

**GOVERNMENT ARTS AND SCIENCE COLLEGE**  
**KOVILPTTI**  
**STUDY MATERIAL FOR II M.COM**  
**ECOMMERCE ~ PKCM33**  
**BY**  
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## **E-COMMERCE**

### **Objectives:**

1. To buildup basic knowledge on electronic business.
2. To educate students on online marketing.
3. To make e commerce and internet marketing familiar with students.
4. To make the students to devise marketing strategies for concerns engaged in ecommerce.
5. To understand the current status of e-business.

### **Outcomes:**

1. Students shall understand the fundamental principles of e-business and e-commerce.
2. The learners shall understand the impact of information and communication technologies on business.
3. Students shall understand the tools and services used by virtual e-commerce sites.

Unit I: Introduction to E- Commerce; Introduction to E-Commerce: Meaning, Significance and scope of E-commerce – Traditional Commerce and E-commerce – Advantages and disadvantages of E-commerce - Technical and Non-technical limitations of E-commerce. Online shopping sites in India.(10L)

Unit II: Application of E- Commerce: Application of E-commerce : Basic in E-commerce – Introduction to E - commerce Modules – B2B Modules, Advantages and disadvantages of B2B – B2C Modules – Electronic Retailing and malls. The process of electronic shopping, Electronic Catalogs, interactive Page 9 of 28 MSU / 2017-18 / PG –Colleges / M.Com / Semester –III / Ppr.no.14 / Core – 13 advertising, and marketing – Benefits and limitations of internet advertising – Impact of Ecommerce on business opportunities in E-commerce. (15L)

Unit III: Inter,Intra and Extranets: Internet, Intranets and Extranets -Introduction to Internet – Components of Internet – Business use of the Internet – Categories of Internet – Intranet – Advantages and disadvantage of Intranet & Extranet -Relationship between Internet, Intranet and Extranet – Difference between Internet and Extranet-Mobile E-Commerce Technology (M-Commerce). (15L)

Unit IV: Electronic Data Interchange: Introduction to electronic data inter change [EDI] - definition, benefits of EDI, limitations of EDI, EDI transaction and EDI Application-SMTP,POP and FTP Protocols- Network Layers and TCP/IP Protocols (20L)

Unit V: E-Commerce Supporting Functions: E-commerce Supporting Functions: Purchase and sale procedure- Supply Chain Management [SCM], Value chains in e-commerce, Value chain management – Electronic Payment system- authentication of payment, mode of payment. Electronic credit and debit cards, smart cards, and electronic cash -Risks in EPS – digital signature, Encryption, electronic certificate, Firewall, secure electronic transaction (SET) – Security issues in E-Commerce- protocols-SSL-SHTTP-Computer Crimes-Security in ECommerce. (15L) (Total:75L)

Reference books

- 1.E-Commerce and its Applications,U.S.Pandey, Rahul Srinivastava, SaurabhShukla,S.Chand& Company Ltd
2. E-commerce, C.S.V. Murthy, Himalaya Publishing House
3. E-commerce, David Whiteley, McGraw Hill
4. E-commerce, P. Joseph, PHI Publication
5. E-commerce,The cutting edge of business, K. Bajaj and Nog TMH.
6. Information Technology in business, J.A. Senn, Prentice Hall

## **UNIT -1**

### **INTRODUCTION TO E COMMERCE**

#### **E commerce**

The term Electronic commerce (or e-Commerce) refers to the use of an electronic medium to carry out commercial transactions. Most of the time, it refers to the sale of products via Internet, but the term E commerce also covers purchasing mechanisms via Internet (for B-To-B)

**E commerce**, also known as **electronic commerce** or internet **commerce**, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions

#### **SIGNIFICATNCE OF E COMMERCE**

E-commerce or Electronic commerce is the buzzword of the modern day. In simple terms, it's just buying and selling of product and services through internet. But in a broad sense, it includes the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services. With the widespread usage of internet, the sphere of E commerce has widened dramatically.

Today E commerce is an integral part of business because of various reasons like:

- Ease of use
- Accessibility all across the globe
- Great variety & easy compassion of products from different vendors
- Trusted payment channels
- Shopping can be done sitting in the convenience of home shopping, hence it is less time consuming.

It is therefore very important for any new entrepreneur to understand the significance of E-Commerce and should know how to utilize this tool for the growth and development of business.

So, whether you have an existing business or launching a brand new business, whether the volume of your business is large or small, you can always generate profit by demonstrating your products or services online, thereby acquiring a large amount of viewer exposure. In concise, buying and selling will result in profits and returns.

There are so many factors which makes e-commerce to come to the fore front in today's world. Saving precious time involved in business transactions is really a prominent factor.

Like for instance, net banking makes it easy to carry out money and banking transactions in a break neck speed as compared to the real banking scenario. This asserts the fact that E commerce is beneficial to both business and consumer wise as payment and documentations can be completed with greater efficiency and reliability. Another important factor determining the flow of whole business is connectivity. Connectivity is very important for both consumers and business. E commerce provides better connectivity for all the potential candidates all over the globe, thus helping in enhancing the business without any geographical barriers. From the view point of the customer, E commerce is a good platform for hassle free shopping by sitting in your home. The customer can browse through all the products and services available and can review and compare the prices of the similar products available in the online space.

In global market scenario, the emergence of E commerce as a forerunner has opened up various windows of opportunities for a variety of online companies and investors. More and more resources are being directed into electronic securities, internet facilities, business plans and new technologies due to the boom in the space of E-commerce. As a result various new markets have emerged from E commerce itself giving a boost to the global market.

### **SCOPE OF E COMMERCE**

**Electronic Commerce** is more than just buying and selling products online. It also includes the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services.

India has witnessed a major breakthrough E-commerce success stories particularly in **e-retail in Consumer Electronics & Fashion Apparel & Home Furnishing segments**. E-commerce creates new opportunities for **entrepreneurial start-ups**. Ease of Internet access, Safe and secure payment modes coupled with aggressive marketing by E-Commerce Giants has revolutionized this segment. Rapid development in mobile technology has given way to **Mobile Commerce** with many E-Commerce companies shifting to App only model.

### **Traditional Commerce and e-Commerce**

#### **Definition of Traditional Commerce**

Traditional Commerce or Commerce is a part of business, which encompasses 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.

### **Definition of e-Commerce**

E-Commerce or electronic commerce refers to the exchange of goods and services, funds or information, between businesses and consumers using the electronic network, i.e. internet or online social network. e-Commerce means trading and providing assistance to trading activities, through the use of the electronic medium, i.e. all the activities like purchasing, selling, ordering and paying are performed over the internet.

<b>BASIS FOR COMPARISON</b>	<b>TRADITIONAL COMMERCE</b>	<b>E-COMMERCE</b>
Meaning	Traditional commerce is a branch of business which focuses on the exchange of products and services, and includes all those activities which encourages exchange, in some way or the other.	e-Commerce means carrying out commercial transactions or exchange of information, electronically on the internet.
Processing of Transactions	Manual	Automatic
Accessibility	Limited Time	24×7×365
Physical inspection	Goods can be inspected physically before purchase.	Goods cannot be inspected physically before purchase.
Customer interaction	Face-to-face	Screen-to-face

<b>BASIS FOR COMPARISON</b>	<b>TRADITIONAL COMMERCE</b>	<b>E-COMMERCE</b>
Scope of business	Limited to particular area.	Worldwide reach
Information exchange	No uniform platform for exchange of information.	Provides a uniform platform for information exchange.
Resource focus	Supply side	Demand side
Business Relationship	Linear	End-to-end
Marketing	One way marketing	One-to-one marketing
Payment	Cash, cheque, credit card, etc.	Credit card, fund transfer etc.
Delivery of goods	Instantly	Takes time

### **E-Commerce advantages**

can be broadly classified in three major categories

- Advantages to Organizations
- Advantages to Consumers
- Advantages to Society

#### **Advantages to Organizations**

- Using e-commerce, organizations 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 organizations 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 makes them faster and efficient.
- E-commerce reduces the paper work.
- E-commerce increases the productivity of organizations. 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.

#### **Advantages to Customers**

- It provides 24x7 support. Customers can enquire about a product or service and place orders anytime, anywhere from any location.
- E-commerce application provides users with more options and quicker delivery of products.
- E-commerce application provides users with more options to compare and select the cheaper and better options.
- 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 purchase.
- E-commerce provides options of virtual auctions.
- It provides readily available information. A customer can see the relevant detailed information within seconds, rather than waiting for days or weeks.
- E-Commerce increases the competition among organizations and as a result, organizations provides substantial discounts to customers.

#### **Advantages to Society**

- Customers need not travel to shop a product, thus less traffic on road and low air pollution.
- E-commerce helps in reducing the cost of products, so less affluent people can also afford the products.
- E-commerce has enabled rural areas to access services and products, which are otherwise not available to them.
- E-commerce helps the government to deliver public services such as healthcare, education, social services at a reduced cost and in an improved manner

#### **The disadvantages of e-commerce**

can be broadly classified into two major categories

- Technical disadvantages
- Non-Technical disadvantages



### **Technical Disadvantages**

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

### **Non-Technical Disadvantages**

- **Initial cost** – The cost of creating/building an e-commerce application in-house may be very high. There could be delays in launching an e-Commerce application due to mistakes, and lack of experience.
- **User resistance** – Users may not trust the site being an unknown faceless seller. Such mistrust makes it difficult to convince traditional users to switch from physical stores to online/virtual stores.
- **Security/ Privacy** – It is difficult to ensure the security or privacy on online transactions.
- Lack of touch or feel of products during online shopping is a drawback.
- E-commerce applications are still evolving and changing rapidly.
- Internet access is still not cheaper and is inconvenient to use for many potential customers, for example, those living in remote villages.

### **Online shopping sites in India (10L)**

**Looking for Best Online shopping sites in India or Top 10 ten 2018 shopping website in India**, here in this post we going to tell you top 20 Indian online shopping sites 2018. Online shopping has been growing very fast in India, only in 2012 online shopping e-commerce site number has crossed 600 from 100. Online shopping offers fast, easy, money saving and interesting shopping experience, it has many advantages like 24 hours shopping, Shopping with coupon to get discount, shopping from Home, rich product

availability and specifications etc. Also now many sites like Shopclues, Ebay, PayTm offers some great deals every day or week which you can't resist like Jaw Dropping Deal, Sunday Flea Deal, PayTm karo, Ebay, Amazon Lightning Deals, Sankalp deals, Homeshop18.com Superdeals, Flipkart offers, Amazon Happy Hours etc.

Online shopping has its *drawbacks too*, we cannot touch and feel the item, delay in shipping, shipping charges make product expensive specially in low cost items, risk of loosing your money, Stolen your card details etc. Ebay and Amazon are the market leaders in online shopping in the world. However local Shopping deal site are more popular in India. Here is a list of popular websites offering Online shopping in India.



### **1. Amazon.in**

Score (4.15)- World leader in e-commerce market recently started operation in india, Now Indians can buy Books, CDS and Electronic at cheaper price from Amzon.in. For limited time they offering free shipping.



### **2. Flipkart.com**

Score (4.24) - Founded in 2004 with only Rs. 400000 now in 2014 tuned over 60,000 Crore company. You can not only buy books online through Flipkart, but also mobile phones & mobile accessories, laptops, computer accessories, cameras, movies, music, televisions, refrigerators, air-conditioners, washing-machines, Clothings, Footwears, Accessories, MP3 players and products from a host of other categories. After takeover of letsbuy.com now flipkart is largest player of e-commerce of India.



### **3. Snapdeal.com**

Score (4.52) SnapDeal offers everything from local daily deals on restaurants, spas, travel to online products deals. They offer you best price with free shipping.



#### 4. PaytmMall.com

Score (4.85) - Started with Mobile Recharge and Bill Payment website now Paytm selling everything from Home Decor, Clothing, Laptops to Mobile at killer price. In very short time period Paytm has grown very fastly and able to place under our Top 10 Indian Shopping Website list.



#### 5. ebay.in

Score (5.00) After almost 6month of dominating at number 1 ebay has come down at number two on indiafreestuff.in list. eBay.in is the Indian version of the popular online shopping portal eBay.com - world's online marketplace. Ebay has a diverse and passionate community of individuals and small businesses. Ebay offers used and fresh items with a wide network of international shipping. <http://www.ebay.in>



#### 6. Jabong.com

score (5.09) Jabong Fashion & Lifestyle Store offers you great discount on all listed product.They offers wide range of products from Apparel to Home needs.



#### 7. Myntra.com

Score (5.12) Myntra.com is leading online retailer of lifestyle and fashion products. Myntra offers T-shirts, Shoes, watches and more at discounted price.



#### 8. Shopclues.com

score (5.60)- Shopclues is famous for their heavily discounted Jaw Dropping deals. Shopclues is one of the best online stores that offers a wide variety of cameras, Computer

accessories, Mobile, Gift, Jewellery, Cosmetics, toys, clothes, books and bag. Their Jaw Dropping deal has become most liked deal of 2012.



9. Pepperfry.com

score (5.81)-Pepperfry is one of leading Indian website in selling lifestyle products ranging from men and womens clothing, home decor, jewellery, perfumes and cosmetics, furnitures, bags and accessories.



10. Homeshop18.com

Score (5.99) here you find large range appliances, kitchen, cameras, mobiles, laptops, site, indian, gifts, apparel, buy, online, gifts. and more, HomeShop18 is a venture of theNetwork18 Group, India's fastest growing media and entertainment Group. Network18 operates India's leading business news television channels - CNBC TV18 and CNBC Awaaz. HomeShop18 has also launched India's first 24 hour Home Shopping TV channel. The company has its headquarters in Noida, UP. The website has received the 'Best shopping site' award from PC World Magazine in 2008 .

## **Unit -2**

### **APPLICATION OF E COMMERCE**

#### **INTRODUCTION TO E COMMERCE**

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##### **E-COMMERCE MODULES OR TYPES**

E-commerce comes in six basic types

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Consumer-to-Consumer (C2C)
- Consumer-to-Business (C2B).
- Business-to-Administration (B2A)
- Consumer-to-Administration (C2A)
- Business-to-Business (B2B)

##### **1. Business-to-Business (B2B)**

This e-commerce type encompasses all electronic transactions of goods or services, conducted between companies, i.e. companies sell their goods online to other companies. They are not engaged in sales to the consumer public.

##### **2. Business-to-Consumer (B2C)**

In a Business-to-Consumer e-commerce environment, companies sell their online goods to consumers who are the end-users of their products or services. Usually, B2C E-commerce web shops have an open access for any visitor and user.

There are already many virtual stores and malls on the Internet, which sell all kinds of consumer goods, such as; computers, software, books, shoes, cars, food, financial products, digital publications, etc.

### **3. Consumer-to-Consumer (C2C)**

Consumer-to-Consumer (C2C) type e-commerce encompasses all electronic transactions of goods or services conducted between consumers. Generally, these transactions are conducted through a third party, which provides the online platform where the transactions are actually carried out. eBay.com is a very good example. It is the most popular platform that enables consumers to sell to other consumers.

### **4. Consumer-to-Business (C2B)**

In C2B, there is a complete reversal of the traditional sense of exchanging goods. Here, consumers offer their products or services online and companies post their bids. Then consumers review the bids and choose companies that meet their price expectations.

A platform that is very common in this type of commerce is the markets that sell royalty-free photographs, images, and media and design elements, such as; Stock photo.

### **5. Business-to-Administration (B2A)**

This part of e-commerce encompasses all transactions conducted online between companies and public administration. This is an area that involves a large amount and a variety of services, particularly in areas such as fiscal, social security, employment, legal documents, and registers, etc. These types of services have increased considerably in recent years with investments made in e-government.

### **6. Consumer-to-Administration (C2A)**

The Consumer-to-Administration model encompasses all electronic transactions conducted between individuals and public administration.

Examples of applications include:

Education – disseminating information, distance learning, etc.

Social Security – through the distribution of information, making payments etc.

Taxes – filing tax returns, payments, etc.

Health – appointments, information about illnesses, and payment of health services, etc.

Both models involving Public Administration (B2A and C2A) are strongly associated to the idea of efficiency and easy usability of the services provided to citizens by the government, with the support of information and communication technologies.

