

# **COURSE PACK FOR**

## ***E-Commerce (Elective-Group III)***

Under CBCS Syllabus: To be effective from 2018-19

***COURSE: BCA      SEMESTER: 5<sup>th</sup>***

**Instructors: Ms. Tripti Tiwari**

**Course Leader: Ms. Tripti Tiwari**

**For Academic Session: 2021-22**



**Bharati Vidyapeeth Institute of Management & Research, New Delhi**

**An ISO 9001:2008 & 14001:2004 Certified Institute**

**“A+” Grade Accreditation by NAAC**

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# **INDEX**

<b>S.No.</b>	<b>CONTENTS</b>	<b>Page No.</b>
1.	Course Outline	5-10
2.	CES Parameters & helpful contents	11-16
3.	Compiled Notes & Reference Materials	17-115
4.	Sample Question Paper	116-125
5.	Scribble sheets	126-128

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## Copy of the Syllabus

### Elective Group: (III) Information Systems

Course Number	Course Name	L-T-P- Credits	Year of Introduction
505-3-1	E-Commerce	3L-1T-0P-4C	2018-19
<b>Course Objective :</b> <ul style="list-style-type: none"> <li>To thoroughly understand the information technology for supporting E-commerce;</li> <li>To understand the necessary infrastructure and functional components to develop Ecommerce systems;</li> <li>To understand the design and application of E-commerce systems.</li> </ul>			
<b>Expected Outcome :</b> Upon successful completion of the course students will be able to: <ul style="list-style-type: none"> <li>Recognize the impact of Information and Communication technologies, especially of the Internet in business operations</li> <li>Recognize the fundamental principles of e-Business and e-Commerce</li> <li>Use tools and services of the internet in the development of a virtual e-commerce site</li> </ul>			
<b>References :</b> <ul style="list-style-type: none"> <li>E-commerce - C.S.V. Murthy, Himalaya Publishing House</li> <li>E-commerce A Managerial Perspective - P.T. Joseph, Prentice Hall Of India</li> <li>Frontiers of Electronics Commerce - Kalakota and Whinston, Pearson Education</li> </ul>			
<b>Suggested MOOC :</b> Swayam			
Course Plan			
Unit	Contents		
1	<b>Introduction to E-Commerce:</b> Definition, E-commerce fundamentals, different types of E-commerce E-Commerce Infrastructure - The Internet and World Wide Web, Web system, Internet basics, Characteristics of Internet, Components of Internet – Uniform Resource Locators, Internet Protocol, Hypertext Transfer Protocol (HTTP), Internet Service Provider (ISP), Types of ISP, domain name, domain name types E-commerce vs Traditional Commerce, Networking Categories, Mobile Commerce		
2	<b>Business Models for e-commerce:</b> Business-to-Consumer (B2C), Consumer-to-Consumer (C2C), Business-to-Business( B2B) <b>Electronic Data Interchange</b> Requirement of EDI, types of EDI, Advantages and Disadvantages of EDI		
3	<b>E-commerce Payment System:</b> Limitations of traditional payment system, requirement of e-payment system, Internet payment systems - Credit card payment (e.g., SET protocol), E-cash, E-check, smart card, Electronic Funds Transfer, Digital Token Based E-Payment Systems, Modern Payment Systems, Steps for Electronic Payment, Payment Security, Net Banking		
4	<b>Applications of E-Commerce:</b>		

	E-commerce in banking, retailing, online publishing, online marketing, e-advertising, e-branding.
5	<b>E-commerce Security:</b> Security issues, Privacy issues, Computer Security, security threats, security tools, Denial-of-Service attacks, Viruses, Unauthorized access to a computer network, Vulnerability of Internet Sites requirements, malicious code, intruders, attacking methods, Cryptography- encryption and decryption, public key encryption, private key cryptography, message digest, digital signature, digital certificate, firewalls, SSL. Firewall – Packet filtering, Application gateways.
6	<b>Implementation of E-Commerce:</b> WWW.EBAY.COM - B2C Website – Registration, Growth of eBay, PayPal – New Trend in Making Payments Online, National Electronic Funds Transfer.

