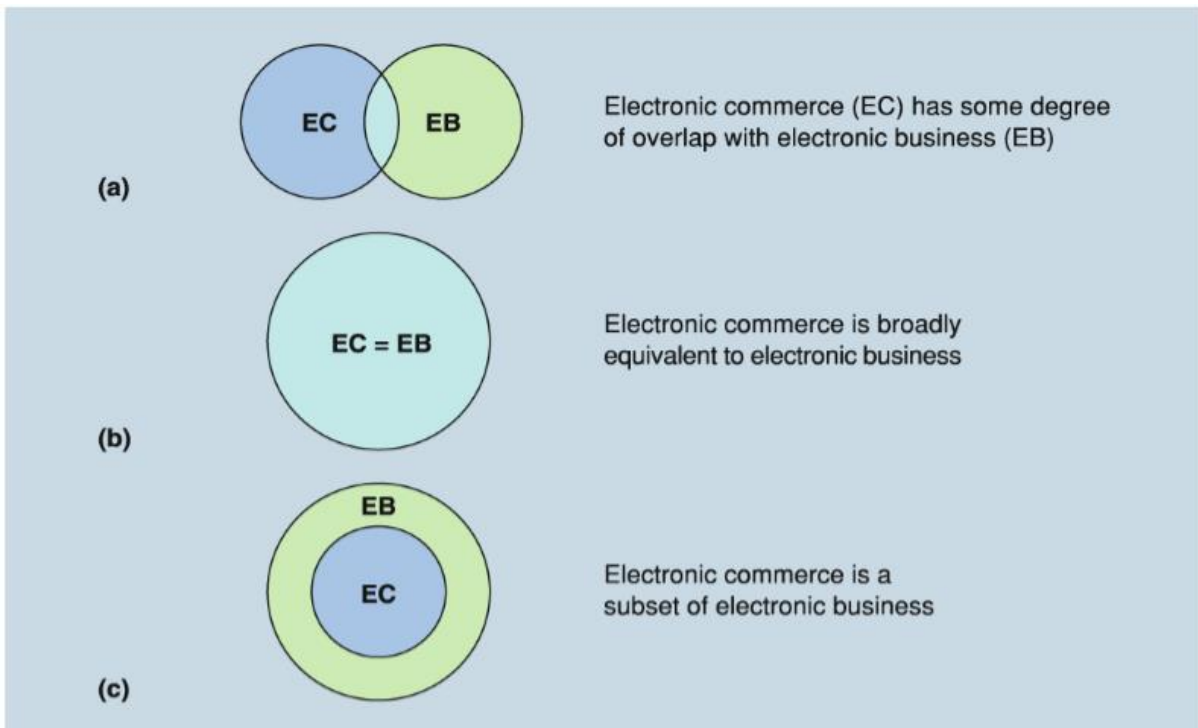
Fraud in traditional commerce is comparatively less as there is personal interaction between the buyer and the seller.

1.7   Electronic business (e-business)

Refers to the use of the Web, Internet, intranets, extranets or some combination thereof to conduct business. E-business is similar to e-commerce, but it goes beyond the simple buying and selling of products and services online. E-business includes a much wider range of businesses processes, such as supply chain management, electronic order processing and customer relationship management. E-business processes, therefore, can help companies to operate more effectively and efficiently.

1.8   Distinguish between e-commerce and e business

1. E- Business is broader in scope and e-commerce is just aspect or a subset of it.
2. E-commerce only covers business transactions such as buying and selling of goods and services over the internet.
3. E-commerce essentially involves monetary trade while in e-business, money transaction is not necessary.

(a) Electronic commerce (EC) has some degree of overlap with electronic business (EB)

(b) Electronic commerce is broadly equivalent to electronic business

(c) Electronic commerce is a subset of electronic business

1.9   THE IMPACT OF ELECTRONIC-COMMERCE

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

1. **Marketing** – issues of on-line advertising, marketing strategies and consumer behaviour and cultures. One of the areas in which it impacts particularly is direct marketing. In the past this was mainly door-todoor, home parties (like the Tupperware 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.