## **B2B e-commerce Business Model**

In simple terms, the B2B E commerce Business is a form of electronic commerce that deals with the transaction of goods and services between businesses through the internet. In most cases, this transaction is performed through an online portal. The main objective of this business model is to increase the business efficiency and revenue of retailers. Rather than manually processing orders, all the orders in the B2B model are processed in the digital platform. Contrary to the conventional E commerce model of purchase and sale between the consumer and seller, the B2B model deals in commercial transactions between businesses.

The crux of this business model is based on careful planning in order to have efficient and profitable transactions in consideration with complex market conditions.

### ***B2B E commerce Business Model Advantages***

- **Market Predictability**

Compared to the other business strategies, the B2B E commerce business model has more market stability. B2B sectors grow gradually and can adapt to various complex market conditions. This helps to strengthen the online presence and business opportunities and get more potential clients and resellers.

- **Better Sales**

An improved supply chain management process along with a collaborative approach increase customer loyalty in the B2B E commerce business model. This, in turn, leads to improved sales. It helps businesses to showcase product recommendations and unlock effective up selling and cross-selling opportunities.

- **Lower Costs**

Due to an effective supply chain management process, this online business model leads to lower costs for the businesses. In most cases, the work is done through automation that eradicates chances of errors and undue expenditure.

- **Data Centric Process**

One of the main advantages of the model is that it relies on effective and factual data to streamline the whole process. In this way, errors can be avoided and proper forecasts can be made. With an integrated data-driven approach, you can calculate detailed sales statistics.



### ***B2B E commerce Business Model Disadvantages***

Just like the other business models, the B2B E commerce Business model has some flaws too, which are:

- **Limited Market**

Compared to the B2C model, this type of business has a limited market base as it deals with transactions between businesses. This makes it a bit of a risky venture for small and medium E commerce businesses.

- **Lengthy Decision**

Here, the majority of the purchase decisions involve a lengthy process as there are two businesses involved. The process may involve dependence on multiple stakeholders and decision makers.

- **Inverted Structure**

Compared to the other models, consumers have more decision making power than sellers in the B2B business model. They may demand customizations, impose specifications and try to lower price rates.



## B2B ECOMMERCE BUSINESS MODEL DISADVANTAGES



### **Shopping process flow**

#### **Introduction**

There are many different types of e-commerce websites, however the two most common ones are:

- Business-to-Consumer (B2C) - typically designed for selling goods and services to consumers.
- Business-to-Business (B2B) - used to build strategic relationships with other businesses, and to ease the supply and procurement processes that characterize trade among those organizations.

Sites can also have multiple roles, and a single site can provide several functions. EPiServer Commerce is a flexible platform allowing for seamless integration with external systems such as financial, CRM, inventory, warehouse and customer service systems.

Depending on how you chose to work with your online store administration and product content, you will define your user roles and groups, and give them access rights to the different parts. Example of user roles in EPiServer Commerce are content editors, marketers, business owners, and store and system administrators.

## **SHOPPING PROCESS**

A "typical" B2C shopping workflow involves a number of interactions between a visitor on the website, EPiServer Commerce, and any integrated external system.. Depending on how the system is set up, the shopping workflow can be fully automated so that it requires little manual attention. However, a purchase order can always be monitored, accessed and handled manually from the Orders system if needed.

In the following we will describe an example of a B2C type of shopping workflow and the actions and tasks involved.

### **1. Cart created**

In this example, a customer does not need to register on the site in order to buy. The order process actually starts as soon as the visitor selects a product and adds it to a shopping cart. A cart (basket) will be created and saved in the system, and can be viewed in Orders under "Carts". If the customer does not complete the checkout procedure, the cart will remain in the system for a specified time.

When the customer returns to the website, the cart will be "remembered" and made available for continued shopping. Already in this early step the system will perform an inventory and pricing check, to look for availability in the warehouse, as well as discounts for selected products in the cart. This will be updated if and when the customer returns to the cart at a later stage.

### **2. Start checkout**

When the customer decides to complete the purchase and chose to "proceed to checkout", the first step of the checkout procedure is initiated.

### **3. Add address**

In the second step of the checkout procedure, the shipping and billing address information is added together with the preferred type of delivery (First class/Express etc). The address information can be entered manually by an "anonymous" customer, or automatically if the customer is logged in and has a registered user profile with address information. The system can also be set up so that it is possible to split shipments in different parts and to different addresses here.

### **4. Add payment**

In step three of the checkout procedure, the payment is added to the "purchase order to be". The system will calculate the total sum including the purchase amount and the shipping fee. In this step the customer selects a payment method, for instance by credit card or PayPal. The payment will be registered and verified. This may happen instantly or

after a certain specified time, depending on how the payment process is set up and the type of e-commerce solution (B2C or B2B). In this step it is also possible to split payments, if the system is configured for this.

#### **5. Order created**

Usually the actual purchase order is created in the system when the payment is settled. In the last checkout step, a purchase order number is created, the customer confirms the purchase, and an order confirmation is sent to the customer. The shopping cart is now converted to a purchase order which is visible with status "In Progress" under "Purchase Orders" in Orders.

#### **6. Order processing**

When the order is created the order processing starts. This consists of steps to check the warehouse and inventory status for the products in the order, and for creating the actual shipment. Depending on the inventory status for the products, the order may be split into more than one shipment.

**7. Shipment released** - when the shipment is verified, it will be released. The purchase order will now appear in Orders, under "Shipping/Receiving" and "Released for Shipping".

**8. Add to picklist** - This step involves the addition of the shipping items to a picklist. The picklist is the list that the warehouse will use to create the physical shipping of the products in the order. This step will also produce a packing slip, which is the paper slip that will be attached to the physical package to be shipped.

#### **9. Order completed/shipped**

When the picklists with the different orders and their respective packing slips have been created, the order will be set to completed. In the system this involves the creation of a shipment validation number which is associated with tracking number. The tracking number can be entered manually or automatically, if such an integration exists. The tracking number connects the physical package with the shipping provider for the delivery, and is used for tracking the package on its way to the delivery address. The purchase order will now appear in Orders under "Purchase Orders" again, with status "Completed".

#### **10. Return/Exchanges**

Only completed orders can be subject to returns/exchanges. Depending on how the system is set up, returns can be created automatically or manually. Creating a return usually involves replacing a delivered product with another one in exchange, and/or a payment refund. When the return is created it will appear in Orders under "Shipping/Receiving" and "Returns". Order status can be for instance "Awaiting Exchange".

If the return involves replacement of a new product, the shipping procedure will be initiated again. The return may also involve receiving a faulty product, in which case a receiving procedure is initiated involving the acknowledgement of a receiving receipt for the returned product

## WHAT IS ONLINE SHOPPING ?



The online selling of or enabling the sale of products or services to Consumers.

**Shopping online** is a great way to find exactly what you need.

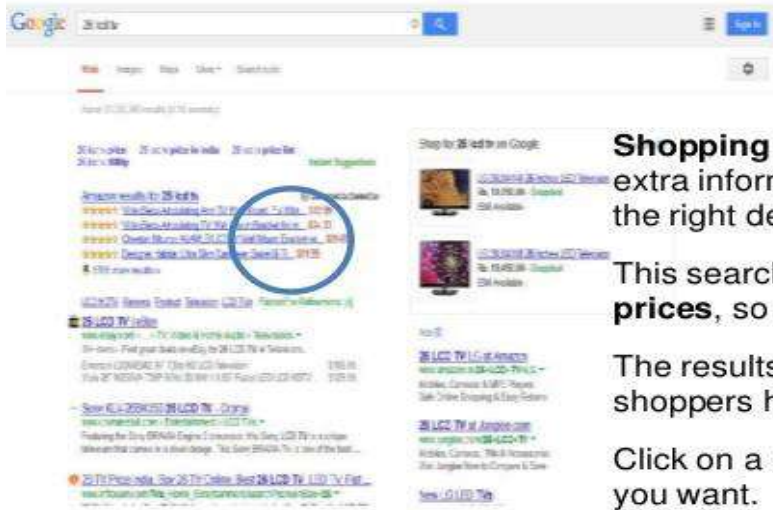
You can **save money**, and you don't have to leave home to do it.

## PROCESS OF ONLINE SHOPPING



Many **search engines** have a shopping search. This lets you **find what you want**, and compare prices from different online stores.

You can **search** for a type of product ('26" LCD TV') or the exact make and model ('Samsung Galaxy Tab 10.1')



**Shopping searches** can show you extra information that helps you make the right decision.

This search result includes **delivery prices**, so you can see the overall cost.

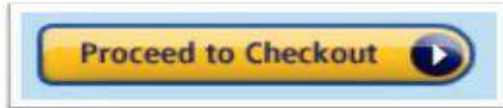
The results also show how other shoppers have '**rated**' each online store.

Click on a result to visit the online store you want.



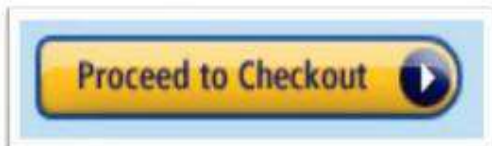
Read the **description** to make sure you've chosen the right product.

Many sites let customers add their own **product reviews** for you to read.



Click on '**Checkout**' to pay for your products.

This gives you another chance to check that you have chosen the **right items** and the **right quantity**.



Click on '**Checkout**' to pay for your products.

This gives you another chance to check that you have chosen the **right items** and the **right quantity**.

FREE Super Saver Delivery
First Class Delivery
Express Delivery order as late as 1:00PM

The checkout page lets you choose your **delivery option**. There may be more than one option, such as a **slower, cheaper delivery** method plus a **faster but more expensive** one.

Check delivery times and details. Most shops will have a '**Deliveries and returns**' page.

Many deliveries will need a signature.

Choose your mode of payment

Cash on Delivery	Pay using EMI on Credit Card  															
Net Banking	Choose an EMI scheme and pay in easy instalments.															
Credit Card	Select your bank <input type="text" value="HDFC Bank"/>															
<b>Credit Card (EMI)</b>	Select a Plan															
Debit Card	<table border="1"> <thead> <tr> <th>EMI plan</th> <th>Monthly Installments</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td><input type="radio"/> 3 months plan</td> <td>Rs. 11000</td> <td>Rs. 36399</td> </tr> <tr> <td><input type="radio"/> 6 months plan</td> <td>Rs. 5900</td> <td>Rs. 36399</td> </tr> <tr> <td><input type="radio"/> 9 months plan</td> <td>Rs. 3934</td> <td>Rs. 36399</td> </tr> <tr> <td><input type="radio"/> 12 months plan</td> <td>Rs. 3050</td> <td>Rs. 36099</td> </tr> </tbody> </table>	EMI plan	Monthly Installments	Total Cost	<input type="radio"/> 3 months plan	Rs. 11000	Rs. 36399	<input type="radio"/> 6 months plan	Rs. 5900	Rs. 36399	<input type="radio"/> 9 months plan	Rs. 3934	Rs. 36399	<input type="radio"/> 12 months plan	Rs. 3050	Rs. 36099
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e-EMI Payments	<small>inclusive of all charges <a href="#">View More &gt;</a></small>															

By placing the order, you have read and agree to Flipkart.com Terms of Use and Privacy Policy

Select your **mode of payment**.

Online shoppers commonly use a credit card or a PayPal account in order to make payments.

Pay using Credit Card.    (Only Indian Cards are supported)

**Enter your card details**

Card Number

Name on Card

Expiry Date Month  / Year

CVV No

Remember this card for fast payments. [Learn more](#)

Notes: After clicking on the "Pay" button you might be taken to your bank's website for 3D secure authentication using a pop-up window.

Enter your **card details** carefully when you pay.

Some card providers have their own **security system**. You might be asked to join this, or be taken to another page to enter these details.



When you **register** or **pay**, make sure the site uses a **secure web page**.

The address bar in your browser program will show this.

Look for '**https**' and a **padlock symbol**.



You should be sent an **email** to **confirm** your order. It's also a good idea to print out your order confirmation page.

You should also receive an **email** when your **order is sent**.





It's **not a good idea** to shop online using a public computer.

Close your browser when you finish shopping on a shared or public computer, or if you are using your own computer in a public place. If you have registered with the shopping website, make sure you **sign out** before you close the browser.

## ADVANTAGES OF ONLINE SHOPPING



**Convenience** - Online stores are available 24 hours a day.

**Information & Reviews** - Details about the product

**Price & selection** - Easy price/attribute comparisons

## RISKS & DISADVANTAGES OF ONLINE SHOPPING



- Fraud** - Do you know the Company?
- Security**- Is your credit card safe?
- Privacy** - Is your information being sold?
- Shipping**- Are you getting the correct product at the requested time?
- Difficulty**- Do you know how to shop online?

### ELECTRONIC RETAILING

**Definition:** The Electronic Retailing also called as *e-tailing or internet retailing*, is the process of selling the goods and services through electronic media, particularly the internet. Simply, the sale of retail goods and services online is called as electronic retailing. It follows the B2C business model wherein the business interacts directly with the customers without the involvement of any intermediaries

## Electronic Retailing



**The e-retailers can be of two types:**

- Pure Play e-retailers such as Amazon, that emerged as the online bookseller. It is present only online and do not have any physical outlet for the customers.
- Brick and click e-retailers such as Dell, that sells computers through the internet as well as has the physical store front for the customers.

**Advantages of Electronic Retailing**

1. Through electronic retailing, customers can save both the efforts and time.
2. The wide range of products is available online, so the comparison can be made easily before the purchase.
3. The customer can shop anytime and from anywhere, the facility is available 24\*7
4. The huge discounts can be availed while shopping online.
5. The detailed information about the product is available online; that helps the customer to make the purchase decision.
6. The electronic retailing offers the easy payment terms such as payment on delivery that instigate the customer to shop online.

**Disadvantages of Electronic Retailing**

1. The customers may not be sure of the quality of the products offered online.
2. It is the tendency of every individual to bargain before making the final purchase, but this quotient is missing in electronic retailing.
3. Also, the customers may not trust on the payment gateways and fear the misuse of credit cards or any other mode of payment.
4. Every customer wants to see and feel the product that he purchases, but it is not possible in case of electronic retailing where the customer makes the decision just by looking at the image.
5. The product is not readily available; the customer has to wait for some time to get the product in his hands.
6. The customer misses the emotional attachment with the seller that leads to less faith on the offerings.

The electronic retailing is the subset of E-Commerce that means, E-commerce is the principle domain that includes the e-tailing operations.

## **ELECTRONIC CATALOGUE**

An electronic catalogue is an online publication, that is to say a graphic interface -generally an html page in which the products and services offered by a company are showed. Digital catalogues can store great quantities of items, which can be organized and classified into different categories for users to search in a more rapid and effective way.

There are different types of catalogues according to their functions. The simplest catalogues show only descriptions of the products and price lists, and do not enjoy a purchase and payment online method. Others have shopping carts, order forms and offer payment methods. The amount of functions an online catalogue has will determine the price of its development.

The main aims of e-catalogues are to advertise, to sell, to distribute, and to draw the customer's attention. They are the digital representation of a company and a powerful e-commerce tool. In the e-commerce world we find business-consumer transactions and business to business transactions. In this way, e-catalogues are excellent communication tools between a company and its client, suppliers or other companies. For all these reasons, catalogues became a marketing tool used every day by different types of organizations.

There are different types of electronic catalogues according to the way they appear on the Internet. Retailer's e-catalogues are generally independent pages on the Internet, and their aim is to promote and sell products and services. But, big companies generally include their e-catalogues on their general websites. Generally, they are not used as tools for selling but as means to promote products and services and to draw the customer's attention. There are also malls, that is to say e-catalogue groups –ebay.com for example. In this case, an Internet provider gathers different companies' digital publications, showing a great number of offers made by the users.

### **Advantages E-catalogues**

E-catalogues bring many advantages to different companies. Here we show them to you for you to consider catalogues as a promotion tool for your company:

#### **Low costs**

Unlike conventional catalogues, these e-catalogues allow you to save money, since you will not need to spend on paper and printing. For this reason, they are perfect for small and medium-sized companies, which will have, with them, the possibility of getting into the world market.

### **Market expansion**

Thanks to the possibilities that the Internet provides, people around the world will be able to gain access to your online catalogues any time. With these catalogues, different companies gain new customers, providing a faster and more comfortable service to consumers. By using these catalogues, users will be able to search for products and services, place orders, make payments by credit cards or payment portals, and clear up their doubts. In this way, sales increase considerably.