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**Bharati Vidyapeeth (Deemed to Be University)**  
**Institute of Management and Research**

**Course Outline**

**BBA- Sem 5**

**Academic Year 2020-21**

1. **Course Code: 505**
2. **Course Title: E-COMMERCE**
3. **Course Overview:**

**Credits: 4**

Through this course, students should learn:

On Successful Completion of this subject the students should have basic understanding of : -

E-Commerce , E-Market , EDI , Business Strategies etc.,

Through this elective subject students will be able to understand how the internet is rapidly becoming one of the primary communication, marketing, and commercial medium for businesses in almost every industry, and how managers can effectively use this tool to execute their organization's strategic plans. Topics include an overview of electronic commerce; e-marketplaces including auctions and portals; online marketing and consumer behaviour; business-to-business e-commerce; e-government; e-learning; social networks; search engine maximization; e-commerce security; payment solutions and order fulfillment; e-commerce security; e-commerce strategy and global issues; legal, ethical and tax issues; and launching an e-commerce business. In general, develop an intuitive sense of how to get started and survive in the electronic world.

**4. COURSE Outcomes:**

On successful completion of this course, the learner will be able to:

CO1: Recognize the impact of Information and Communication technologies, especially of the Internet in business operations by understanding meaning, nature and scope channels of e-commerce

CO2: Recognize the fundamental principles of e-Business and e-Commerce

CO3: Use tools and services of the internet in the development of a virtual e-commerce site

### 5. List of Topics/Units:

Topic/ Unit	Contents/ Concepts
<b>Unit 1 Introduction to E-Commerce</b>	<ul style="list-style-type: none"> <li>❖ Definition, E-commerce fundamentals, different types of E-commerce</li> <li>❖ E-Commerce Infrastructure - The Internet and World Wide Web, Web system, Internet basics, Characteristics of Internet,</li> <li>❖ Components of Internet – Uniform Resource Locators, Internet Protocol, Hypertext Transfer Protocol (HTTP), Internet Service Provider (ISP), Types of ISP, domain name, domain name types</li> <li>❖ E-commerce vs Traditional Commerce, Networking Categories, Mobile Commerce</li> </ul>
<b>Unit 2 Business Models for e-commerce</b>	<ul style="list-style-type: none"> <li>❖ Business-to-Consumer (B2C), Consumer-to-Consumer (C2C), Business-to-Business (B2B)</li> <li>❖ Electronic Data Interchange Requirement of EDI, types of EDI, Advantages and Disadvantages of EDI</li> </ul>
<b>Unit 3 E-commerce Payment System</b>	<ul style="list-style-type: none"> <li>❖ Limitations of traditional payment system, requirement of e-payment system,</li> <li>❖ Internet payment systems - Credit card payment (e.g., SET protocol), E-cash, Echeck, smart card, Electronic Funds Transfer, Digital Token Based E-Payment Systems, Modern Payment Systems,</li> <li>❖ Steps for Electronic Payment, Payment Security, Net Banking</li> </ul>
<b>Unit 4 Applications of E-Commerce</b>	<ul style="list-style-type: none"> <li>❖ E-commerce in banking,</li> <li>❖ E-commerce in Retailing,</li> <li>❖ E-commerce in online publishing,</li> <li>❖ E-commerce in online marketing,</li> <li>❖ E-advertising, e-branding</li> </ul>
<b>Unit 5 E-commerce Security</b>	<ul style="list-style-type: none"> <li>❖ Security issues,</li> <li>❖ Privacy issues-Computer Security,</li> <li>❖ Security threats, security tools, Denial-of-Service attacks, Viruses, Unauthorized access to a computer network, Vulnerability of Internet Sites requirements, malicious code, intruders, attacking methods</li> <li>❖ Cryptography- encryption and decryption, public key encryption, private key cryptography, message digest, digital signature, digital certificate, firewalls, SSL. Firewall – Packet filtering, Application gateway</li> </ul>