2. **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.

3. **Finance and accounting** – on-line banking; issues of transaction costs; accounting and auditing implications where ‚intangible' assets and human capital must be tangibly valued in an increasingly knowledge based economy.

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

5. **Production and operations management** – the impact of on-line processing has led to reduced cycle times. It takes seconds to deliver digitized products and services electronically; similarly the time for processing orders can be reduced by more than 90 per cent from days to minutes. Production systems are integrated with finance marketing and other functional systems as well as with business partners and customers.

6. **Production and operations management (manufacturing)** – moving from mass production to demand-driven, mass customisation 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

1.10 ARCHITECTURAL FRAMEWORK FOR E-COMMERCE

Architectural framework of e-commerce means the synthesizing of various existing resources like DBMS, data repository, computer languages, software agent-based transactions, monitors or communication protocols to facilitate the integration of data and software for better applications.

The architectural framework for e-commerce consists of six layers of functionality or services as follows:

1. Application services.

2. Brokerage services, data or transaction management.

3. Interface and support layers.

4. Secure messaging, security and electronic document interchange.

5. Middleware and structured document interchange, and

6. Network infrastructure and the basic communication services.

1. **Applications**: In the application layer services of e-commerce, it is decided that what type of e-commerce application is going to be implemented. There are three types of distinguished e-commerce applications i.e., consumer to business application, business-to-business application and intra-organizational application.

2**. Information Brokerage and Management Layer:** This layer is rapidly becoming necessary in dealing with the voluminous amounts of information on the networks. This layer works as an intermediary who provides service integration between customers and information providers, given some constraint such as low price, fast services or profit maximization for a client. For example, a person wants to go to USA from India. The person checks the sites of various airlines for the low-price ticket with the best available service. For this he must know the URLs of all the sites. Secondly, to search the services

and the best prices, he also has to feed the details of the journey again and again on different sites. If there is a site that can work as information broker and can arrange the ticket as per the need of the person, it will save the lot of time and efforts of the person. This is just one example of how information brokerages can add value.

Another aspect of the brokerage function is the support for data management and traditional transaction services. Brokerages may provide tools to accomplish more sophisticated, time-delayed updates or future-compensating transactions.

3**. Interface and Support Services:** The third layer of the architectural framework is interface layer. This layer provides interface for e-commerce applications. Interactive catalogs and directory support services are the examples of this layer.

Interactive catalogs are the customized interface to customer applications such as home shopping. Interactive catalogs are very similar to the paper-based catalog. The only difference between the interactive catalog and paper-based catalog is that the first one has the additional features such as use of graphics and video to make the advertising more attractive.

Directory services have the functions necessary for information search and access. The directories attempt to organize the enormous amount of information and transactions generated to facilitate e-commerce.

The main difference between the interactive catalogs and directory services is that the interactive catalogs deal with people while directory support services interact directly with software applications.

4. **Secure Messaging Layer:** In any business, electronic messaging is an important issue. The commonly used messaging systems like phone, fax and courier services have certain problems like in the case of phone if the phone line is dead or somehow the number is wrong, you are not able to deliver the urgent messages. In the case of courier service, if you want to deliver the messages instantly, it is not possible as it will take some time depending on the distance between the source and destination places. The solution for such type of problems is electronic messaging services like e-mail, enhanced fax and EDI.

The electronic messaging has changed the way the business operates. The major advantage of the electronic messaging is the ability to access the right information at the right time across diverse work groups.

The main constraints of the electronic messaging are security, privacy, and confidentiality through data encryption and authentication techniques.

5. **Middleware services:** The enormous growth of networks, client server technology and all other forms of communicating between/among unlike platforms is the reason for the invention of middleware services. The middleware services are used to integrate the diversified software programs and make them talk to one another.

6. **Network Infrastructure:** We know that the effective and efficient linkage between the customer and the supplier is a precondition for e-commerce. For this a network infrastructure is required. The early models for networked computers were the local and long distance telephone companies. The telephone company lines were used for the connection among the computers. As soon as the computer connection was established, the data traveled along that single path. Telephone company switching equipment (both mechanical and computerized) selected specific telephone lines, or circuits, that were connected to create the single path between the caller and the receiver. This centrally-controlled, single connection model is known as circuit switching.