### **Interaction**

Unlike printed catalogues, digital catalogues allow a direct relationship between the company and its clients. With an e-catalogue, a company can inform about its products and services to its clients, who will contact the company's representatives to clear up their doubts, to make comments or suggestions. Because of this, company will be permanently updated about the fluctuating necessities of their target.

### **Information for customers**

With these catalogues, each company will be able to provide information on the products and services it offers and links to other websites for customer to get complementary information on the subjects the company's website leads with.

### **Regular update**

E-catalogues content is stored on a server to which navigators from all over the world have access. They can be updated from the server in a regular, fast and easy way. What is more, the changes made are immediately available for customers to see. In this way, catalogues show the latest about new products, prices, points of sale, new technology incorporations, etc.

## **WHAT IS INTERACTIVE ADVERTISING**

Interactive advertising is a shift from the more traditional (and perhaps, boring) method of advertising, which relies on customers seeing and remembering a typical magazine ad or hearing about a product on the radio. Interactive advertising is about developing two-way communication between brand and customer, because the brand has developed advertising that requires the

customers to react in some type of unusual way (not simply going to a store and buying the advertised item).

You're probably most accustomed to seeing the interactive nature of advertising through the medium of the internet, right? After all, you have to click on links to view content and

choose to follow through on an advertisement you see on your favorite news site. Savvy marketers have determined that interactive advertising can take many different forms (like JetBlue discovered), in an effort to open up the dialogue between a business and its audience, engage them, build relationships and ultimately, convert them into customers.

## **BENEFITS AND DISADVANTAGES**

Interactive advertising, like any form, has both advantages and drawbacks that marketers should consider. Among them:

### *Benefits*

- Gives viewers more control over their interpretation of your content
- Proves the importance of the consumer (by asking them to respond or react in some way)
- Opens lines of interaction and dialogue between a brand and its audience

### *Disadvantages*

- Can be more costly in terms of finances and time
- Requires a clear understanding of the audience being targeted

## **IMPACT OF E COMMERCE**

### **INTRODUCTION.**

**E-commerce** is about much more than marketing or selling. It **impacts** significantly on all the functional areas of a **business**. The largest and most-successful **e-commerce** businesses have invested hugely over many years to develop their IT systems, **business** processes and capabilities.

## **THE ADVANTAGES & DISADVANTAGES OF ADVERTISING ON THE INTERNET**

More than 4 billion people use the internet. If you want to build your business brand, reach prospective customers, and make more sales, you can no longer ignore digital advertising. But beware: there are ineffective strategies that can eat your ad dollars in record time, leaving you with little to show for your advertising efforts. For many businesses, however, the advantages outweigh the disadvantages. Advantage: Your Customers Are on the Internet

Do you know anyone who doesn't use the internet? The fact that it is so ubiquitous is probably the most compelling reason to get on board. Platforms like Facebook, Instagram,

Twitter and LinkedIn give you ample opportunities to put your products or services in front of potential customers. The Google Display Network is a true advertising behemoth with more than 2 million publisher sites on which you can advertise.

### **Advantage:**

#### **Target Effectively**

Imagine you could take a snapshot of your best customer and duplicate him a hundred times. With look-alike audiences on social media platforms, you almost can. Facebook and similar networking channels have troves of demographics they share with advertisers, so you can hone in on users who are most likely to purchase your products. Target prospective customers or clients by job title on LinkedIn, connections on Facebook, or interests and behaviors on Instagram. Unlike the wide net approach of traditional television and radio advertising, internet advertising lets you find the right prospects at the right time and show them an ad they may care about.

#### **Closely Monitor Spending**

You can spend thousands of dollars on a 30-second television ad that might reach someone who might be interested in what you have to sell someday. You can also spend thousands of dollars on internet ads, and only pay when people who are interested in your products click on your ad. With digital ads, you can set a spending cap and limit the number of times a prospective customer sees an ad in a given period.

#### **You Can Track Your Results**

Digital advertising allows you to monitor and track the results of all your campaigns. You can find out when a lead converted into a sale, note the platform where it happened, and determine what kinds of ads are working best for your particular demographic. The internet with all its minute tracking abilities allows you to measure the return on investment of your marketing dollars.

### **Disadvantage**

#### **It's Complicated**

There are lots of choices when it comes to advertising on the internet. You can choose search advertising, so your ads show up when a target audience is looking for just what you offer or display ads that appear where your most likely prospects roam on the internet. There are even native ads that show up on publisher sites and blend in so well that they appear not to be ads at all. Then there are remarketing ads that target someone who's visited your website with a customized message that appears in front of them somewhere else on the internet.

Add to those choices the way you pay. With pay-per-click ads, you pay when someone clicks, but how much are you willing to pay? For those search ads, you'll need to identify key search terms and decide how much to bid on each word. There are lots of levers to pull.

### **Mistakes Can Be Costly**

Because digital advertising is complicated, it's not uncommon for businesses to make mistakes. Choose the wrong keywords, neglect a bidding cap, target ineffectively, or leave a campaign running when you thought it was off, and you can spend a fortune without turning a single lead into a sale. For example, if you run a campaign on Facebook but your customers are more likely to be LinkedIn users, you're unlikely to convert a lead. If you don't cap your bids, you could blow through the money you thought would last months in a matter of days.

### **Competition Is Fierce**

It depends on your products and market, but internet advertising competition can make ads prohibitively expensive. Those keyword bids? If you can only afford 10 cents a word, but your competitor can pay \$10, you don't stand much of a chance. For some businesses, it makes sense to build a good website and then rely on traditional advertising methods that have always worked in the past.

### **Ad Fatigue Is Common**

Have you ever been on a site and seen an ad for a product on which you recently ran a search? That's internet advertising at its most typical, but have you also noticed that after a while, those ads don't even register on your radar? It's like they're invisible. It's a common and pervasive problem with running ads on the internet. If the campaigns aren't run correctly, your brand and its products suffer from ad fatigue.

### **The Impact of Electronic Commerce on Business**

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.

1. Management Information Systems – Analysis, design and implementation of e-business systems within an organization; issues of integration of front-end and back-end systems
2. Human Resource Management – Issues of on-line recruiting, home working and 'Entrepreneurs' works on a project by project basis replacing permanent employees.



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. 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.

7. 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. 8. Business Law and Ethics – The different legal and ethical issues that have arisen as a result of a global ‘virtual’ market issues such as copy right laws, privacy of customer information, legality of electronic contracts etc.

## **UNIT III**

### **INTERNET, INTRANET, EXTRANET**

#### **INTERNET**

organization controls the internet in its entirety. The internet is more of a concept than an actual tangible entity and it relies on a physical infrastructure that connects networks to other networks. Anyone can access the internet using an internet-connected device, such as desktop computer, laptop, mobile phone or tablet.

If you want to share information with a large group of people across the globe the internet is often the easiest option. You can share information through social media, create a website or send an email.

The internet uses the TCP/IP internet protocol for communication. Each device is defined using a unique IP address. Domain name servers (DNS) are then used to assign a name to the IP address therefore making it easy for users to remember names instead of numbers.

#### **What You Need To Know About Internet**

1. Internet can be described as a global system of interconnected computer network.
2. Internet is the largest network in as far as the number of connected devices is concerned.
3. Internet is a means of sharing information throughout the world.
4. It is not regulated by any authority.
5. Content in the network is readily accessible by everyone who is connected.
6. Internet has no known ownership.
7. Internet is unregulated and uncensored.
8. Users have unrestricted access and can access internet anonymously.
9. Security is dependent of the user of the device connected to network.
10. An example of internet is the network you use to google words with.
11. Internet contains different source of information and is available for all.
12. Users need no training on how to work with the network.

#### **Advantages Of Internet**

- An internet connection provides many people with ability to work from home or have a virtual office.
- Internet has made it possible to send and receive information across large matrix of computer systems.
- With internet one is able to access information quickly and easily.

- The internet improves internal communications through emails, connected calendars and chat services specifically designed to improve business communications.

### **Disadvantages Of Internet**

- It is unregulated network and therefore it invites undesirable activities.
- Access to internet is not restricted and information is available to anyone across the world.
- If the file server breaks down, the files on the server become inaccessible.
- There is danger of hacking or availability of malicious viruses.

**An intranet** is a private computer network that uses internet protocols, network connectivity to access and share enterprise information and computing resources securely with its staff. Intranets increase communication within an organization by allowing employees to easy access important information, links, applications and forms as well as databases that can provide company records.

In case an organization doesn't want to leak or share some of its confidential or sensitive information with the general public, the information is normally shared through an intranet to its members (staff). The members of the organization (staff) may access the intranet from their workplace.

Depending on the structure of the intranet, staff (users) may also access the internal network with username and password from an internet-connected device by connecting remotely to the company's intranet. Usually a remote-access VPN is used for such a purpose to provide an encrypted and secure remote connection. An intranet can be used to facilitate working in groups and teleconferencing.

It is important to note that, just like internet, the intranet uses TCP/IP internet protocol for communication. Intranet also allows the sharing of information via web browser. However, only approved computers can connect to the intranet and view the internal web pages.

### **What You Need To Know About Intranet**

1. Intranet can be described as a network of computers or a private network designed for a specific group of users (organization).
2. It is a small network with a few number of connected devices.
3. Intranet is a means of sharing sensitive or confidential information throughout the organization.
4. It is regulated by a specific organization.
5. The content in the network is accessible only to members of the organization.

6. Ownership of intranet is by a single organization.
7. Intranet is regulated by the organization policies.
8. An intranet may be accessible from the internet, but it is protected by a password and accessible only to authorized users.
9. Security of the network is enforced through a firewall.
10. An example intranet is a company like ExxonMobil using internal network for its business operations.
11. Intranet contains only specific group information.
12. Time is required to train users on how to work with the network.

### **Benefits of Intranet**

- It reduces emails and meetings
- Improves employee engagement and knowledge sharing
- Helps an organization to build an internal collaborative culture.
- Increases productivity in an organization.
- With use of intranet, there is reduced incidences and errors
- Enhances centralized access to information

### **Disadvantages Of Intranet**

- Intranet can be very costly and time-consuming to implement.
- Poor user experience results in low usage rates.
- Hard to measure success and effectiveness.
- Information can be shared outside the local network due to one faulty or compromised machine.
- Intranet reduces face-to-face interaction among employees and this can hinder cooperation.
- Users normally rely on easy to guess passwords and therefore it is easy to compromise the entire network.

### **EXTRANET**

**An extranet** is a controlled private network allowing customers, partners, vendors, suppliers and other businesses to gain information, typically about a specific company or educational institution and do so without granting access to the organization's entire network. An extranet is often a private part of a website. It is restricted to selected users through user IDs, passwords and other authentication mechanisms on a login page.

An extranet requires security and privacy. These can include firewall server management, the issuance and use of digital certificates or similar means of user authentication, encryption of messages and the use of virtual private networks (VPNs) that tunnel through the public network.

### **What You Need To Know About Extranet**

1. Extranet can be described as a private network that uses public network to share information with clients (suppliers and vendors).
2. It is a small network with a few number of connected devices.
3. Extranet is a means of conveying information between members of the organization and external members.
4. It is regulated by multiple organizations.
5. The content on the network is accessible to members of the organization and external members with access to the network.
6. Ownership of extranet is by a single or multiple organizations.
7. Extranet is regulated by contractual agreements between organizations.
8. An intranet may be accessible from the internet, but it is protected by a password and accessible only to authorized users.
9. Security of the network is enforced through a firewall that separates internet and extranet.
10. Example of extranet is when companies like HP, Intel and Lenovo decide to use the same network for related business operations.
11. Extranet contains only specific group information.
12. Time is required to train users on how to work with the network.

### **Advantages Of Extranet**

- An extranet greatly improves flexibility by making applications and information available to customers, clients and partners, allowing all the involved parties to operate with convenience.
- With proper implementation, an extranet can help improve an organizations security by creating different access levels, consequently controlling who can access company data.
- It helps to remove bottlenecks within transactions of an organization and significantly increasing productivity.

### **Disadvantages of Extranet**

- Extranets are vulnerable to security breaches since they give outsiders access to internal database and systems

- Time is required to train users on how to work with the network.
- The network is prone misuse.
- Maintenance cost of the network is high.
- Information can be shared outside the local network due to one faulty or compromised machine.

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## **DIFFERENCE BETWEEN INTERNET AND INTRANET AND EXTRANET**

### **Internet Vs Intranet Vs Extranet In Tabular Form**

<b>BASIS OF COMPARISON</b>	<b>INTERNET</b>	<b>INTRANET</b>	<b>EXTRANET</b>
<b>Description</b>	Internet can be described as a global system of interconnected computer network.	Intranet can be described as a network of computers or a private network designed for a specific group of users (organization).	Extranet can be described as a private network that uses public network to share information with clients (suppliers and vendors).
<b>Size Of The Network</b>	Internet is the largest network in as far as the number of connected devices is concerned.	It is a small network with a few number of connected devices.	It is a small network with a few number of connected devices.
<b>Purpose</b>	Internet is a means of sharing information throughout the world.	Intranet is a means of sharing sensitive or confidential information throughout the organization.	Extranet is a means of conveying information between members of the organization and external members.

<b>Regulation</b>	It is not regulated by any authority.	It is regulated by a specific organization.	It is regulated by multiple organizations.
<b>Content On The Network</b>	Content in the network is readily accessible by everyone who is connected.	The content in the network is accessible only to members of the organization.	The content on the network is accessible to members of the organization and external members with access to the network.
<b>Ownership</b>	Internet has no known ownership.	Ownership of intranet is by a single organization.	Ownership of extranet is by a single or multiple organizations.
<b>Mechanism Of Regulation</b>	Internet is unregulated and uncensored.	Intranet is regulated by the organization policies.	Extranet is also regulated by contractual agreements between organizations.
<b>Access</b>	Users have unrestricted access and can access internet anonymously.	An intranet may be accessible from the internet, but it is protected by a password and accessible only to authorized users.	An intranet may be accessible from the internet, but it is protected by a password and accessible only to authorized users.
<b>Security</b>	Security is dependent of the user of the device connected to network.	Security of the network is enforced through a firewall.	Security of the network is enforced through a firewall that separates internet and extranet.
<b>Information</b>	Internet contains different source of information and is available for all.	Intranet contains only specific group information.	Extranet contains only specific group information.
<b>User Training</b>	Users need no training on how to work with the network.	Time is required to train users on how to work with the network.	Time is required to train users on how to work with the network.
<b>Example</b>	An example of internet is the network you use to google words with.	An example intranet is a company like ExxonMobil using	Example of extranet is when companies like HP, Intel and Lenovo decide to



		internal network for its business operations.	use the same network for related business Operation
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## **MOBILE COMMERCE**

### **M commerce**

M-commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets. As a form of e-commerce, m-commerce enables users to access online shopping platforms without needing to use a desktop computer. Examples of m-commerce include purchasing, mobile banking, virtual marketplace apps like the Amazon mobile app or a digital wallet such as Apple Pay, Android Pay and Samsung Pay.

Over time, content delivery over wireless devices has become faster, more secure and scalable. As of the use of m-commerce accounted for 34.5% of e-commerce sales. The industries affected most by m-commerce include:

- Financial services, which includes mobile banking (when customers use their handheld devices to access their accounts and pay their bills) as well as brokerage services, in which stock quotes can be displayed and trading conducted from the same handheld device.
- Telecommunications, in which service changes, bill payment account reviews can all be performed from the same handheld device.
- Service and retail, as consumers are given the ability to place and pay for orders on-the-fly.
- Information services, which include the delivery of financial news, sports figures and traffic updates to a single mobile device.

### **Types of m-commerce**

M-commerce can be categorized by function as either mobile shopping, mobile banking or mobile payments. Mobile shopping allows for a customer to purchase a product from a mobile device, using an application such as Amazon, or over a web app. A subcategory of mobile shopping is app commerce, which is a transaction that takes place over a native app. Mobile banking includes any handheld technology that enables customers to conduct fanatical transactions. This is typically done through a secure, dedicated app provided by the banking institution. Mobile payments enable users to buy products in-person using a

mobile device. Digital wallets, such as Apple Pay, allow a customer to buy a product without needing to swipe a card or pay with physical cash.