<b>Unit 6 Implementation of E-Commerce</b>	<ul style="list-style-type: none"> <li>❖ WWW.EBAY.COM</li> <li>❖ B2C Website – Registration,</li> <li>❖ Growth of eBay,</li> <li>❖ PayPal – New Trend in Making Payments Online, National Electronic Funds Transfer.</li> </ul>
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**6. Evaluation Criteria:**

Component	Description	Weightage
<b>First Internal Examination</b>	First internal question paper will be based on first 3 unit of syllabus.	10 marks
<b>Second Internal Examination</b>	Second internal question paper will be based on last 3 unit of syllabus.	10 marks
<b>CES 1- Case Study Analysis</b>	Quiz will be conducted based on the different aspects of Computer Basic and Operating System with Memory and Virus Details	5 marks
<b>CES 2- Moodle Quiz</b>	Presentation will be taken in group of 5 based on the different Application of computer in real world.	5 marks
<b>CES 3- Class Test</b>	Students need to complete different assignments after learning the features of MS office tools	5 marks
<b>Attendance</b>	Attendance < 75% = 0 marks. attend- ance >= 75% = 10 marks	10 marks

**Note:** All 3 CES will be mandatory. If any students misses anyone CES, in that case the weightage of each CES would be 3.33 marks & if a student attempts all 3 CES then his/her best 2 CES marks will be considered and weightage for those two would be 5 marks each.

**7. Recommended/ Reference Text Books and Resources:**

Text Books	
Reference Book	<ol style="list-style-type: none"> <li>1. E-commerce - C.S.V. Murthy, Himalaya Publishing House</li> <li>2. E-commerce A Managerial Perspective - P.T. Joseph, Prentice Hall Of India</li> <li>3. Frontiers of Electronics Commerce - Kalakota and Whinston, Pearson Education</li> </ol>
Online Resources	<ol style="list-style-type: none"> <li>1. <a href="http://www.tutorialspoint.com">www.tutorialspoint.com</a></li> <li>2. <a href="https://swayam.gov.in/">https://swayam.gov.in/</a></li> </ol>
Additional reading links	<ol style="list-style-type: none"> <li>1. <a href="https://www.entrepreneur.com/article/354560">https://www.entrepreneur.com/article/354560</a></li> <li>2. <a href="https://www.exchange4media.com/marketing-news/five-e-commerce-strategies-to-grow-business-106727.html">https://www.exchange4media.com/marketing-news/five-e-commerce-strategies-to-grow-business-106727.html</a></li> </ol>

	<p>3. <a href="https://indianexpress.com/article/business/companies/flipkart-acquires-walmart-india-to-launch-flipkart-wholesale-for-b2b-segment-in-august-6519701/">https://indianexpress.com/article/business/companies/flipkart-acquires-walmart-india-to-launch-flipkart-wholesale-for-b2b-segment-in-august-6519701/</a></p> <p>4. <a href="https://www.financialexpress.com/industry/jiomart-adds-to-its-product-range-to-compete-with-e-commerce-majors-amazon-and-flipkart/2025299/">https://www.financialexpress.com/industry/jiomart-adds-to-its-product-range-to-compete-with-e-commerce-majors-amazon-and-flipkart/2025299/</a></p> <p>5. <a href="https://www.business-standard.com/article/companies/flipkart-starts-part-payment-method-to-reduce-cancellations-order-returns-120071600133_1.html">https://www.business-standard.com/article/companies/flipkart-starts-part-payment-method-to-reduce-cancellations-order-returns-120071600133_1.html</a></p>
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## 8. SESSION PLAN