However, circuit switching does not act well for sending data across a large network. In order to implement circuit switching, point-to-point connections for each pair of senders/ receivers has to be established which is both expensive and difficult to manage. There is one more technique that is used by the Internet. It is called a packet switching

network. In a packet switching network, files and messages are broken down into packets that are labeled electronically with codes that indicate both their origin and destination. Packets travel from computer to computer along the network until they reach their destination. The destination computer collects the packets and reassembles the original data from the pieces in each packet. In packet switching, as the packet passes through various computers on its line the computers determine the best way to move the packet forward to its destination.

1.11 Advantages and Disadvantages of Electronic Commerce

1. Advantages of Electronic Commerce

Firms are interested in electronic commerce because, quite simply, it can help increase profits. All the advantages of electronic commerce for businesses can be summarized in one statement: Electronic commerce can increase sales and decrease costs. Advertising done well on the Web can get even a small firm's promotional message out to potential customers in every country in the world. A firm can use electronic commerce to reach small groups of customers that are geographically scattered. The Web is particularly useful in creating virtual communities that become ideal target markets for specific types of products or services. A virtual community is a gathering of people who share a common interest, but instead of this gathering occurring in the physical world, it takes place on the Internet.

Advantages

- Electronic commerce provides buyers with a wider range of choices than traditional commerce.
- Electronic commerce provides buyers with an easy way to customize the level of detail in the information they obtain about a prospective purchase.
- Electronic payments of tax refunds, public retirement, and welfare support cost less to issue and arrive securely and quickly when transmitted over the Internet.
- Electronic payments can be easier to audit and monitor than payments made by check, providing protection against fraud and theft losses.
- Electronic commerce can also make products and services available in remote areas.

2. **Disadvantages of Electronic Commerce**

Some business processes may never lend themselves to electronic commerce. For example, perishable foods and high-cost, unique items, such as custom-designed jewelry and antiques, may be impossible to inspect adequately from a remote location, regardless of any technologies that might be devised in the future. Most of the disadvantages of electronic commerce today, however, stem from the newness and rapidly developing pace of the underlying technologies. These disadvantages will disappear as electronic commerce matures and becomes more available to and accepted by the general population.

Disadvantages

- Return-on-investment is difficult to calculate.
- Many firms have had trouble recruiting and retaining employees with the technological, design, and business process skills needed to create an effective electronic commerce presence.
- Difficulty of integrating existing databases and transaction-processing software designed for traditional commerce into the software that enables electronic commerce.
- Many businesses face cultural and legal obstacles to conducting electronic commerce.

1.12 Benefit of E-commerce

To Organizations:

- Expands a company's marketplace to national and international markets. With minimal capital outlay, a company can quickly locate more customers, the best suppliers, and the most suitable business partners worldwide.
- Enables companies to procure material and services from other companies, rapidly and at less cost.

- Shortens or even eliminates marketing distribution channels, making products cheaper and vendors' profits higher.
- Decreases (by as much as 90 percent) the cost of creating, processing, distributing, storing, and retrieving information by digitizing the process.
- Allows lower inventories by facilitating pull-type supply chain management. This allows product customization and reduces inventory costs.
- Lowers telecommunications costs because the Internet is much cheaper than value-added networks (VANs).
- Helps small businesses compete against large companies.
- Enables a very specialized niche market.

2   To Customers:

- Frequently provides less expensive products and services by allowing consumers to conduct quick online comparisons.
- Gives consumers more choices than they could easily locate otherwise.
- Enables customers to shop or make other transactions 24 hours a day, from almost any location.
- Delivers relevant and detailed information in seconds.
- Enables consumers to get customized products, from PCs to cars, at competitive prices.
- Makes it possible for people to work and study at home.
- Makes possible electronic auctions.
- Allow consumers to interact in electronic communities and to exchange ideas and compare experiences.