### **How mobile commerce works**

With most m-commerce enabled platforms, the mobile device is connected to a wireless network that can be used to conduct online product purchases. For those in charge of developing an m-commerce application, important KPIs to monitor include the total mobile traffic, total amount of traffic on the application, average order value and the value of orders over time. Similarly, tracking the mobile add to cart rate will help developers see if users are becoming customers. M-commerce developers may also be interested in logging average page loading times, mobile cart conversion rates and SMS subscriptions. In terms of mobile payment products specifically, they operate through a form of peer-to-peer (P2P) sharing. Once a mobile device is paired with a bank card's information, the phone can be waved over a payment terminal to pay for a product. This contactless payment using a mobile device is possible due to the use of Near Field Communication (NFC).

### **Advantages and disadvantages of mobile commerce**

#### **The advantages**

- Added customer retention by being more easily accessible.
- More convenience for customers in comparing prices, reading reviews and making purchases without the need of a desktop computer.
- Wider variety of products and services.
- Automates a businesses' point of customer contact and sales.

#### **Disadvantages**

- A poorly executed mobile experience can deter customers from making purchases.
- Mobile payment options are not available in every geographic location and may not support every type of digital wallet.
- Businesses must know and comply with tax laws and regulations of all countries they ship to (some businesses will avoid this by only allowing purchases and shipping from their country of origin).

#### **Advantages of M-commerce**

- It provides a very convenient and easy to use the system to conduct business transactions.

- Mobile commerce has a very wide reach. A huge part of the world's population has a mobile phone in their pocket. So the sheer size of the market is tremendous.
- M-commerce also helps businesses target customers according to their location, service provider, the type of device they use and various other criteria. This can be a good marketing tool.
- The costs of the company also reduced. This is due to the streamlined processes, now transaction cost, low carrying cost and low order processing cost as well.

### **Disadvantages of M-commerce**

- The existing technology to set up an m-commerce business is very expensive. It has great start-up costs and many complications arise.
- In developing countries, the networks and service providers are not reliable. It is not most suitable for data transfer.
- Then there is the issue of security. There are many concerns about the safety of the customer's private information. And the possibility of a data leak is very daunting.

### **Top 10 Applications of Mobile-Commerce**

Mobile commerce has entered into finance, retail, telecommunication, healthcare, information technology, sales and services. Need for M-commerce has increased multi-fold in recent times. Some of the applications of mobile commerce are briefly discussed below.

#### **Applications of M-Commerce**

##### **1. M-Commerce for finance**

The customer (using the mobile) can pay from their bank account using mobile commerce facilities. Mobile users can transfer funds between account or receive any information related to finance from financial institutions or banks. WAP based mobile devices allow the user to access the internet or the website of the financial institutions.

For example, a user of the credit card gets reminded from the institution stating the amount of outstanding balance, minimum amount due and the due date. Likewise, when the customer pays through cheque or when the payment is made by him, the institution sends an acknowledgement through SMS stating the amount that has been received by the institution.

For example, ICICI Bank has launched iMobile. iMobile allows the customers to carry out all internet banking transactions through mobile phones. Customers can transfer funds to ICICI and non ICICI Bank accounts with the help of their mobile. It allows customers to

request for a cheque book or stop payment of a cheque through mobile device. Customers can also pay their utility bills through this facility. It allows them to know their transaction details and payment due dates through mobile phones.

The M-Commerce is very much prevalent in stock broking services. The user can access the stock market quotes. The share brokers send details about the market trends to client and offer some tips for trading. After receiving the information, the client responds or gives instructions to the stock broker. Such transaction takes place either in his/her form of SMS or call.

## **2. M-Commerce for Retail and After sale Services**

Companies can also make online catalog of products so that the mobile users can access the catalog from their mobile devices. Customers are able to shop, place orders or hire services and pay for dues through mobile phones.

## **3. M-Commerce and Mobile Marketing**

It is easy for business organizations to send text messages to promote a new product or carryout any form of promotional campaign. For example, Reliance Fresh sends the customer an SMS stating the reward points earned by them when they purchase goods from Reliance. Even if some changes are brought in providing reward points, they are informed to the customer in order to encourage sales.

## **4. M-Commerce and Mobile Ticketing**

Airline tickets can be purchased through mobile phone. It also enables users of mobile phone to make changes in their tickets. For example, With “flybuy SMS” launched by Kingfisher Airlines and paymate, customers can get the details of Kingfisher airlines flights by sending SMS. The customer can book the ticket after receiving a reply. Besides the above, movie tickets can also be booked through mobile phones.

## **5. M-Commerce and Mobile Entertainment**

Mobile terminal acts as a portable music player. Downloading ringtones has become successful m-commerce application. Mobile phone manufacturers and wireless providers are making good money by selling different kinds of customized ringtones.

## **6. M-Commerce for Hotel Reservations**

Using mobile devices, customer can reserve for restaurants and hotels according to their needs.

## **7. M-Commerce in Healthcare and Medicine**

Wireless services are used in healthcare and medicine for billing, lab ordering, referrals, prescriptions and clinical decisions. For example, in United States, healthcare

professionals are able to obtain patient information from any location by getting connected wirelessly to the hospital's information system. They are able to access the pharmaceutical information of patients and provide better patient care.

#### **8. M-commerce for Intra-Office Communication**

Sales personnel, who are always on the move, may need to access to the company information system to check price of products. But mobile allows the traveling sales personnel to track inventory and maintain communication with seniors at ease. Traveling salesmen do not have to wait for long to get approval from the seniors. Any information could be transferred easily and quickly with the help of mobile devices. It removes barriers in intra-office communication.

#### **9. M-Commerce for Information**

Mobiles enable customers to get information like sport news or political news of their choice. For example, today through SMS, students are able to check their university results or public examination results.

#### **10. M-Commerce for Gaming**

Customers can play multi player games through mobiles. Mobile games are very popular with colourful displays and it generates good revenue.

## Unit - IV

### Electronic Data Interchange (EDI)

#### Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) is the electronic interchange of business information using a standardized format; a process which allows one company to send information to another company electronically rather than with paper. Business entities conducting business electronically are called trading partners.

Many business documents can be exchanged using EDI, but the two most common are purchase orders and invoices. At a minimum, EDI replaces the mail preparation and handling associated with traditional business communication. However, the real power of EDI is that it standardizes the information communicated in business documents, which makes possible a "paperless" exchange.

The traditional invoice illustrates what this can mean. Most companies create invoices using a computer system, print a paper copy of the invoice and mail it to the customer. Upon receipt, the customer frequently marks up the invoice and enters it into its own computer system. The entire process is nothing more than the transfer of information from the seller's computer to the customer's computer. EDI makes it possible to minimize or even eliminate the manual steps involved in this transfer.

The process improvements that EDI offers are significant and can be dramatic. For example, consider the difference between the traditional paper purchase order and its electronic counterpart:

A Traditional Document Exchange of a Purchase Order    An EDI Document Exchange of a Purchase Order.

This process normally takes between three and five days. This process normally occurs overnight and can take less than an hour.

Buyer makes a buying decision, creates the purchase order and prints it.

Buyer mails the purchase order to the supplier.

Supplier receives the purchase order and enters it into the order entry system.

Buyer calls supplier to determine if purchase order has been received, or supplier mails buyer an acknowledgment of the order.

Buyer makes a buying decision, creates the purchase order but does not print it.

EDI software creates an electronic version of the purchase order and transmits it automatically to the supplier.

Supplier's order entry system receives the purchase order and updates the system immediately on receipt.

Supplier's order entry system creates an acknowledgment and transmits it back to confirm receipt.

### **EDI DEFINITION**

**EDI** Stands for "Electronic Data Interchange." EDI is a standardized method for transferring data between different computer systems or computer networks. It is commonly used for e-commerce purposes, such as sending orders to warehouses, tracking shipments, and creating invoices.

Because many online retailers sell products that they do not physically stock, it is important to have an easy way to transfer order information to the locations where the goods are stored. EDI makes this possible. Some common EDI formats include X12 (U.S.), TRADACOMS (U.K.), and EDIFACT (International).

EDI, which stands for Electronic Data Interchange, can be defined as the exchange of information between computers in a standardized format either within an organization or between two business partners. EDI is a fast, reliable, and accurate system for exchanging business documents with external entities that do business together.

### **3 . EDI Benefits**

EDI implementation has many advantages, many of which may seem obvious.

**Cost :** Electronic exchange of information is much cheaper than traditional paper documents. In fact, one study has shown that a purchase order using paper can cost \$70 or more to process. The same order costs less than a \$1 to process using EDI.

**Reliability :**

Electronic processing also reduces human errors, which can extend the time of processing an order and cost you money.

**Speed :**

Digital documents can also be processed much faster. For instance, paper orders can take up to 10 days from start to finish, while EDI can take as little as one day.

**Automation :**

By automating the ordering process, EDI can greatly minimize the manual human power required, saving a business time and money.

**Lower operating costs :**

EDI lowers your operating expenditure by at least 35% by eliminating the costs of paper, printing, reproduction, storage, filing, postage, and document retrieval. It drastically

reduces administrative, resource and maintenance costs. EDI support can lower other costs as well, such as Matson Logistics who reduced their ASN fines 12% by switching to a more efficient EDI solution.

### **Improve business cycle speeds**

Time is of the essence when it comes to order processing. EDI speeds up business cycles by 61% because it allows for process automation that significantly reduce, if not eliminate, time delays associated with manual processing that requires you to enter, file, and compare data. Inventories management is streamlined and made more efficient with real-time data updates.

### **Reduce human error and improve record accuracy**

Aside from their inefficiency, manual processes are also highly prone to error, often resulting from illegible handwriting, keying and re-keying errors, and incorrect document handling. EDI drastically improves an organization's data quality and eliminates the need to re-work orders by delivering at least a 30% to 40% reduction in transactions with errors.

### **Increase business efficiency**

Because human error is minimized, organizations can benefit from increased levels of efficiency. Rather than focusing on menial and tedious activities, employees can devote their attention to more important value-adding tasks. EDI can also improve an organization's customer and trading partner relationship management because of faster delivery of goods and services, as well as

### **Enhance transaction security**

EDI enhances the security of transactions by securely sharing data across a wide variety of communications protocols and security standards.

### **Paperless and environmentally friendly**

The migration from paper-based to electronic transactions reduces CO2 emissions, promoting corporate social responsibility.

### **Limitations of EDI**

#### **Perceived high upfront costs**

It is true that EDI used to require substantial upfront investment has been a barrier in the past, especially for smaller businesses. However, like most technologies, EDI has become less expensive over time. EDI systems have also become more mature with features that automate and accelerate internal business processes that can quickly cover more than the investment with time and money saved.



### **Initial setup is time consuming**

Not only has EDI become less expensive, it has also become faster to deploy and integrate into existing applications and easier to use with WebEDI options that even non-technical users can operate.

### **Too many standards**

Many organizations also consider EDI to have too many standards and versions. This could limit smaller businesses in trading with larger organizations that use an updated version of a document standard. Here are some of the standards: UN/EDIFACT, ANSI ASC X12, GS1 EDI, TRADACOMS, and HL7. It is therefore imperative that a provider is chosen that supports a wide range of standards and who commits to keeping up with new protocols in the future. All-in-one solutions like OpenText Freeway Cloud eliminate the need to know all the standards by having EDI standards built-in to the solution.

### **Investing in system protection**

EDI may also require a heavy investment in computer networks. It will need protection from viruses, hacking, malware and other cyber security threats if an on-premises system is chosen. However, many providers offer a cloud solution which includes system protection.

### **Cost of Implementation.**

It is true that EDI provides massive cost savings benefits but for small businesses re-designing and implementing software applications to fit in EDI into current applications can be quite costly. Such limitations of EDI must be considered if you plan on implementing such system.

### **Electronic System Safety**

EDI also necessitates substantial investment in computer networks and security systems for maximum security. Any EDI system installed would require protection from hacking, malware, viruses, and other cybersecurity threats.

### **EDI Transaction**

Essentially, an EDI transaction is just another term for a standardized business document. Companies and trading partners exchange these documents using EDI standards to automate and streamline purchase orders, invoices, acknowledgments, payments, tracking, and other reports.

Any EDI transaction document must contain a certain minimum amount of vital data. Without these requirements, an EDI document becomes useless. Adhering to strict EDI feed formatting rules helps define precisely how and where each part of data on the

document will be found and used. Each document is assigned one of dozens of transaction numbers from the EDI public format.

For example, a purchase order (PO) is given the EDI transaction number 850 and the invoice transaction number is 810. So, when an EDI translator receives an EDI 850 PO document, it instantly recognizes the order number, the company name of the buyer, items in the order, and the price per item.

It's these streamlined EDI transactions that improve the overall data transfer process through the efficient integration and seamless automation of B2B workflows between internal and external systems, applications, and cloud ecosystems.

### **Application of EDI**

Are you looking for a way through which you can exchange information reliably? Well, EDI is the best solution for you that enables the fast and accurate exchange of data between the computer systems for organizations and trading partners that do business together. EDI is mainly designed to automate various business documents into your internal management system.

Companies are focusing on EDI application to transmit key component data in a paperless environment hence they have eliminated the need for documents that were sent using inefficient methods. For the most part, application of EDI fill in as the immediate association between platforms to allow and transmit key information progressively and in this way disposes of the requirement for manual intercession and entry to keep records and databases precise and up to date.

The three important processes for EDI processes in favor of efficient data transaction include.

### **ORDER INTEGRATION**

EDI order integration allows Making, sending and follow-up of supply orders produced by the purchasing departments. EDI contains important info about business transaction hence it is termed as a communications protocol for the computer-to-computer exchange of business documents in an electronic format between organization partners.

### **EDI ORDER INTEGRATION WORK**

Nowadays, companies have started to focus on EDI modernization initiatives beyond traditional EDI messages to support emerging business requirements. It is quite difficult for enterprises to have a single, integrated EDI approach that can deliver automated

workflows, increase visibility into operations and improve customer service for EDI order integration.

**Step 1 :** Sender export a business document from an in-house system such as purchase order to buy goods or services.

**Step 2 :** After this, a business document is then converted from the in-house computer system into the EDI format through data transformation mapping software.

**Step 3 :** Then the EDI business document is then run through validation software to ensure that it is accurate according to EDI standards.

**Step 4 :** The data from the EDI document is then transmitted to a value-added network via a secure communication protocol such as SFTP, HTTPS, AS2, etc.

**Step 5 :** The receiving party receives the files, verifies the credentials, authenticates the source, decrypts the file. A message disposition notification is also sent to acknowledge delivery.

#### **Dispatch Advice Integration :**

Dispatch Advice is a document provided by a seller to a buyer informing about the description, type, and quantity of goods that have been sent to them. Dispatch advice is also known as DESADV which is a special type of document that is exchanged in the duration of procurement and distribution processes. Dispatch advice integration typically informs a buyer about the nature of the goods, the quantity and the time of delivery, allowing preparing inbound logistics.

#### **Despatch EDI integration improves business process, effectively**

Despatch advice is also known as DESADV is a special type of document that is exchanged in the duration of procurement and distribution processes. It is primarily sent against the PO order generated by a buyer to a seller. A supplier with the means of Dispatch Advice informs a buyer about details of products to be transported. Dispatch advice EDI integration tells a buyer before transportation about nature of the goods, the quantity and time of the delivery allowing and preparing inbound logistics. After the dispatch confirmation by the buyer the goods are sent to him at his warehouse and other storage locations. The buyer may alternatively recognize the receipt of products with a receipt affirmation message. The last advance is the submission of a receipt message.

A receipt affirmation message is received by the purchase and after this invoice message is submitted. Before issuing the invoice, perform some checks as they will help you in making adjustments if there exists any kind of differences concerning the initial purchase

order. This procedure will ensure that your final payment or billing documents are correct, whether you are sending or receiving the commodities.

### **Invoice Integration**

Invoice is generally issued before the payment and is being requested for compensation against the services or goods offered by a supplier. Integrated invoicing ensures that a job is consistently flowing across an account system, consistently. The procedure of sending invoices utilizing EDI is called EDI Billing.

### **How does EDI Solution integrate invoices?**

The entire process of integration invoice with an EDI solutions system involves following steps and strategies.