Session number	Topic	Learning Outcomes
1	<b>Unit1</b> -Introduction to E-commerce fundamentals	Students will learn about basics and history of E-Commerce CO1 & CO2
2	E-commerce fundamentals and real life examples for basic understanding	Students will learn about basics and history of E-Commerce CO1 & CO2
3	Difference between traditional and e-commerce businesses	Students we able to utilise basic understanding of E-Commerce CO2 & CO3
4	Top e-commerce websites and brief history alongwith Trending businesses and benefits of E-commerce Concept	Students we able to utilise basic understanding of E-Commerce CO2 & CO3
5	Advantages of E-Business to Society, Consumers and Businesses	Students we able to apply basic understanding of E-Commerce CO2 & CO3
6	Advantages of E-Business to Society, Consumers and Businesses	Students we able to apply basic understanding of E-Commerce CO2 & CO3
7	Advantages of E-Business to Society, Consumers and Businesses	Students we able to utilise basic understanding of E-Commerce CO2 & CO3
8	Limitations of E-commerce (Technical)	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
9	Limitations of E-commerce (Non-Technical)	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
10	Discussion on real life examples and cases	Students we able to analyse basic working of E-Commerce CO1 & CO2



11	Need for a suitable infrastructure and its importance	Students we able to implement basic understanding of E-Commerce CO2 & CO3
12	Infrastructure for E-Commerce	Students we able to implement basic understanding of E-Commerce CO2 & CO3
13	<b>CES 1 – Case Study Analysis</b>	
14	<b>Unit 2-</b> Introduction to Business Models for e-commerce	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
15	Business-to-Consumer (B2C)	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
16	Consumer-to-Consumer (C2C)	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
17	Business-to Business (B2B)	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
18	Introduction to Electronic Data Interchange	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
19	Requirement of EDI	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
20	types of EDI	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
21	Advantages of EDI & Disadvantages of EDI	Students we able to utilise basic understanding of E-Commerce CO1 & CO2
22	<b>Unit 3-</b> Introduction to E-commerce Payment System	Students we able to analyse and apply basic understanding CO1 & CO2
23	Limitations of traditional payment system & requirement of e-payment system	Students we able to analyse and apply basic understanding CO1 & CO2
24	Internet payment systems - Credit card payment (e.g., SET protocol), , Net Banking	Students we able to analyse and apply basic understanding CO1 & CO2
25	Internet payment systems - E-cash, Echeque	Students we able to analyse and apply basic understanding CO1 & CO2
26	Internet payment systems - smart card, Electronic Funds Transfer	Students we able to analyse and apply basic understanding CO1 & CO2

27	Internet payment systems - Digital Token Based E-Payment Systems, Modern Payment Systems	Students we able to analyse and apply basic understanding CO1 & CO2
28	Internet payment systems - Steps for Electronic Payment, Payment Security	Students we able to analyse and apply basic understanding CO1 & CO2
29	<b>Unit 4 - Applications of E-Commerce:</b> E-commerce in banking, retailing,	Students we able to analyse and apply basic understanding CO1 & CO2
30	Applications of E-Commerce : online publishing, online marketing	Students we able to analyse and apply basic understanding CO1 & CO2
31	Applications of E-Commerce :e-advertising, e-branding	Students we able to analyse and apply basic understanding CO1 & CO2
32	Revision	
33	<b>CES 2 - Moodle Quiz</b>	
34	<b>Unit 5 - E-commerce Security :</b> Security issues, Privacy issues	Students we able to apply basic understanding of E-Commerce CO2 & CO3
35	Computer Security, security threats and forms, security tools	Students we able to apply basic understanding of E-Commerce CO2 & CO3
36	Concepts of Cryptography- encryption and decryption, public key encryption, private key Cryptography and Firewall	Students we able to apply basic understanding of E-Commerce CO2 & CO3
37	<b>Unit 6 - Implementation of E-Commerce with real life examples</b>	Students we able to apply basic understanding of E-Commerce CO2 & CO3
38	Known E-Commerce websites – Registration, Growth and its working with its trends for payment	Students we able to apply basic understanding of E-Commerce CO2 & CO3
39	Revision	
40	<b>CES 3- Class Test</b>	
41	Doubt session	

## 9. Contact Details:

Name of the Instructor:	<b>Ms. Tripti Tiwari</b>
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# **CES Parameters & helpful contents**

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## CES-1

### CASE STUDY ANALYSIS

(BASED ON SHARED READING MATERIAL & CLASSROOM DISCUSSION)

#### **1. E-commerce rules: The pushback begins**

*Updated: 22 Jul 2021,*

The entities said the new rules would be a major deterrent for the industry. In addition, they will lead to roadblocks for several small and medium enterprises (SMEs) trying to sell online as they recover from the impact of the pandemic

E-commerce companies and industry associations gave their recommendations to the government, calling for several changes to the proposed Consumer Protection (e-commerce) Rules, 2020, on Wednesday, the last day to submit their feedback.