3   To Society:

- Enables individuals to work at home and to do less traveling, resulting in less road traffic and lower air pollution.
- Allows some merchandise to be sold at lower prices, thereby increasing people's standard of living.

- Enables people in developing countries and rural areas to enjoy products and services that are otherwise are not available. This includes opportunities to learn professions and earn college degrees, or to receive better medical care.
- Facilitates delivery of public services, such as government entitlements, reducing the cost of distribution and chance of fraud, and increasing the quality of social services, police work, health care, and education.

1.13   HOW DO YOU WORK WITH E-COMMERCE?

E-commerce is about setting your business on the Internet, allowing visitors to access your website, and go through a virtual catalog of your products/services online. When a visitor wants to buy something he/she likes, they merely "add" it to their virtual shopping basket. Items in the virtual shopping basket can be added or deleted, and when you're all set to checkout, you head to the virtual checkout counter, which has your complete total, and that will ask you for your name, address etc. and method of payment (usually via credit card). Once you have entered all this information (which by the way is being transmitted securely) you can then just wait for delivery.

Planning for E-commerce

Moving your sales operations online requires that you look at your business needs and information technology (IT) requirements and the options available to you in order to formulate an e-commerce implementation and fulfilment strategy. Here are some questions to consider:

1. Is e-commerce really the right option for my business? If so, why?

2. Who are my competitors online and how well established are they?

3. Can my existing business system processes in my bricks and mortar storefront be brought online? How do I integrate them?

4. What do I need the website to do – i.e. are there straightforward categories and sub-categories or do I need additional functionality?

5. Do I need the shopping cart to be able to do anything beyond taking payments?

6. What resources or knowledge base do I need to set up an online store?

7. How will I drive traffic to my online store?

Setting Goals and Objectives

Goal Setting Examples	Examples of Objectives
Use Internet to expand business	• Within 60 days, be able to communicate my company name, its benefits, prices, customer list, products and services to new prospects.
Expand sales outside local area	• Build international presence by creating listings in international directories within 6 months. • Create national sales affiliate teams to help promote e-commerce website within 45 days.
Sell $xxxx per month to existing clients	• Design a cross-sell program and referral reward program to existing clients, assess in 9 months.

Reduce direct marketing expenses from flyer distribution and promo catalogues	• Introduce last minute alert program through text messaging or email campaigns.
Enhance customer service	• Implement a live chat service from the e-commerce site to be accessible 24/7.

Choosing a Web Developer vs. Do-It-Yourself (DIY) Options

Should you choose to work with a web developer or try to create your own e-commerce enabled website? For those just starting out in business with a limited budget, there are many site builders (for example, Shopify www.shopify.ca, Canada Cart www.canadacart.ca) that allow you to create a storefront to sell your items online, to set up security for credit card transactions, and to outsource shipping. As your business needs grow, you may want to consider hiring a professional to take you to the next level.

Either way, you need to do some research before you invest your time and money in e-commerce. These are basically the same things to consider if you were planning to start a bricks and mortar store and they are equally important in the virtual world.

- Research your site builder or developer choice options.
- Complete a Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis of your marketplace/industry, both on and offline.
- Conduct a marketplace analysis – Who are your customers and competitors?
- Consider marketing and sales strategies – How suitable is your product or service to Internet marketing?

The purpose, style, scope, domain name, hosting and security of your website are all areas to think about when planning e-commerce. Understand all that is involved in developing an e-commerce online presence and the timing for each step along the way. Here are some items to consider:

- Evaluation and Metrics: Determine in advance what metrics and method of evaluation you plan on implementing.

- Logistics: Develop pricing, payment choices, delivery choices and return policies.

- Review and Update: Set some review dates; schedule in regular updates to keep your site fresh and current. Always address visitor needs.