### **Invoice Receiver**

- \* EDI arrangement gets the receipt gave by the merchant.
- \* Receipt is submitted to the mapping procedure and a record is likewise made that is incorporated inside your ERP.
- \* Information is then transmitted to the home network safely and a receipt is recorded in the administration system.
- \* A programmed chronicle of the report in ERP is done and afterward approved with different archives.
- \* When the approval methodology complete, the framework will signal the receipt and after which an affirmation message can be consequently sent to the provider's EDI arrangement.
- \* In addition to the invoices gave by sellers with an EDI integration, Invoice Receiver can likewise coordinate the bills sent by others.

### **Invoice Sender**

- \* When you make a receipt in your ERP, the EDI arrangement will take the information from the archives and afterward subject them to the mapping procedure.
- \* EDI programming will recognize the receipt to the location and afterward the bill is naturally sent to the built up correspondence channels.
- \* Receipt is received by the provider and afterward naturally incorporated into the correspondence framework.
- \* The sender will get an instant alert and in the event that there exists any blunder, at that point cautions are sent to tell you.
- \* If you have an EDI arrangement, at that point you may give your bills electronically and send them to different channels.

## **SMTP**

SMTP stands for Simple Mail Transfer Protocol.

SMTP is a set of communication guidelines that allow software to transmit an electronic mail over the internet is called Simple Mail Transfer Protocol.

It is a program used for sending messages to other computer users based on e-mail addresses.

It provides a mail exchange between users on the same or different computers, and it also supports:

It can send a single message to one or more recipients.

Sending message can include text, voice, video or graphics.

It can also send the messages on networks outside the internet.

The main purpose of SMTP is used to set up communication rules between servers. The servers have a way of identifying themselves and announcing what kind of communication they are trying to perform. They also have a way of handling the errors such as incorrect email address. For example, if the recipient address is wrong, then receiving server reply with an error message of some kind.

### **Definition of SMTP**

\* Simple Mail Transfer Protocol (SMTP) is the standard protocol for email services on a TCP/IP network. SMTP provides the ability to send and receive email messages.

SMTP is an application-layer protocol that enables the transmission and delivery of email over the Internet. SMTP is created and maintained by the Internet Engineering Task Force (IETF).

Simple Mail Transfer Protocol is also known as RFC 821 and RFC 2821.

\* Stands for "Simple Mail Transfer Protocol." This is the protocol used for sending e-mail over the Internet. Your e-mail client (such as Outlook, Eudora, or Mac OS X Mail) uses SMTP to send a message to the mail server, and the mail server uses SMTP to relay that message to the correct receiving mail server. Basically, SMTP is a set of commands that authenticate and direct the transfer of electronic mail. When configuring the settings for your e-mail program, you usually need to set the SMTP server to your local Internet Service Provider's SMTP settings (i.e. "smtp.yourisp.com"). However, the incoming mail server (IMAP or POP3) should be set to your mail account's server (i.e. hotmail.com), which may be different than the SMTP server.

## **Two Types of SMTP servers**

### **Normal SMTP Server**

SMTP Proxy Server

Normal SMTP Server

This is a typical SMTP server that accepts emails and queues them for delivery. It requires that you specify a set of local domains handled by the server. If any email comes in for a different domain and relaying is allowed, the message will be delivered to the final destination server.

This SMTP server can be used for both inbound and outbound mail delivery

### **SMTP Proxy Server**

This is not a full SMTP server. It is a proxy server. This means it requires another SMTP server (actual server) to connect to. Clients always connect to the actual server through the proxy server, which has the capability of monitoring emails, change its contents and block them if necessary.

### **Advantages of SMTP :**

- \* Some of the advantages of SMTP are:
- \* No Coding required: It is extremely easy to start using Mailpro for your transactional emails. All you have to do is exchange credentials and you are set to go. Unlike with API, where Coding is required.
- \* Connect to all Systems: all you have to do is use your credentials and it will work.
- \* In case of failure, the message will include an explanation about why the email failed to be delivered.

### **Disadvantages of SMTP**

- \* Usually requires more back and forth conversation between servers in order to deliver your message, which can delay sending and also increase the chances of the message not being delivered.
- \* Some firewalls can block ports commonly used with SMTP.

### **Protocol Oriented Programming - ( POP))**

Protocol Oriented Programming is not, although its name might suggest otherwise, a competitor or substitute for Object-Oriented Programming. It's a way to think about a very specific problem set, that will help you create flexible, maintainable and easy-to-read code. It should be thought of more as a complement to the Object Oriented approach (in fact, Object Oriented Programming already incorporates a number of the central ideas in Protocol Oriented Programming).

We will start by looking into how protocols (or interfaces, as they're called in many other languages) can help us with encapsulation and information hiding.

### **Definitions**

I find that common parlance definitions help prime readers on a subject before plunging into technical definitions and discussions. Let's first consider the layman's definition for the word "protocol":

... The official procedure or system of rules governing affairs of state or diplomatic occasions. ...

The accepted or established code of procedure or behaviour in any group, organization, or situation. ...

A procedure for carrying out a scientific experiment...

A protocol defines a blueprint of methods, properties, and other requirements that suit a particular task or piece of functionality. The protocol can then be adopted by a class, structure, or enumeration to provide an actual implementation of those requirements. Any type that satisfies the requirements of a protocol is said to conform to that protocol

### **FTP (File Transfer Protocol)**

#### **Meaning**

File transfer protocol (FTP) is a set of rules that computers follow for the transferring of files from one system to another over the internet. It may be used by a business to transfer files from one computer system to another, or websites may use FTP to upload or download files from a website's server.

#### **Definition :**

File Transfer Protocol (FTP) is a standard Internet protocol for transmitting files between computers on the Internet over TCP/IP connections. FTP is a client-server protocol where a client will ask for a file, and a local or remote server will provide it.

The end-users machine is typically called the local host machine, which is connected via the internet to the remote host—which is the second machine running the FTP software.

Anonymous FTP is a type of FTP that allows users to access files and other data without needing an ID or password. Some websites will allow visitors to use a guest ID or password- anonymous FTP allows this.

Although a lot of file transfer is now handled using HTTP, FTP is still commonly used to transfer files "behind the scenes" for other applications -- e.g., hidden behind the user interfaces of banking, a service that helps build a website, such as Wix or SquareSpace, or other services. It is also used, via Web browsers, to download new applications.

## **NETWORK LAYERS**

While TCP/IP is the newer model, the Open Systems Interconnection (OSI) model is still referenced a lot to describe network layers. The OSI model was developed by the International Organization for Standardization.

### **Definition - What does Network Layer**

The network layer is a portion of online communications that allows for the connection and transfer of data packets between different devices or networks.

The network layer is the third level (Layer 3) of the Open Systems Interconnection Model (OSI Model) and the layer that provides data routing paths for network communication. Data is transferred to the receiving device in the form of packets via logical network paths in an ordered format controlled by the network layer.

Logical connection setup, data forwarding, routing and delivery error reporting are the network layer's primary responsibilities. Layer 3 can be either able to support connection-oriented or connectionless networks .

## **TCP/IP PROTOCOL**

standard Internet communications protocols that allow digital computers to communicate over long distances. The Internet is a packet-switched network, in which information is broken down into small packets, sent individually over many different routes at the same time, and then reassembled at the receiving end. TCP is the component that collects and reassembles the packets of data, while IP is responsible for making sure the packets are sent to the right destination. TCP/IP was developed in the 1970s and adopted as the protocol standard for ARPANET (the predecessor to the Internet) in 1983.

### **Definition**

Stands for "Transmission Control Protocol/Internet Protocol." These two protocols were developed in the early days of the Internet by the U.S. military. The purpose was to allow computers to communicate over long distance networks. The TCP part has to do with the verifying delivery of the packets. The IP part refers to the moving of data packets between nodes. TCP/IP has since then become the foundation of the Internet. Therefore, TCP/IP software is built into all major operating systems, such as Unix, Windows, and the Mac OS.

### **Importance of TCP/IP protocols**

It is basically a network protocol that defines the details of how data is sent and received through network adapters, hubs, switches, routers and other network communications hardware.



The Internet works by using a protocol called TCP/IP, or Transmission Control Protocol/Internet Protocol. TCP/IP is the underlying communication language of the Internet. In base terms, TCP/IP allows one computer to talk to another computer via the Internet through compiling packets of data and sending them to right location.

The TCP/IP protocol was also placed in the public domain so that any software company could develop networking software based on the protocol.

Because it is the primary protocol used on the Internet, and it is in the public domain, it has become the most popular networking protocol throughout the world and is therefore well supported by almost all computer systems and networking hardware.

### **How does TCP/IP work:-**

The TCP/IP protocol is designed such that each computer or device in a network has a unique "IP Address" (Internet Protocol Address) and each IP address can open and communicate over up to 65535 different "ports" for sending and receiving data to or from any other network device.

The IP Address uniquely identifies the computer or device on the network and a "Port Number" identifies a specific connection between one computer or device and another (i.e between two IP Addresses).

A TCP/IP "port" can be thought of as a private two-way communications line where the port number is used to identify a unique connection between two devices.

The concept is very similar to any other type of port on your PC (serial, parallel, etc) except that instead of having a physical connection, the TCP/IP protocol creates a "virtual IP port" and the network hardware and software is responsible for routing data in and out of each virtual IP port.

### **TCP/IP Client and Server Connections:**

TCP/IP connections work in a manner similar to a telephone call where someone has to initiate the connection by dialing the phone.

At the other end of the connection, someone has to be listening for calls and then pick up the line when a call comes in.

### **Advantages of TCP/IP**

The advantages of TCP/IP protocol suite are

It is an industry-standard model that can be effectively deployed in practical networking problems.

It is interoperable, i.e., it allows cross-platform communications among heterogeneous networks.

It is an open protocol suite. It is not owned by any particular institute and so can be used by any individual or organization.

It is a scalable, client-server architecture. This allows networks to be added without disrupting the current services.

It assigns an IP address to each computer on the network, thus making each device to be identifiable over the network. It assigns each site a domain name. It provides name and address resolution services.

### **DISADVANTAGES OF TCP/IP**

The disadvantages of the TCP/IP model are

It is not generic in nature. So, it fails to represent any protocol stack other than the TCP/IP suite. For example, it cannot describe the Bluetooth connection.

It does not clearly separate the concepts of services, interfaces, and protocols. So, it is not suitable to describe new technologies in new networks.

It does not distinguish between the data link and the physical layers, which has very different functionalities. The data link layer should concern with the transmission of frames. On the other hand, the physical layer should lay down the physical characteristics of transmission. A proper model should segregate the two layers.

It was originally designed and implemented for wide area networks. It is not optimized for small networks like LAN (local area network) and PAN (personal area network).

Among its suite of protocols, TCP and IP were carefully designed and well implemented. Some of the other protocols were developed ad hoc and so proved to be unsuitable in long run. However, due to the popularity of the model, these protocols are being used even 30–40 years after their introduction.

## **UNIT - V**

### **E COMMERCE SUPPORTING FUNCTIONS**

#### **Introduction**

As an area of research, Electronic Commerce has various facets that span from the economic and legal infrastructure over software standards and platforms to horizontal applications (which are specific for a certain function) and vertical applications that address the needs of a certain business sector. In this article, we will present electronic contracting as a horizontal transaction support function. Electronic contracting can be defined as the complete process that is required to achieve a legally supported business relationship that is accompanied by an electronic contract as the common and neutral representation for all obligations the involved parties agreed on.

#### **Purchase and Sales procedure**

##### **Purchase procedure**

Purchasing is the process a business or organization uses to acquire goods or services to accomplish its goals. Although there are several organizations that attempt to set standards in the purchasing process, processes can vary greatly between organizations.

Purchasing is part of the wider procurement process, which typically also includes expediting, supplier quality, transportation, and logistics.

##### **Following purchasing procedure is generally followed**

##### **1. Determining Purchase Budget:**

Purchase Manager prepares a purchase budget for the forthcoming financial year. Purchase budget is prepared with the help of production planning department. It contains detailed information regarding quantity to be purchased, quality of materials, time of purchase and the sources of procurement. A schedule of materials and components needed for various jobs, known as bill of materials, is also prescribed for working out details of purchase budget. A bill of materials is also useful in exercising control over the utilization of materials.

##### **2. Receipt of Purchase Requisition**

The purchase officer initiates action for the purchase of materials only when he receives a request for the same. The store-keeper and departmental heads send requisition slips to purchase department giving details of materials required by their departments etc. A purchase requisition is a form used as a formal request to the purchasing department to purchase materials.

This form is prepared by the store keeper for regular stock materials and by the departmental head for specific materials not stocked as regular items. The store-keeper knows when an action or fresh procurements is to be initiated. He will send the requisition when materials reach re-ordering level. He retains one copy of the requisition with him for future reference . It is on the basis of purchase requisition that orders are placed for materials.

### **3. Determining Sources of Supply**

Purchase Manager remains in touch with various suppliers of materials. The quotations are invited for the purchase of specific items. After receiving quotations a comparative study is made regarding terms and conditions offered. The factors to be considered include price, quantity, quality, time of delivery, terms of payment, trade discount and reputation of suppliers. After looking at various factors a final decision is taken about the supplier of goods.

### **4. Placing Order**

After selecting a supplier a formal purchase order is sent for the supply of goods. A purchase order is sent on a printed form and is duly authorized by the purchase manager. This order should contain details about the quantity, quality, price, mode of delivery, terms of payment etc. The purchase order authorizes the vendor to despatch goods specified in it. It establishes a contractual relation between the buyer and the vendor.

### **5. Follow-Up of Purchase Order**

A purchase order normally bears a date by which the goods must be delivered It is in the interest of the organization that goods are received in time for keeping uninterrupted flow of materials. The suppliers may be reminded of the date of delivery of goods. A follow-up of purchase order is necessary to receive stocks in time.

### **6. Receipt and Inspection of Materials**

In big concerns the task of receiving materials is assigned to the purchase department whereas in small concerns this work is done by the store keeper. After unpacking goods their quantity is compared to that given in delivery challans. Any discrepancy in items is reported to the purchase department. The specifications and quality of goods is also checked at this stage.

### **7. Checking Invoices**

Lastly, purchase department checks the invoices supplied by the vendor with that of its own records. The quantity, quality, price, terms etc. are compared with those given in

purchase order. After making full checking the invoices are sent to accounts department for payment.

### **Sales procedure**

A sales process is a set of repeatable steps that a sales person takes to take a prospective buyer from the early stage of awareness to a closed sale. Typically, a sales process consists of 5-7 steps: Prospecting, Preparation, Approach, Presentation, Handling objections, Closing, and Follow-up.

### **7-step sales process**

What are the seven steps of the sales process according to most sales masters? The following steps provide a good outline for what you should be doing to find potential customers, close the sale, and retain your clients for repeat business and referrals in the future.

#### **1. Prospecting**

The first of the seven steps in the sales process is prospecting. In this stage, you find potential customers and determine whether they have a need for your product or service—and whether they can afford what you offer. Evaluating whether the customers need your product or service and can afford it is known as qualifying.

in mind that, in modern sales, it's not enough to find one prospect at a company: There are an average of 6.8 customer stakeholders involved in a typical purchase, so you'll want to practice multi-threading, or connecting with multiple decision-makers on the purchasing side. Account maps are an effective way of identifying these buyers.

#### **2. Preparation**

The second stage has you in preparation for initial contact with a potential customer, researching the market and collecting all relevant information regarding your product or service. At this point, you develop your sales presentation and tailor it to your potential client's particular needs.

#### **3. Approach**

In the approach stage, you make first contact with your client. Sometimes this is a face-to-face meeting, sometimes it's over the phone. There are three common approach methods.

approach: Presenting your potential client with a gift at the beginning of your interaction

Question approach: Asking a question to get the prospect interested

Product approach: Giving the prospect a sample or a free trial to review and evaluate your service

Dive deeper into the various sales approaches you can use to start a relationship off on the right foot.

#### **4. Presentation**

In the presentation phase, you actively demonstrate how your product or service meets the needs of your potential customer. The word presentation implies using PowerPoint and giving a salesy spiel, but it doesn't always have to be that way—you should actively listen to your customer's needs and then act and react accordingly.

#### **5. Handling objections**

Perhaps the most underrated of the seven steps of a sales process is handling objections. This is where you listen to your prospect's concerns and address them. It's also where many unsuccessful salespeople drop out of the process—44% of salespeople abandoning pursuit after one rejection, 22% after two rejections, 14% after three, and 12% after four, even though 80% of sales require at least five follow-ups to convert. Successfully handling objections and alleviating concerns separates good salespeople from bad and great from good.