The entities said the new rules would be a major deterrent for the industry. In addition, they will lead to roadblocks for several small and medium enterprises (SMEs) trying to sell online as they recover from the impact of the pandemic.

Reviewed by Mint newspaper agency, at least three documents submitted to the government by industry associations.

Several industry bodies, including the Internet and Mobile Association of India (IAMAI), Confederation of Indian Industry (CII), US India Strategic Partnership Forum, US-India Business Council, along with Amazon India and Walmart-owned Flipkart, sent their representations to the government, including the Prime Minister's Office.

In their representations, stakeholders argued that the definition of e-commerce proposed by the consumer affairs ministry is so broad that it includes offline establishments such as kiranas, which merely play a small part in the fulfilment process of online orders.

By widening the definition, the government might be risking forcing even smaller sellers to comply with the proposed e-commerce rules, increasing the compliance burden and affecting their ease of doing business, the stakeholders said.



*E-commerce firms suggested the government make sellers, instead of e-commerce entities, liable for operational issues.*

“The broad definition of e-commerce is still unclear, and proposed changes to rules are neither in favour of the consumers nor the sellers. Through the amendments, the government will make it

harder for smaller sellers to come online, adversely affecting consumer choice and increasing compliance burden, which may result in price hikes," said an e-commerce executive on condition of anonymity.

Industry stakeholders said the so-called fall-back liability on e-commerce companies for sellers on their platforms goes against the principles of the foreign direct investment (FDI) policy under Press Note 2, 2018, which already bans the platforms from exercising any control over sellers.

The representations also pointed out the overlaps in the proposed amendments to e-commerce rules with existing laws and guidelines, including competition regulations, draft data protection rules, Legal Metrology (Packaged Commodities Rules), 2011, Press Note 2, 2018. This, they said, will cause widespread confusion among e-commerce platforms on the final operational guidelines. CII, IMAI, Nasscom, Flipkart and Amazon India didn't respond to Mint's queries until press time.

Almost all industry associations and e-commerce players sought deletion of the proposed amendments to curb 'flash sales', fearing arbitrary enforcement to confusing rules, said two people aware of the discussions.

Further, e-commerce companies suggested the government make sellers, instead of e-commerce entities, liable for operational issues, including displaying invoice numbers, country of origin and details of importers on goods sold on the marketplace, the people said.

"The proposed amendments are a back-step for the digitization undertaken by the Indian economy. While the rules are clearly biased and unfavourable towards the online economy, it expects a small seller (with minor online operations) to undertake the same compliance burden as large marketplaces in the country. The government should bring in distinctions for these different grades of e-commerce operations and undertake fresh consultations to understand the challenges," said Vinod Kumar, president of the India SME Forum.

## **2. JioMart adds to its product range to compete with e-commerce majors Amazon and Flipkart**

Published: July 16, 2020 7:30 AM

Reliance Retail whose growth model is 'based on partnerships with small merchants and shopkeepers' has also 'successfully piloted' the JioMart grocery model with kirana partners.

India's retail market is set to become even more competitive as JioMart gears up to expand its offerings to cover electronics, fashion, pharmaceuticals and healthcare. The move will give consumers — already addicted to the products and service of e-commerce majors Amazon and Flipkart — even more choice.

JioMart has already rolled out pilots in 200 cities and claims to be servicing over 2,50,000 orders a day. Reliance Retail whose growth model is 'based on partnerships with small merchants and shopkeepers' has also 'successfully piloted' the JioMart grocery model with kirana partners.