- Upfront Costs: Understand what upfront costs are involved in order to start

Protecting Transaction Information
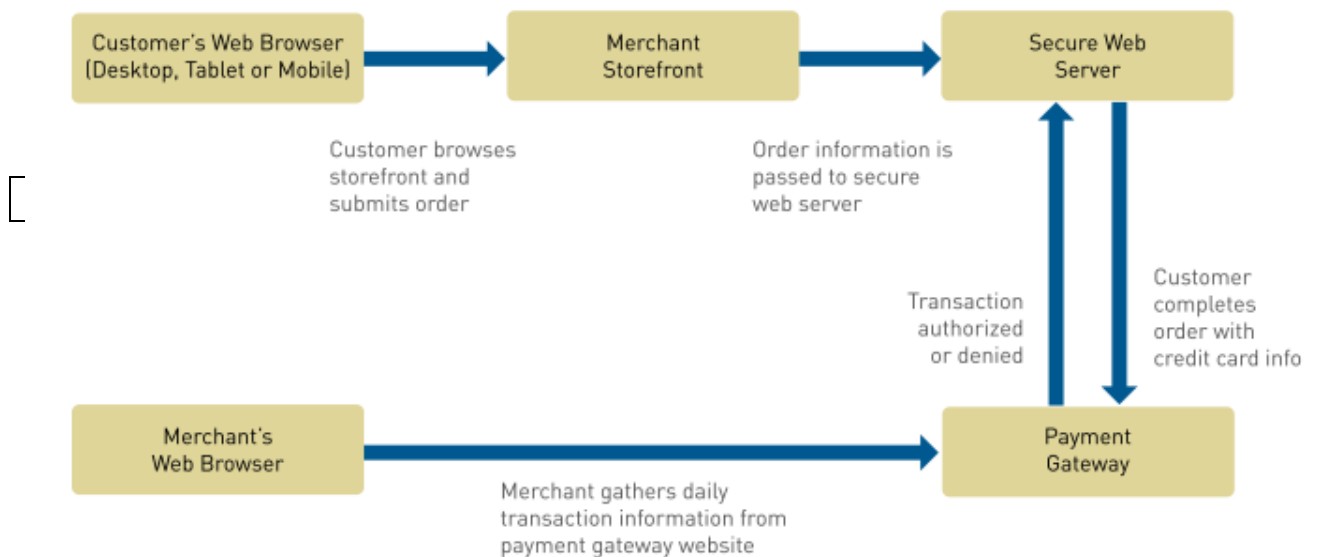
This section describes what is involved in selling online vis-à-vis your own website. In order to process an online sales transaction three things are needed:

These three requirements are described in more detail below.

1. Shopping Carts

Shopping cart software keeps track of what the user selects to buy from the website before proceeding to the "checkout". An online shopping cart consists of three parts:

- Product Catalogue
- Shopping List

• Checkout System

The **product catalogue** is made up of all the information needed to present any product to the customer and to complete a sales transaction online. Information to be included in the product database generally includes
the price, identification number (SKU), image or other multi-media information, product options or choices.

A **shopping list** (i.e. list of selected products) allows users to track the items they want to purchase. A shopping cart image is generally used to show what items the shopper
has selected for purchase. In order for the shopping cart to function properly, the user's computer must be set to allow "cookies".

The **checkout** system allows customers to select products by clicking an "add items to cart" button and then enables them to pay for these products.

2. Secure Server

The secure server helps provide protection against the loss or modification of personal information. Secure
Socket Layer (SSL) is the most commonly used technology for secure online transactions. SSL encrypts (or codes)
all data between the shop's server and the customer's computer. This makes it very difficult for third parties to decode any information exchanged such as credit card numbers.

The following diagram shows how a secure server can protect information passed between the consumer and the merchant.