Use this flowchart to map out objections and link to relevant collateral

#### **6. Closing**

In the closing stage, you get the decision from the client to move forward. Depending on your business, you might try one of these three closing techniques.

Alternative choice close: Assuming the sale and offering the prospect a choice, where both options close the sale—for example, “Will you be paying the whole fee up front or in installments?” or “Will that be cash or charge?”

Extra inducement close: Offering something extra to get the prospect to close, such as a free month of service or a discount

Standing room only close: Creating urgency by expressing that time is of the essence—for example, “The price will be going up after this month” or “We only have six spots left”

#### **7. Follow-up**

Once you have closed the sale, your job is not done. The follow-up stage keeps you in contact with customers you have closed, not only for potential repeat business but for referrals as well. And since retaining current customers is six to seven times less costly than acquiring new ones, maintaining relationships is key.

## **SUPPLY CHAIN MANAGEMENT**

Supply chain management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.

SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production to product development to the information systems needed to direct these undertakings.

### **Objectives of SCM**

A well designed SC is expected to support the strategic objectives of

1. Solving supplier's problems and beyond his level.
2. Customer service performance improvement.
3. Reduction of pre & post production inventory.
4. Minimizing variance by means of activities like standardization, variety reduction, etc.
5. Minimum total cost of operation & procurement.
6. Product Quantity control.
7. Achieving maximum efficiency in using labour, capital & plant through the company.
8. Flexible planning and control procedures.

### **Importance of Supply Chain Management**

It is well known that supply chain management is an integral part of most businesses and is essential to company success and customer satisfaction. The main importance of Supply Chain Management are

#### **REDUCE OPERATING COSTS**

importance of supply chain management

Decreases Purchasing Cost – Organizations generally prefer quick distributions of costly products and raw materials to avoid expensive inventory

Decrease Production Cost – A reliable supply chain delivers materials to assembly plants and avoid any costs that may occur due to delays.

importance of supply chain management

#### **IMPROVE CUSTOMER SERVICES**

Right quantity and quality – Customer expects delivery of right quantity and quality of products.

On-time delivery – Customers expect to receive the correct product mix and quantity to be delivered on time. A reliable supply chain can help in avoiding any bottlenecks and ensure customers get their products in the promised time frame

Services – After sales services is one of the important aspects in any business. If any kind of problem occur in the product, customer expects it to be fixed quickly. A right supply chain ensures that customers get the service they want.

Today's global supply chains are increasingly complex, making a data-driven approach to supply chain management a must. Data-driven SCM provides visibility from end to end for monitoring the flow of information, services and goods from procurement to manufacturing and delivery to the end consumer. Data isn't the only driver of effective supply chain management; other factors such as good vendor and supplier relationships, effective cost control, securing the right logistics partners and adopting innovative supply chain technologies make a big impact, too.

Supply chain optimization isn't a simple undertaking, but effective SCM offers numerous benefits that improve the bottom line. Here's a look at eight of the most important benefits of effective supply chain management.

### **Benefits of supply chain management**

#### **Better collaboration**

Information flow is a prominent challenge for companies. According to Oracle, 76% of companies lack an automated flow of information across the supply chain, and half of companies say fragmented information results in lost sales opportunities. Integrated software solutions remove bottlenecks and allow for the seamless sharing of information, providing a big-picture view of the supply chain from end to end. Thanks to improved access to data, supply chain leaders have the information they need, in context, to make more informed decisions.

#### **Improved quality control**

Quality control issues follow the rule of 10, explains Arshad Hafeez, Global Expert for Supply Chain Management and Quality Control, SCM-Group Function (GF) in an article for CIO Review. According to the rule of 10, the cost to replace or repair an item increases by tenfold at each step of the progression, resulting in significant costs for companies when quality issues arise.

Companies that have greater control over not only their direct suppliers but also their suppliers' suppliers benefit from improved quality control. Implementing standard minimum quality criteria, for instance, enables direct suppliers to identify and partner with



secondary suppliers that meet those requirements. Likewise, process guidelines can help suppliers comply with your company's quality requirements. Some companies go beyond simply providing criteria, conducting periodic audits or requesting documentation verifying suppliers' compliance steps. Hafeez recommends implementing a Management Operating System (MOS) for monitoring key performance indicators including:

- \* On-time delivery
- \* Scrap rates, reworks and similar issues at suppliers
- \* Final product quality (as received by end customers)
- \* Time for complaint resolution
- \* Findings from supplier quality assessments
- \* By analyzing performance data, companies can partner with the highest-performing vendors and suppliers to maintain strict quality control.

### **Higher efficiency rate**

Having real-time data on the availability of raw materials and manufacturing delays allows companies to implement backup plans, such as sourcing materials from a backup supplier, preventing further delays. Without real-time data, companies often don't have time to initiate plan B, resulting in issues such as out-of-stock inventory or late shipments to end consumers.

Implementing smart automation solutions also results in higher efficiency. Healing Hands Scrubs, for example, implemented 6 River Systems' collaborative mobile robots, doubling productivity and reducing unnecessary walking by 75%. Investing in the right automation solutions and leveraging data to minimize delays supports a positive customer experience and boosts your company's reputation.

### **Keeping up with demand**

"If consumer sales increase by 5 percent in a given week, a retailer could end up ordering 7 percent more product in response to the increase and a feeling that demand will continue," according to a report by VISA. "The next link in the chain, observing what appears to be a 7 percent increase in demand, then orders a larger increase on his supplier. Eventually the factory may observe an inflated 20 percent increase in orders."

Known as the bullwhip effect, this phenomenon often results from delays in communicating supply and demand changes. Supply chain leaders with access to real-time, accurate information and integrated data can better predict demand and readily respond to changing market conditions to avoid challenges like the bullwhip effect.

### **Shipping optimization**

According to Logistics Management's The State of Logistics Report, freight transportation costs increased by 7% from 2016 to 2017, while private and dedicated trucking costs increased by 9.5%. Less-than-truckload costs rose by 6.6%, and full truckload costs rose by 6.4%. Due to rising costs, shipping optimization is a priority for supply chain leaders. Identifying the most efficient shipping methods for small parcels, large bulk orders and other shipping scenarios helps companies get orders to customers faster while minimizing costs. Not only do those cost savings boost the company's bottom line, but savings can be passed on to consumers as well to improve customer satisfaction.

### **Reduced overhead costs**

With more accurate demand predictions, companies can reduce the overhead costs associated with storing slow-moving inventory by stocking less low-velocity inventory to make room for higher-velocity, revenue-producing inventory. Warehouse fulfillment costs contribute significantly to overhead. Reduce these costs by optimizing your warehouse layout, adopting the right automation solutions to improve productivity and implementing a better inventory management system.

Identifying unnecessary spend is another way to achieve leaner operations. If you're facing high logistics costs, for instance, switching to another provider offering the same service level and quality at a lower cost is a quick win.

### **Improved risk mitigation**

Analyzing big-picture and granular supply chain data can reveal potential risks, enabling companies to put backup plans in place to readily respond to unexpected circumstances. By taking proactive action, rather than reacting to supply chain disruptions, quality control issues or other concerns as they arise, companies can avoid negative impacts. Understanding risks also helps companies achieve leaner operations. For instance, 87% of companies believe they could reduce inventory by 22% if they had a better understanding of risks in their supply chains.

### **Improved cash flow**

The benefits discussed above allow companies to make smarter decisions, choose the right partners, accurately predict and respond to market and demand changes and reduce supply chain disruptions, but that's not all: they also improve the company's bottom line. For example, working with reliable suppliers not only means fewer disruptions and more satisfied customers, but it also improves cash flow by allowing you to invoice (and get

paid for products and services) sooner. Implementing more cost-effective solutions to eliminate wasteful spend and reducing overhead costs also contribute to positive cash flow. Supply chain disruptions have a domino effect, impacting every juncture throughout the supply chain, but the same is true for the positives: effective supply chain management has direct and secondary effects that support the efficient, seamless flow of information, goods and services from procurement through final delivery.

## **DISADVANTAGES OF SUPPLY CHAIN MANAGEMENT**

### **Lack of Coordination between Various Departments**

The biggest disadvantage of supply chain management is that it can work only if there is proper coordination between all the departments of the company and if departments are at loggerheads than this system will be a failure. Hence for example, if the marketing department does not inform the production department about the possible order than the production department will not be able to produce the desired order on time.

### **Complicated**

Since it involves multiple departments sometimes it can be complicated and may hamper the normal working of the company besides workers as well as employees may feel insecure and demotivated because human beings by nature resist new things and to them the concept of supply chain management may appear very complicated resulting in them accepting this management half-heartedly.

### **Trained and Professional Staff**

It requires professional and trained staff in order to properly execute supply chain management and in order to hire professional staff company will need to pay money which is an expensive proposition which is the reason why small companies seldom go for supply chain management as expenses of implementing this system outweighs its benefits.

one can see from the above that supply chain management has advantages as well as disadvantages and that is the reason why any company thinking of adopting this management should carefully read above points and then decide whether to implement supply chain management into the company or not.

### **Value Chain**

A value chain is a business model that describes the full range of activities needed to create a product or service. For companies that produce goods, a value chain comprises the steps that involve bringing a product from conception to distribution, and everything in between—such as procuring raw materials, manufacturing functions, and marketing activities.

A company conducts a value-chain analysis by evaluating the detailed procedures involved in each step of its business. The purpose of a value-chain analysis is to increase production efficiency so that a company can deliver maximum value for the least possible cost.

## **ELECTRONIC PAYMENT SYSTEM**

An e-commerce payment system (or an electronic payment system) facilitates the acceptance of electronic payment for online transactions. Also known as a subcomponent of electronic data interchange (EDI), e-commerce payment systems have become increasingly popular due to the widespread use of the internet-based shopping and banking.

Credit cards remain the most common forms of payment for e-commerce transactions. As of 2008, in North America almost 90% of online retail transactions were made with this payment type.[1] It is difficult for an online retailer to operate without supporting credit and debit cards due to their widespread use.[1] Online merchants must comply with stringent rules stipulated by the credit and debit card issuers (e.g. Visa and Mastercard) in accordance with bank and financial regulation in the countries where the debit/credit service conducts business.[2][better source needed]

For the vast majority of payment systems accessible on the public Internet, baseline authentication (of the financial institution on the receiving end), data integrity, and confidentiality of the electronic information exchanged over the public network involves obtaining a certificate from an authorized certification authority (CA) who provides public-key infrastructure (PKI). Even with transport layer security (TLS) in place to safeguard the portion of the transaction conducted over public networks—especially with payment systems—the customer-facing website itself must be coded with great care, so as not to leak credentials and expose customers to subsequent identity theft.

Despite widespread use in North America, there are still many countries such as China and India that have some problems to overcome in regard to credit card security. Increased security measures include use of the card verification number (CVN) which detects fraud by comparing the verification number printed on the signature strip on the back of the card with the information on file with the cardholder's issuing bank.[3]

There are companies that specialize in financial transaction over the Internet, such as Stripe for credit cards processing, Smartpay for direct online bank payments and PayPal for alternative payment methods at checkout. Many of the mediaries permit consumers to

establish an account quickly, and to transfer funds between their on-line accounts and traditional bank accounts, typically via automated clearing house (ACH) transactions.

### **IMPORTANCE OF E-PAYMENT SYSTEMS**

The advancement in telecommunication, electronic payment systems are rapidly replacing the traditional modes of payment that involved personal contact between buyers and sellers. Electronic payment systems entail online financial transactions that utilize some form of a digital financial device, such as e-tokens, e-cash and checks. E-payment systems present a number of benefits to both individuals and businesses.

#### **Variety of Choice**

Electronic payment systems allow financial institutions, businesses and the government to offer a variety of payment options to their customers. These systems include automated teller machines, debit cards, credit cards, mobile banking and payment of bills through the phone. Traditional business payments systems depends mainly on a limited number of the business outlets situated in different locations. This limits the client coverage, however – through Internet services – systems that rely on e-payment are available to a large number of clients.

#### **Reduced Costs**

E-payments systems result in reduced costs for both businesses and individuals. Businesses save on operational and processing expenses mainly due to reduction in technological costs – for example, the use of the Internet and the acquisition of computers and other machines. Expenditures in paper and postage is cut down along with time spent in executing personal transactions. These reduced costs are often passed down to customers who in turn pay less fees associated with transferring money or making payments. Customers also save on time spent in dealing with personal transactions as in traditional payment systems.

#### **Reliability**

The use of e-payments cancels out the use of drafting checks, transmitting cash and invoices for both businesses and customers. This allows for faster execution of transactions – for example, you do not have to wait for the 30 days required in invoicing transactions. Credit cards also allow for customers to partake in transactions without immediate cash.

#### **Security**

The traditional payment systems mainly involved clients sending their confidential information via post or physically visiting the transaction site. This presented a number of security risks – for example, your mail may get lost or fall into the wrong hands.

Additionally, places where financial transactions take place are targets for criminal attacks. E-payment systems offer encrypted services which protects the clients' private information during transmission and you do not even have to leave your home.

## **THE DIFFERENT TYPES OF E-COMMERCE PAYMENTS IN USE TODAY ARE**

### **Credit Card**

The most popular form of payment for e-commerce transactions is through credit cards. It is simple to use; the customer has to just enter their credit card number and date of expiry in the appropriate area on the seller's web page. To improve the security system, increased security measures, such as the use of a card verification number (CVN), have been introduced to on-line credit card payments. The CVN system helps detect fraud by comparing the CVN number with the cardholder's information.

### **Debit Card**

Debit cards are the second largest e-commerce payment medium in India. Customers who want to spend online within their financial limits prefer to pay with their Debit cards. With the debit card, the customer can only pay for purchased goods with the money that is already there in his/her bank account as opposed to the credit card where the amounts that the buyer spends are billed to him/her and payments are made at the end of the billing period.

### **Smart Card**

It is a plastic card embedded with a microprocessor that has the customer's personal information stored in it and can be loaded with funds to make online transactions and instant payment of bills. The money that is loaded in the smart card reduces as per the usage by the customer and has to be reloaded from his/her bank account.

### **E-Wallet**

E-Wallet is a prepaid account that allows the customer to store multiple credit cards, debit card and bank account numbers in a secure environment. This eliminates the need to key in account information every time while making payments. Once the customer has registered and created E-Wallet profile, he/she can make payments faster.

### **Net banking**

This is another popular way of making e-commerce payments. It is a simple way of paying for online purchases directly from the customer's bank. It uses a similar method to the debit card of paying money that is already there in the customer's bank. Net banking does not require the user to have a card for payment purposes but the user needs to register with

his/her bank for the net banking facility. While completing the purchase the customer just needs to put in their net banking id and pin.

### **Mobile Payment**

One of the latest ways of making online payments are through mobile phones. Instead of using a credit card or cash, all the customer has to do is send a payment request to his/her service provider via text message; the customer's mobile account or credit card is charged for the purchase. To set up the mobile payment system, the customer just has to download a software from his/her service provider's website and then link the credit card or mobile billing information to the software.

### **Amazon Pay**

Another convenient, secure and quick way to pay for online purchases is through Amazon Pay. Use your information which is already stored in your Amazon account credentials to log in and pay at leading merchant websites and apps. Your payment information is safely stored with Amazon and accessible on thousands of websites and apps where you love to shop.

If you are planning to sell your products online, Amazon would be happy to help you in setting up payment gateways for your products and services. You can also consider selling on Amazon, one of the most popular e-commerce platforms in the world. To sell on Amazon, please register yourself for free.

## **ADVANTAGES AND DISADVANTAGES OF ELECTRONIC PAYMENT SYSTEM**

### **ADVANTAGES**

system has a wide range of benefits for its users:

#### **Reduced risk of loss and theft:**

As these transactions used to take without any cash, so there is no risk of theft or loss. Also, one cannot even forget a virtual wallet anywhere.

#### **Time saving:**

These transactions can be made from any nook and corner of the world. This usually takes a time of a few seconds. Whereas in the traditional method, minimum the time of a day is taken for a transaction to take place. This also facilitates its users that they are not required to stand in long queues.