JioMart will cover more cities, customers and expand to more categories in the coming years besides strengthening collaboration with more brands, businesses and entrepreneurs. Reliance Retail,



which has received strong interest from strategic and financial investors, will induct global partners in the next few quarters.

“This seamless connection will provide a huge boost to India’s consumption which in turn will strengthen country’s existing manufacturing capacity as well as enable new start-ups.. . and over time, India can be a large manufacturing hub for meeting our own growing consumption needs,” [Mukesh Ambani](#), chairman [RIL](#), said on Wednesday.

JioMart’s partnership with Facebook-owned [WhatsApp](#), that has a user base of more than 400 million in India, gives the company the much needed leverage to deepen its network of kirana stores and consumer reach. Analysts had earlier pointed out that JioMart had been facing some issues with getting customers and merchants. With WhatsApp on board, JioMart is now focussed on scaling its geographical reach and delivery capabilities. Merging the capabilities of kirana stores and Reliance Retail’s pan-India network of 12,000 stores — two-thirds of which are located in tier two, three and four towns — to service JioMart’s customers gives it an edge to fight behemoths Amazon and Walmart-backed Flipkart. RIL is also said to be in talks to acquire the retail businesses of Future Group that owns the Big Bazaar chain of stores.

The WhatsApp alliance could be a big advantage for JioMart and Reliance’s strength in distribution will further help it scale up the grocery business. Soon after the Jio-WhatsApp agreement, Amazon launched its ‘local shops on Amazon’ programme in the country on a wider scale to expand its network of sellers. Analysts say categories like e-tail are going to be shared by Reliance, Amazon and Flipkart. Arvind Singhal, CMD at Technopak believes that the market is huge and there is enough room for players to grow and co-exist.

“JioMart is fundamentally different as an idea and does not come in direct or indirect competition with Flipkart or Amazon — both are pure play online players and have got significant restrictions because of FDI policy which Reliance does not have,” Singhal said.

Earlier this week, Walmart led a \$1.2 billion investment in Flipkart to fuel the e-commerce firm’s growth. Jeff Bezos-led Amazon has committed to invest an incremental \$1 billion in India, taking its total commitment to \$6 billion.

### 3. Walmart pumps \$1.2 billion into Flipkart as competition heats up in e-commerce space

Updated: Jul 15, 2020

The funding also comes at a time when the Indian e-commerce space is gearing up for competition with the entry of JioMart that has the backing of Mark-Zuckerberg-led Facebook.

Walmart on Tuesday infused \$1.2 billion into its Indian subsidiary, Flipkart Group, which gives the e-commerce major a post-money valuation of \$24.9 billion. The investment round was also backed by the company’s existing stakeholders.



The funds will be released in two tranches during the financial year, Flipkart said in a statement on Tuesday.

The firm further said the fresh funds will be deployed to continue supporting the growth of its online marketplace as “India emerges from the Covid-19 pandemic”.

“Since Walmart’s initial investment in Flipkart, we have greatly expanded our offer through technology, partnerships, and new services. Today, we

lead in electronics and fashion, and are rapidly accelerating share in other general merchandise



categories and grocery, all while providing increasingly seamless payment and delivery options for our customers. We will continue innovating to bring the next 200 million Indian shoppers online,” Flipkart CEO Kalyan Krishnamurthy said.

US-based retailer Walmart acquired a controlling stake in Flipkart in a hefty \$16-billion deal in 2018, valuing the Bengaluru-based firm at \$21 billion.

The funding also comes at a time when the Indian e-commerce space is gearing up for competition with the entry of JioMart that has the backing of Mark-Zuckerberg-led Facebook. Earlier this year, the social media company partnered with Mukesh Ambani’s Reliance Jio in a \$5.7-billion deal, it’s biggest stake buy since its 2014 acquisition of WhatsApp.

Amazon, which is already the market leader in the e-commerce space along with Flipkart in January, said it will invest an incremental \$1 billion in the country taking its total commitments to \$6 billion.

“Flipkart continues to leverage its culture of innovation to accelerate growth and enable millions of customers, sellers, merchants and small businesses to prosper and be a part of India’s digital transformation,” Judith McKenna, president and CEO of Walmart International, said.