Protecting Transaction Information
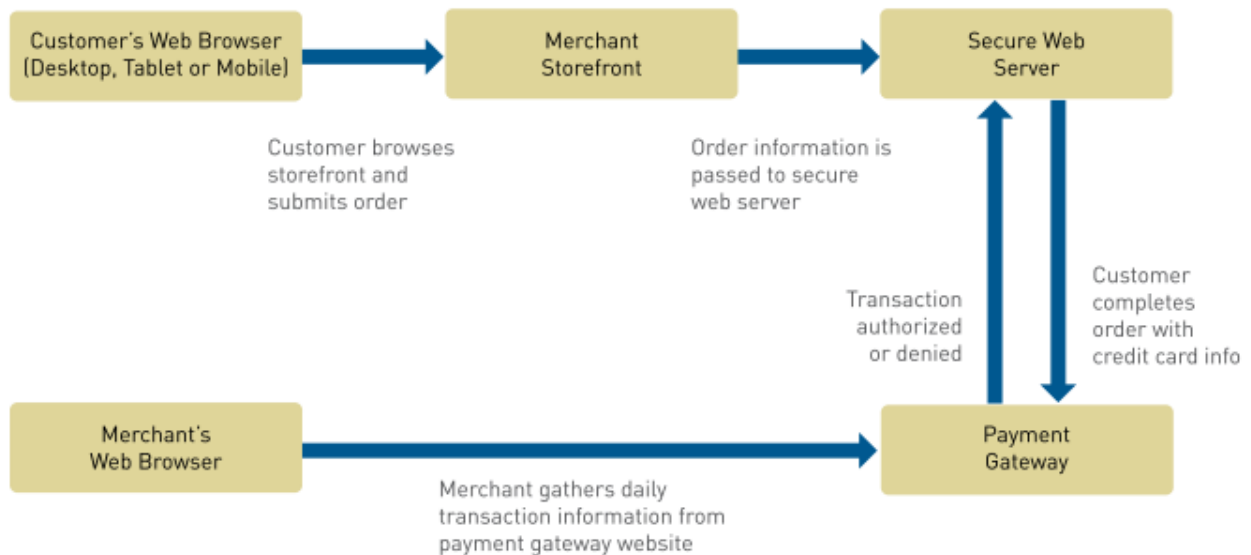
Shopping carts do not deal with the entire transaction. They pass information (i.e. what the user has ordered) to a **payment gateway**.

A **payment gateway** is a separate service—it links the shopping cart to the financial networks involved with the transaction. When you are choosing a shopping cart package, ensure that the payment gateway service is compatible. Check with the gateway service provider to see which shopping cart packages it supports. Payment gateways link transactions to an ID, so there is no need for merchants to know their customers' credit card numbers.

Cookies are small pieces of software that websites store on users' computers. They have a very wide variety of uses, but an important one is to track how people arrive at the website and how they use the website. If your website uses 'cookies', you should explain to the website visitors how and why this information is used.

Servers are the backbone of the Internet—they are computers linked by communication lines which "serve up" information in the form of text, graphics, and multimedia to online computers that request data.

Source: Expedite Media Group, Inc.

If you are planning on selling online, you will need a **Digital Certificate** for SSL technology to work. A Digital Certificate is an electronic ID that helps to show the credibility of a website.

If you want to buy online, how do you know if a website has a secure server?

Look for the following:

- A URL address that begins with **https://** as opposed to http://

- A browser that notifies you that you are on a secure site. Many browsers use a symbol (e.g. lock icon) or a message

3. Payment Processing Options

There are five payment processing options:

A. Third Party Payment Processing.

B. Internet Merchant Account.

C. Manual (Offline) Payment Processing.

D. EBPP and On-Demand Payment Gateways

E. RFID & NFC Mobile Commerce

What You Should Consider when Choosing a Payment Option:

• **Costs associated** with the payment option (consider transaction fees, setup fees, monthly fees).

> ➤ Take the time to understand the features offered by each option and the pricing model.

- ➢ Also consider that there are different fees and features associated with merchant accounts.
- ➢ Also consider chargeback fees.
- ➢ Also consider the fees associated with fraudulent transactions.

- **Privacy** of the transaction data.

  - ➢ If you are considering leasing software through a service provider, check the provider's policy for disclosure and sharing of information.

- **Fraud protection**.

  - ➢ Review fraud protection tools. Merchant accounts typically have a number of customizable fraud filters that identify and track suspicious transactions. The transaction can be placed on hold while the bank notifies the business of the suspicious activity.

- **General credibility** of the service provider.

  - ➢ – Internet merchant accounts have greater credibility.