#### **Low commissions:**

it is belied that if a person is paying directly to an internet service provider or mobile account replenishment with the help of an unattended payment terminal, he/she is required

to make high payments. In case of electronic payment, one is required to make payment of just 1% of the total amount.

Convenience: these transactions can be made anytime and anywhere in the world, where he/she has access to the internet.

**Expenses control:**

User friendly: this has been designed to reach the highest possible target audience. So, it has better understanding of the user interface. This is available for 24×7 for providing customer support service. One can always get answers to all his/her questions by making use of forums on the subject.

**DISADVANTAGES**

**Restrictions:**

every payment system has some limitations associated with the minimum amount to be kept in the bank account. The amount of output as well as the transactions that are supposed to be done in a day.

**Necessity of internet access:**

it is mandatory to have an internet connection, in order to make a transaction without any disruption.

**Problem of transferring money in different payment systems:**

it is believed that most of the payment systems do not cooperate with each other. One can make use of currency exchange for solving this kind of problems.

**\* Lack of anonymity**

**WHAT IS PAYMENT AUTHENTICATION?**

Authentication is the process of proving, showing or determining that something is true or genuine or that someone is truly the individual claimed.

We take great pains every day to prove who we are. We start our cars in the morning because we have a key which indicates that we own the car. Or for those of us more ecologically-oriented, we present a pass to ride the bus or subway to work. Most of us present identity cards to enter our offices. At the very least we have yet another key to open the door.

On average, according to a 2007 paper released by Microsoft Research, we log in to eight separate internet accounts. The same study shows that the average person has 25 accounts which require a password. For those who travel frequently, government programs such as Nexus and Global Entry require retinal scans.



### **The factors of user authentication**

Every time we authenticate, we use at least one mechanism to prove who we are. These mechanisms are known as factors of which there are three. In no particular order, the three factors are knowledge, ownership, and inherence.

Knowledge is something you know such as a Personal Identification Number (PIN), a password, your mother's maiden name, your high school, etc. Answering questions that you know is known as Challenge-Handshake Authentication Protocol (CHAP).

Ownership is something you have such as a credit card, an ID card, a key or a token.

Inherence is something about you such as a fingerprint, appearance or signature.

these factors with the previous examples, the key to start the car, the identity card and the office key are all ownership factors. Passwords and CHAP are knowledge factors and a retinal scan is an inherence factor.

### **The different types of authentication**

When any one factor is used, the process is referred to single-factor authentication. Two-factor authentication uses any two of the factors (inherence, knowledge or ownership). It is important to understand that using two of the same factor is not considered two-factor authentication. Two of the three factors must be used to qualify. Therefore, a password and the response to a challenge question is not two-factor authentication but simply two examples of single-factor authentication.

### **Mode of Payment**

means any method for the transfer of monies agreed on as acceptable by both the Investor and the Company. Any Mode of Payment used by an Investor to transfer a Contribution is deemed acceptable to both Parties unless one Party communicates otherwise within seven (7) days of the receipt of funds. Any Mode of Payment thusly deemed acceptable for the transfer of Contribution is automatically deemed acceptable for any return of Contribution under Clause 4.4.2, or any Project Payment under Clause 5.

### **Electronic Card (e-Card)**

An electronic card (e-card) is a special occasion, greeting or post card created and customized within a website and sent through the Internet to the recipient. Customizations may include a wide variety of backgrounds and text fonts including some as cursive writing, graphic images, cartoon-style animations (proprietary to Adobe), video and sometimes even music.

## **Credit Card**

A credit card is a thin rectangular piece of plastic or metal issued by a bank or financial services company, that allows cardholders to borrow funds with which to pay for goods and services with merchants that accept cards for payment. Credit cards impose the condition that cardholders pay back the borrowed money, plus any applicable interest, as well as any additional agreed-upon charges, either in full by the billing date or over time. An example of a credit card is the Chase Sapphire Reserve.

## **Debit Card**

A debit card is a payment card that deducts money directly from a consumer's checking account to pay for a purchase. Debit cards eliminate the need to carry cash or physical checks to make purchases directly from your savings. In addition, debit cards, also called "check cards," offer the convenience of credit cards and many of the same consumer protections when issued by major payment processors such as Visa or Mastercard.

Unlike credit cards, debit cards do not allow the user to go into debt, except perhaps for small negative balances that might be incurred if the account holder has signed up for overdraft protection. Debit cards usually have daily purchase limits, meaning it may not be possible to make an especially large purchase with a debit card.

## **smart card**

chip card, or integrated circuit card (ICC or IC card) is a physical electronic authorization device, used to control access to a resource. It is typically a plastic credit card-sized card with an embedded integrated circuit (IC) chip.[1] Many smart cards include a pattern of metal contacts to electrically connect to the internal chip. Others are contactless, and some are both. Smart cards can provide personal identification, authentication, data storage, and application processing.[2] Applications include identification, financial, mobile phones (SIM), public transit, computer security, schools, and healthcare. Smart cards may provide strong security authentication for single sign-on (SSO) within organizations. Numerous nations have deployed smart cards throughout their populations.

## **Electronic Cash**

In providing a simple definition of eCash, also known as electronic cash, it is a digital money product that provides a way to pay for products and services without resorting to paper or coin currency. Two models emerged for e-cash transactions:

The online form of eCash, which was introduced by the now defunct DigiCash, worked for all types of Internet transactions.

The offline form of e-cash involved a digitally encoded card that replaced paper money. Mondex developed and tested this model with different banks, but the company has now transitioned into the development and management of smart cards also used for financial transactions.

## **RISKS IN ELECTRONIC PAYMENT SYSTEMS**

Electronic payments allow you to transfer cash from your own bank account to the bank account of the recipient almost instantaneously. This payment system relies heavily on the internet and is quite popular due to the convenience it affords the user. It would be hard to overstate the advantages of electronic payment systems, but what about the risks? Certainly they exist, both for financial institutions and consumers.

### **The Risk of Fraud**

Electronic payment systems are not immune to the risk of fraud. The system uses a particularly vulnerable protocol to establish the identity of the person authorizing a payment. Passwords and security questions aren't foolproof in determining the identity of a person. So long as the password and the answers to the security questions are correct, the system doesn't care who's on the other side. If someone gains access to your password or the answers to your security question, they will have gained access to your money and can steal it from you.

### **The Risk of Tax Evasion**

The law requires that businesses declare their financial transactions and provide paper records of them so that tax compliance can be verified. The problem with electronic systems is that they don't fit very cleanly into this paradigm and so they can make the process of tax collection very frustrating for the Internal Revenue Service. It is at the business's discretion to disclose payments received or made via electronic payment systems in a fiscal period, and the IRS has no way of knowing if it's telling the truth or not. That makes it pretty easy to evade taxation.

### **The Risk of Payment Conflicts**

One of the idiosyncrasies of electronic payment systems is that the payments aren't handled by humans but by an automated electronic system. The system is prone to errors, particularly when it has to handle large amounts of payments on a frequent basis with many recipients involved. It's important to constantly check your pay slip after every pay

period ends in order to ensure everything makes sense. Failure to do this may result in payment conflicts caused by technical glitches and anomalies.

### **The Risk of Impulse Buying**

Impulse buying is already a risk that you face when you use non-electronic payment systems. when you're able to buy things online at the click of a mouse. Impulse buying can become habitual and makes sticking to a budget almost impossible.

## **DIGITAL SIGNATURE**

A digital signature is a mathematical technique used to validate the authenticity and integrity of a message, software or digital document. As the digital equivalent of a handwritten signature or stamped seal, a digital signature offers far more inherent security, and it is intended to solve the problem of tampering and impersonation in digital communications.

Digital signatures can provide the added assurances of evidence of origin, identity and status of an electronic document, transaction or message and can acknowledge informed consent by the signer.

In many countries, including the United States, digital signatures are considered legally binding in the same way as traditional document signatures.

### **How a Digital Signature Works**

If you are sending a sensitive document, you would want the recipient of the document to know that it was from you and you would also want to ensure that the document gets to the recipient in the very same state you sent it in, without any alterations.

The process of digitally signing your document would go something like this:

First, you should copy the document and paste it into an e-mail note.

Second, you use a special software to obtain a mathematical summary (commonly known as a message hash) of the contract.

Thirdly, you will use a private key that you purchased from a trusted public-private key authority for encrypting the message hash.

Lastly, you send your document with the message hash as your digital signature.

The digital signature can be used for signing any form of electronic document whether or not the message is encrypted. The digital signature is protected with a digital certificate that authenticates it. Your digital certificate will contain the certification-issuing authority's digital signature which makes it possible for anyone to verify that your certificate is real.

## **ADVANTAGES OF DIGITAL SIGNATURES**

The following are the main benefits of using digital signatures:

### **Speed:**

Businesses no longer have to wait for paper documents to be sent by courier. Contracts are easily written, completed, and signed by all concerned parties in a little amount of time no matter how far the parties are geographically.

### **Costs:**

Using postal or courier services for paper documents is much more expensive compared to using digital signatures on electronic documents.

### **Security:**

The use of digital signatures and electronic documents reduces risks of documents being intercepted, read, destroyed, or altered while in transit.

### **Authenticity:**

An electronic document signed with a digital signature can stand up in court just as well as any other signed paper document.

### **Tracking:**

A digitally signed document can easily be tracked and located in a short amount of time.

### **Non-Repudiation:**

Signing an electronic document digitally identifies you as the signatory and that cannot be later denied.

### **Imposter prevention:**

No one else can forge your digital signature or submit an electronic document falsely claiming it was signed by you.

### **Time-Stamp:**

By time-stamping your digital signatures, you will clearly know when the document was signed.

## **DISADVANTAGES OF DIGITAL SIGNATURES**

Just like all other electronic products, digital signatures have some disadvantages that go with them. These include:

**Expiry:** Digital signatures, like all technological products, are highly dependent on the technology it is based on. In this era of fast technological advancements, many of these tech products have a short shelf life.

**Certificates:** In order to effectively use digital signatures, both senders and recipients may have to buy digital certificates at a cost from trusted certification authorities.

**Software:** To work with digital certificates, senders and recipients have to buy verification software at a cost.

**Law:** In some states and countries, laws regarding cyber and technology-based issues are weak or even non-existent. Trading in such jurisdictions becomes very risky for those who use digitally signed electronic documents.

**Compatibility:** There are many different digital signature standards and most of them are incompatible with each other and this complicates the sharing of digitally signed documents.

Most businesses today are embracing the idea of paper-less offices. To do that, they have identified what is a digital signature and the advantages of using them. They are now using digital signatures to authenticate important documents and make legally binding agreements.

**Tech Security Hack:** Worried about the internet security? Now remotely access all your Office 365 documents, catch up with important emails all on your encrypted citrix xendesktop from CloudDesktopOnline with the cheapest xendesktop cost in the market. Learn more about MS Azure and managed azure services by visiting [Apps4Rent.com](http://Apps4Rent.com).

## **ENCRYPTION**

Encryption is the process of converting data to an unrecognizable or "encrypted" form. It is commonly used to protect sensitive information so that only authorized parties can view it. This includes files and storage devices, as well as data transferred over wireless networks and the Internet.

You can encrypt a file, folder, or an entire volume using a file encryption utility such as GnuPG or AxCrypt. Some file compression programs like Stuffit Deluxe and 7-Zip can also encrypt files. Even common programs like Adobe Acrobat and Intuit TurboTax allow you to save password-protected files, which are saved in an encrypted format.

## **ELECTRONIC CERTIFICATE**

An attachment to an electronic message used for security purposes. The most common use of a digital certificate is to verify that a user sending a message is who he or she claims to be, and to provide the receiver with the means to encode a reply.

An individual wishing to send an encrypted message applies for a digital certificate from a Certificate Authority (CA). The CA issues an encrypted digital certificate containing the

applicant's public key and a variety of other identification information. The CA makes its own public key readily available through print publicity or perhaps on the Internet.

The recipient of an encrypted message uses the CA's public key to decode the digital certificate attached to the message, verifies it as issued by the CA and then obtains the sender's public key and identification information held within the certificate. With this information, the recipient can send an encrypted reply.

### **Types of Electronic Certificate**

There are three main types of Digital Certificates, they are:

#### **Secure Socket Layer**

Secure Socket Layer [SSL] server Certificates are installed on a server. This can be a server that hosts a website like [www.digi-sign.com](http://www.digi-sign.com), a mail server, a directory or LDAP server, or any other type of server that needs to be authenticated, or that wants to send and receive encrypted data. To automate the entire life cycle of your SSL environment, see the Automated & Authenticated Certificate Delivery™ System.

#### **Code Signing Certificate**

Code Signing Certificates are used to sign software or programmed code that is downloaded over the Internet. It is the digital equivalent of the shrink-wrap or hologram seal used in the real world to authenticate software and assure the user it is genuine and actually comes from the software publisher that it claims.

#### **Client Certificate**

Client Certificates or Digital IDs are used to identify one person to another, a person to a device or gateway or one device to another device. Client Certificates are issued in their thousands and millions each year and would be the principle reason for purchasing a CA.

AROUND THE HOME Toggle Menu

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SEARCH

### **ADVANTAGES & DISADVANTAGES OF A DIGITAL CERTIFICATE**

A digital certificate is an encryption technology that works similar to the Internet version of a passport. Using public key and private key information, digital certificates essentially ensure to the recipient of a message that the message is coming from a specific

person. The digital certificate authenticates the identity of the sender to ensure safer communication and prevent fraud on the Internet.

The public key and the private key also work together to encrypt or "seal" your information so that it is more difficult to intercept. In other words, digital certificates don't just work to authenticate the identity of the sender, but also of the recipient. For instance, an email sent on a digital certificate network is encrypted from the moment you click Send to the moment the intended recipient opens the message. If the recipient does not have the private key information indicated on your digital certificate, they will not be able to open the message.

### **The Advantages of Digital Certificates**

The biggest advantages of digital certificate-based authentication are privacy-based. By encrypting your communications — emails, logins or online banking transactions — digital certificates protect your private data and prevent the information from being seen by unintended eyes. Digital certificate systems are also user-friendly, usually working automatically and requiring minimal action or involvement from either senders or recipients. Microsoft states that certificate servers are cheaper and easier to manage than other certificate authorities or systems used for encryption.

### **The Disadvantages of Digital Certificates**

While the idea of digital certificates is to block outsiders from intercepting your messages, the system is not an infallible one. In 2011, for example, a Dutch digital certificate authority called DigiNotar was compromised by hackers. Since certificate authorities are the ones in charge of issuing digital certificates (think of them as the digital version of a passport office), hackers often target these authorities in order to manipulate certificate information. As a result, when a certificate authority is compromised, hackers can create websites or send emails that look genuine and pass certification tests, but are actually fraudulent.

## **FIREWALL**

### **DEFINITION**

A firewall is a network security device that monitors incoming and outgoing network traffic and permits or blocks data packets based on a set of security rules. Its purpose is to establish a barrier between your internal network and incoming traffic from external sources (such as the internet) in order to block malicious traffic like viruses and hackers.



## **What Is the Purpose of a Firewall?**

A firewall helps protect your company's internal data network. A firewall is a vital piece of your business's defense against electronic threats. Serving as a gatekeeper between your company's servers and the outside world, a properly maintained firewall will not only keep external threats out, but it can also alert you to more subtle problems by intercepting outgoing data as well. Paired with a well-maintained anti-malware suite, a firewall can save your business from spending time and money dealing with virus infections or hacker attacks.

### **The Firewall**

A firewall is a piece of software that stands between a computer or network and the Internet. Connecting a computer directly to the global network is like leaving your front door open, allowing outsiders free access to your system. Any request will pass through to vulnerable systems, allowing unscrupulous third parties to exploit your computers for their own gain. A firewall serves to block these unauthorized requests, passing through only designated traffic.

### **Filtering**

The primary purpose of a firewall is packet filtering. When a computer sends a request across the Internet, it takes the form of small packets of data, which travel through the network to their destination. The target server responds with its own packets of data, which return along the same route. A firewall monitors every packet that passes through it, considering its source, destination and what type of data it contains, and it compares that information to its internal rule set. If the firewall detects that the packet is unauthorized, it discards the data. Typically, firewalls allow traffic from common programs such as email or Web browsers, while discarding most incoming requests. You can also configure a firewall to disallow access to certain websites or services to prevent employees from accessing non-work resources while on the clock.