E-commerce companies have seen a surge in user traffic amid the pandemic as most consumers restricted movements and shifted to online shopping. Demand for products like electronic items, smartphones, kitchen appliances and casual wear saw an uptick as corporates took to working from home and virtual classrooms boomed, companies had said earlier. To meet the rise in demand, players like Amazon have ramped up hiring. Firms in the online food delivery space like Swiggy and Zomato quickly moved to delivering groceries to cash in on the new normal.

Flipkart claimed to have recently surpassed 1.5 billion visits per month. The firm said it reported a 45% growth in monthly active customers and 30% growth in transactions per customer for FY20. The company offers 150 million products across more than 80 categories.

#### **4. Flipkart starts part payment method to reduce cancellations, order returns**

Last Updated at July 16, 2020

Walmart-owned e-commerce firm says option would encourage pre-paid transactions and reduce cash on delivery

Flipkart has launched a new payment method that lets customers pay some amount for a product and the balance on delivery, aiming to reduce returns and cancellations.

The Walmart-owned e-commerce giant, in an email to sellers, said ‘Part-Payment’ would encourage pre-paid transactions. Customers can pay the remaining amount in cash when a product is delivered or either by online transaction. The rate card will remain the same for ‘part payment’ orders.

E-commerce websites allow customers pre-paid, post-paid (cash on delivery) or EMI (equated monthly instalment) as options to purchase products. Most customers choose cash on delivery (CoD), which results in higher units or GMV (gross merchandise value) but risks companies a higher risk of cancellations.



Flipkart told sellers 'Part-Payment' would help them get higher GMV growth and reduce cancellations. The company, which this week received a \$1.2-billion investment from Walmart, works with over 200,000 sellers and 250,000 small sellers such as artisans, weavers, and craftsmen.

Experts say that the COD method has been a major cause for fake buying and has led to higher cancellations and returns which has increased logistics costs for the e-commerce companies.

All India Online Vendors Association (AIOVA), an alliance of e-commerce sellers, said on Twitter that it had been advocating this method for years now. "Will other marketplaces follow this move?" said AIOVA on Twitter. It said this is a first step in making e-commerce entirely pre-paid like it is in the US and EU.

"This move can lead to 2-3 per cent reduction in prices for consumers as currently losses of such undelivered orders were factored as a cost," said AIOVA.

Flipkart recently surpassed 1.5 billion visits per month and reported 45 per cent growth in monthly active customers and 30 per cent growth in transactions per customer for FY20. It offers 150 million products across more than 80 categories. The firm had pioneered customer-centric services such as cash-on-delivery, no-cost EMI and easy returns.

## **CES-2**

**Moodle Quiz to be conducted as per schedule covering completed UNITs**

## **CES-3**

**Class Test to be conducted as per schedule covering complete Syllabus**

# Supportive Reading Material

Strictly for Internal Circulation at BVIMR only

## STUDY NOTES

### Unit-1

#### Introduction to E-Commerce

##### **Introduction**

The cutting edge for business today is Electronic Commerce (E-commerce). Most people think E-commerce means online shopping. But Web shopping is only a small part of the E-commerce picture. The term also refers to online stock, bond transactions, buying and downloading software without ever going to a store. In addition, E-commerce includes business-to-business connections that make purchasing easier for big corporations. While there is no one correct definition of E-commerce, it is generally described as a method of buying and selling products and services electronically. The main vehicles of E-commerce remain the Internet and the World Wide Web, but use of email, fax, and telephone orders are also prevalent.