### **Logging**

Another important aspect of a firewall is its ability to log any traffic that passes through it. By recording the information from packets that pass through or that it discards, it can provide you with a clear picture of the kind of traffic your system experiences. This can be valuable in identifying the source of an external attack, but you can also use it to monitor your employees' activities online to prevent lost productivity.

## **Internal Threats**

While the primary goal of a firewall is to keep attackers out, it also serves a valuable purpose by monitoring outgoing connections. Many types of malware will send out a signal once they take over a system, allowing the author to trigger specific actions or even control the computer remotely. A firewall can alert you when an unknown program attempts to "phone home," alerting you to a possible malware infection and allowing you to shut it down before it causes major damage to your network. Heading off a malware attack before it activates will keep your employees productive, protect vital company data and save you the cost of cleaning up the problem with other security software.

## **ADVANTAGES OF FIREWALL**

### **1. Monitor Traffic**

A major responsibility of a firewall is to monitor the traffic passing through it. Whatever the information traveling through a network is in the form of packets. Firewall inspects each of these packets for any hazardous threats. If any chance the firewall happens to find them it will immediately block them.

### **2. Protection against Trojans**

Malwares especially the type Trojans are dangerous to a user. A Trojan silently sits on your computer spying over all the works you do with it. Whatever the information they gather will be sent to a web server. Obviously you will not know their presence until the strange behaviours of your computer. A firewall in this instance will immediately block Trojans before they cause any damages to your system.

### **3. Prevent Hackers**

Hackers on the internet constantly look for computers in order for carrying out their illegal activities. When the hackers happen to find such computers they will start to do even malicious activities such as spreading viruses. Apart from those hackers there can be unknown people such as the neighbours looking out for an open internet connection. Hence to prevent such intrusions it is a good idea to be with a firewall security.

### **4. Access Control**

Firewalls comes with an access policy that can be implemented for certain hosts and services. Some hosts can be exploited with the attackers. So the best in case is to block such hosts from accessing the system. If a user feels that they need protection from these types of unwanted access, this access policy can be enforced.

## **5. Better Privacy**

Privacy is one of the major concerns of a user. Hackers constantly look out for privacy informations for getting clues about the user. But by using a firewall many of the services offered by a site such as the domain name service and the finger can be blocked. Hence the hackers are with no chance of getting privacy details. Additionally firewalls can block the DNS informations of the site system. Due to this the names and the IP address will not be visible to the attackers.

## **DISADVANTAGES OF FIREWALL**

### **1. Cost**

Firewalls does have an investment depending on the types of it. In general hardware firewalls are more expensive than the software firewalls. Besides that hardware firewalls require installations and maintenance which can be costly. These types of configurations cannot be done without an expert IT employee. Comparing this to a software firewall, there is no much investment and it is easy enough for an average user to deploy them.

### **2. User Restriction**

If is no doubt that firewalls prevent unauthorized access to your system from the network. While this can be advantageous for an average user, this can actually be a problem for large organizations. The policies used by the firewall cab be strict enough to prevent employees from doing certain operations. As a result of this, the overall productivity of the company an be affected severely. Sometimes this can also prompt employees from using backdoor exploits. However this can lead to security problems since the data travelled through these backdoor exploits are not examined properly.

### **3. Performance**

Firewalls especially the software based has the capability to limit your computer's overall performance. The processing power and the RAM resources are some of the factors which decides the computer's overall performance. When the software firewalls constantly run on the background they consume more the processing power and the RAM resources. This can lead to a diminished system performance. However hardware firewalls does not impact the system performance since they do not rely upon the computer resources.

### **4. Malware Attacks**

Even though firewalls has the capability to block the basic types of trojans, it is proved to be defenseless against other types of malwares. These types of malwares can enter your system in the form of trusted data. Therefore even if you have firewall, it is still

recommended to have an anti-malware software installed on your PC. Because the only way to remove them is through an anti-malware scan.

#### 5. Complex Operations

Even though for small businesses the firewall maintenance is made easy, it is definitely not for large organizations. Firewalls for large organizations require separate set of staffs for operating them. These people make sure that the firewall is safe enough to protect the network from intruders.

#### 6. COMMENTS

I have a separate machine with no firewall or active protection that is great for doing things in a speedy fashion :) Windows bootable USB at the ready if the day comes that I need a clean install. No personal information on this machine makes it a fun little toy

### **SET ~ SECURE ELECTRONIC TRANSACTION (SET) PROTOCOL**

Secure Electronic Transaction or SET is a system which ensures security and integrity of electronic transactions done using credit cards in a scenario. SET is not some system that enables payment but it is a security protocol applied on those payments. It uses different encryption and hashing techniques to secure payments over internet done through credit cards. SET protocol was supported in development by major organizations like Visa, Mastercard, Microsoft which provided its Secure Transaction Technology (STT) and NetScape which provided technology of Secure Socket Layer (SSL).

SET protocol restricts revealing of credit card details to merchants thus keeping hackers and thieves at bay. SET protocol includes Certification Authorities for making use of standard Digital Certificates like X.509 Certificate. Before discussing SET further, let's see a general scenario of electronic transaction, which includes client, payment gateway, client financial institution, merchant and merchant financial institution.

#### **The security issues in e-commerce**

Security risks associated with e-commerce can be as a result of human error, an accident or unauthorized access to systems. Online retailers are most likely to face credit card fraud or data errors. Their online stores are also likely to face phishing attacks, distributed denial of service (DDoS) attacks and man-in-the-middle attacks as explained below.

#### **Credit Card Fraud**

Credit card fraud is the most common security threat that online retailers face. It occurs when a hacker gains unauthorized access to customers' personal and payment information. To access this data, the hacker may penetrate the database of an e-commerce site using

malicious software programs. At times, a hacker's intention when stealing customers' data is to sell it on black markets.

### **Distributed Denial of Service (DDoS) Attacks**

This type of security threat aims at taking down an online retail store by sending overwhelming requests to its servers. The attacks originate from thousands of untraceable IP addresses. When this type of threat hits the servers, they slow down or completely shut down. An e-commerce site can also go offline temporarily when a DDoS attack affects its servers.

### **Man-in-the-middle Attacks**

As hackers are becoming smarter with technology, they are devising ways of listening to the communications made by users of an e-commerce website. Through an approach known as a man-in-the-middle attack, these hackers maliciously trick users into connecting to a public wireless network. They gain access to people's devices once they are on public wireless networks. Hackers get to see a people's browsing history, credit card numbers, passwords and usernames if the websites they are visiting lack strong encryptions.

### **Bad Bots**

Bots, either good or bad, are all over the worldwide web. Search engines such as Bing and Google use good bots for indexing search results. On the other hand, there are hackers that use malicious bots for gathering data such as product data, inventories and pricing data. These bots are also capable of accessing the database of an e-commerce site and listing the logins of user accounts.

### **Malware**

In information technology, malware simply refers to malicious software programs. Attackers usually inject web pages or files with these malicious programs to help them in gaining access to online retailers stores. Through means such as SQL injection, they can easily insert the malware into a website's database allowing it to compromise the data stored in the database.

### **Phishing Scams**

E-commerce sites are also prone to phishing scams sent by known or unknown people in form of emails. These scams focus on targeting important user data like credit card numbers and login credentials. An attacker may use a scheme known as social engineering to lure online shoppers to give out their personal information. When sent in an email to an online shopper, a phishing scam may contain a link to a malicious site that resembles an e-commerce site.

## **Protocol**

A protocol is a standard set of rules that allow electronic devices to communicate with each other. These rules include what type of data may be transmitted, what commands are used to send and receive data, and how data transfers are confirmed.

You can think of a protocol as a spoken language. Each language has its own rules and vocabulary. If two people share the same language, they can communicate effectively. Similarly, if two hardware devices support the same protocol, they can communicate with each other, regardless of the manufacturer or type of device. For example, an Apple iPhone can send an email to an Android device using a standard mail protocol. A Windows-based PC can load a webpage from a Unix-based web server using a standard web protocol.

Protocols exist for several different applications. Examples include wired networking (e.g., Ethernet), wireless networking (e.g., 802.11ac), and Internet communication (e.g., IP). The Internet protocol suite, which is used for transmitting data over the Internet, contains dozens of protocols. These protocols may be broken up into four categories:

Link layer - PPP, DSL, Wi-Fi, etc.

Internet layer - IPv4, IPv6, etc.

Transport layer - TCP, UDP, etc.

layer - HTTP, IMAP, FTP, etc.

Link layer protocols establish communication between devices at a hardware level. In order to transmit data from one device to another, each device's hardware must support the same link layer protocol. Internet layer protocols are used to initiate data transfers and route them over the Internet. Transport layer protocols define how packets are sent, received, and confirmed. Application layer protocols contain commands for specific applications. For example, a web browser uses HTTPS to securely download the contents of a webpage from a web server. An email client uses SMTP to send email messages through a mail server.

Protocols are a fundamental aspect of digital communication. In most cases, protocols operate in the background, so it is not necessary for typical users to know how each protocol works. Still, it may be helpful to familiarize yourself with some common protocols so you can better understand settings in software programs, such as web browsers and email clients.

## **SSL**

SSL (pronounced as separate letters) is short for Secure Sockets Layer.

Secure Sockets Layer (SSL) is a protocol developed by Netscape for transmitting private documents via the Internet. SSL uses a cryptographic system that uses two keys to encrypt data – a public key known to everyone and a private or secret key known only to the recipient of the message.

### **SSL URLs**

Most Web browsers support SSL, and many websites use the protocol to obtain confidential user information, including credit card numbers. By convention, URLs that require an SSL connection start with https: instead of http:.

### **How SSL Works**

When a Web browser tries to connect to a website using SSL, the browser will first request the web server identify itself. This prompts the web server to send the browser a copy of the SSL Certificate. The browser checks to see if the SSL Certificate is trusted -- if the SSL Certificate is trusted, then the browser sends a message to the Web server. The server then responds to the browser with a digitally signed acknowledgement to start an SSL encrypted session. This allows encrypted data to be shared between the browser and the server. You may notice that your browsing session now starts with https (and not http).

## **SHTTP**

An earlier security protocol that provided secure transactions over the Web. Working at the application layer rather than the transport layer of the protocol stack, SHTTP was also used to authenticate the client. In contrast, SSL is used to authenticate the Web server. SHTTP was endorsed by a variety of organizations and integrated into various browsers and other systems, but gave way mostly to SSL for routine security over the Web. See HTTPS, SSL and security protocol.

S-HTTP (Secure HTTP) is an extension to the Hypertext Transfer Protocol (HTTP) that allows the secure exchange of files on the World Wide Web. Each S-HTTP file is either encrypted, contains a digital certificate, or both. For a given document, S-HTTP is an alternative to another well-known security protocol, Secure Sockets Layer (SSL). A major difference is that S-HTTP allows the client to send a certificate to authenticate the user whereas, using SSL, only the server can be authenticated. S-HTTP is more likely to be used in situations where the server represents a bank and requires authentication from the user that is more secure than a userid and password.

S-HTTP does not use any single encryption system, but it does support the Rivest-Shamir-Adleman public key infrastructure encryption system. SSL works at a program layer slightly higher than the Transmission Control Protocol (TCP) level. S-HTTP works at the even higher level of the HTTP application. Both security protocols can be used by a browser user, but only one can be used with a given document. Terisa Systems includes both SSL and S-HTTP in their Internet security tool kits.

A number of popular Web servers support both S-HTTP and SSL. Newer browsers support both SSL and S-HTTP. S-HTTP has been submitted to the Internet Engineering Task Force (IETF) for consideration as a standard. Request for Comments (RFCs) Internet draft 2660 describes S-HTTP in detail.

## **COMPUTER CRIMES**

Alternatively referred to as cyber crime, e-crime, electronic crime, or hi-tech crime. Computer crime is an act performed by a knowledgeable computer user, sometimes referred to as a hacker that illegally browses or steals a company's or individual's private information. In some cases, this person or group of individuals may be malicious and destroy or otherwise corrupt the computer or data files.

### **Examples of computer crimes**

Below is a listing of the different types of computer crimes today. Clicking on any of the links below gives further information about each crime.

Child pornography - Making or distributing child pornography.

Copyright violation - Stealing or using another person's Copyrighted material without permission.

Cracking - Breaking or deciphering codes designed to protect data.

Cyber terrorism - Hacking, threats, and blackmailing towards a business or person.

Cyberbully or Cyberstalking - Harassing or stalking others online.

Cybersquatting - Setting up a domain of another person or company with the sole intention of selling it to them later at a premium price.

Creating Malware - Writing, creating, or distributing malware (e.g., viruses and spyware.)

Denial of Service attack - Overloading a system with so many requests it cannot serve normal requests.

Doxing - Releasing another person's personal information without their permission.

Espionage - Spying on a person or business.



Fraud - Manipulating data, e.g., changing banking records to transfer money to an account or participating in credit card fraud.

Harvesting - Collect account or account-related information on other people.

Human trafficking - Participating in the illegal act of buying or selling other humans.

Identity theft - Pretending to be someone you are not.

Illegal sales - Buying or selling illicit goods online, including drugs, guns, and psychotropic substances.

Intellectual property theft - Stealing practical or conceptual information developed by another person or company.

IPR violation - An intellectual property rights violation is any infringement of another's Copyright, patent, or trademark.

Phishing or vishing - Deceiving individuals to gain private or personal information about that person.

Salami slicing - Stealing tiny amounts of money from each transaction.

Scam - Tricking people into believing something that is not true.

Slander - Posting libel or slander against another person or company.

Software piracy - Copying, distributing, or using software that was not purchased by the user of the software.

Spamming - Distributed unsolicited e-mail to dozens or hundreds of different addresses.

Spoofing - Deceiving a system into thinking you are someone you're not.

Typosquatting - Setting up a domain that is a misspelling of another domain.

Unauthorized access - Gaining access to systems you have no permission to access.

Wiretapping - Connecting a device to a phone line to listen to conversations.

Related pages

How to protect yourself while on the Internet.

What are the disadvantages of the Internet?

Computer security help and support.

CMA, Computer fraud, Con, Cyber, Cyber law, Dark web, Deep web, Ethics, Scam, Security terms

## **SECURITY IN E-COMMERCE**

Ecommerce security is essential if you are to make it in this industry. Are you aware that cyber-criminals target mostly eCommerce businesses? Online businesses experienced 32.4% of all successful cyber attacks in 2018. A serious business should, therefore, employ

rock-solid eCommerce security protocols and measures. It will keep the business and customers free from attacks.

What is eCommerce or electronic commerce security?

eCommerce security is the guidelines that ensure safe transaction through the internet. It consists of protocols that safeguard people who engage in online selling and buying of goods and services. You need to gain your customers' trust by putting in place eCommerce security basics. Such basics include:

Privacy

Integrity

Authentication

Non-repudiation

### **1. Privacy**

Privacy includes preventing any activity that will lead to the sharing of customers' data with unauthorized third parties. Apart from the online seller that a customer has chosen, no one else should access their personal information and account details.

A breach of confidentiality occurs when sellers let others have access to such information. An online business should put in place at least a necessary minimum of anti-virus, firewall, encryption, and other data protection. It will go a long way in protecting credit card and bank details of clients.

### **2. Integrity**

Integrity is another crucial concept of eCommerce Security. It means ensuring that any information that customers have shared online remains unaltered. The principle states that the online business is utilizing the customers' information as given, without changing anything. Altering any part of the data causes the buyer to lose confidence in the security and integrity of the online enterprise.

### **3. Authentication**

The principle of authentication in eCommerce security requires that both the seller and the buyer should be real. They should be who they say they are. The business should prove that it is real, deals with genuine items or services, and delivers what it promises. The clients should also give their proof of identity to make the seller feel secure about the online transactions. It is possible to ensure authentication and identification. If you are unable to do so, hiring an expert will help a lot. Among the standard solutions include client logins information and credit card PINs.

#### **4. Non-repudiation**

Repudiation means denial. Therefore, Non-repudiation is a legal principle that instructs players not to deny their actions in a transaction. The business and the buyer should follow through on the transaction part that they initiated. eCommerce can feel less safe since it occurs in cyberspace with no live video. Non-repudiation gives eCommerce security another layer. It confirms that the communication that occurred between the two players indeed reached the recipients. Therefore, a party in that particular transaction cannot deny a signature, email, or a purchase.