##### **What is E-Commerce?**

Electronic commerce is the application of communication and information sharing technologies among trading partners to the pursuit of business objectives. E-Commerce can be defined as a modern business methodology that addresses the needs of organizations, merchants, and consumers to cut costs while improving the quality of goods and services and increasing the speed of service delivery. E-commerce is associated with the buying and selling of information, products and services via computer networks. Key element of e-commerce is information processing. The effects of e-commerce are already appearing in all areas of business, from customer service to new product design. It facilitates new types of information based business processes for reaching and interacting with customers – online advertising and marketing, online-order taking and on-line customer service etc. It can also reduce costs in managing orders and interacting with a wide range of suppliers and trading partners, areas that typically add significant overhead to the cost of products and services. Also E-commerce enables the formation of new types of information-based products such as interactive games, electronic books, and information-on demand that can be very profitable for content providers and useful for consumers. Virtual enterprises are business arrangements in which trading partners separated by geography and expertise are able to engage in complex joint business activities, as if they were a single enterprise. One example would be true supply chain integration, where planning and forecast data are transmitted quickly and accurately throughout a multi-tier supply chain. Another example would be non-competing suppliers with a common customer using E-commerce to allow that customer to do "one stop shopping" with the assurance that a single phone call will bring the right materials to the right location at the right time.

##### **Difference between E-commerce and E-Business**

**E-commerce** refers to financial transactions conducted via Internet technologies. Example: ordering a book online using your credit card.

**E-business** refers to a company or organization revamping its operations to benefit from Internet technologies. For example, making systematic changes to its sales order processing, computer/telemetry interchange systems, recruitment processes and so on.

e-business	e-commerce
Superset of e-commerce	Subset of e-business
Deals with all aspects of business and not limited to just business transactions	More about monetary transactions, buying & selling
Internal processes such as production, inventory management, product development, risk management, finance, etc., are also part of e-business	Focuses on the outward facing processes and not related to internal processes
Other aspects of business like contacting the customer on-line, educating him, providing services, and product related information, that all constitute e-business	Does not include other business aspects like in e-business

### Building Blocks in the infrastructure of E-Commerce applications

None of the applications would be possible without each of the building blocks in the infrastructure which are given as follows:

- Common business services, for facilitating the buying and selling process
- Messaging and information distribution, as a means of sending and retrieving information
- Multimedia content and network publishing, for creating a product and a means to communicate about it.
- The I-Way is the very foundation for providing the highway system along which all E-commerce must travel.

### Pillars supporting the E-Commerce applications

There are two pillars supporting all E-commerce applications and infrastructure. They are:

**Public policy** – To govern such issues as Universal access, privacy and information pricing

**Technical standards** – To dictate the nature of information publishing, user interfaces, and transport in the interest of compatibility across the entire network.

### E-Commerce Business Models / Types

E-commerce is not merely selling a T-shirt over the World Wide Web. It is much more than that and includes communication activities among trading organizations and within them. The prevailing E-commerce activities have been divided into 3 major categories:

#### Business - to - Business (B2B)

Website following B2B business model sells its product to an intermediate buyer who then sells the product to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to final customer who comes to buy the product at wholesaler's retail outlet.

#### Business - to - Consumer(B2C)

Website following B2C business model sells its product directly to a customer. A customer can view products shown on the website of business organization. The customer can choose a product and order the same. Website will send a notification to the business organization via email and organization will dispatch the product/goods to the customer.

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

Website following C2C business model helps consumer to sell their assets like residential property, cars, motorcycles etc. or rent a room by publishing their information on the website. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.

Apart from the 3 basic models we can also find various other types of E-Businesses in existence which are as follows:

- Consumer - to - Business (C2B)
- Business - to - Government (B2G)
- Government - to - Business (G2B)
- Government - to - Citizen (G2C)

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

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

### **Business - to - Government (B2G)**

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

### **Government - to - Business (G2B)**

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

### **Government - to - Citizen (G2C)**

Government uses G2C model website to approach citizen in general. Such websites support auctions of vehicles, machinery or any other material. Such website also provides services like registration for birth, marriage or death certificates. Main objectives of G2C website are to reduce average time for fulfilling people requests for various government services.

### **Technologies of E-Commerce**

While many technologies can fit within the definition of "Electronic commerce," the most important are:



- Electronic data interchange (EDI)
- Bar codes
- Electronic mail
- Internet
- World Wide Web
- Product data exchange
- Electronic forms

## **Electronic Data Interchange (EDI)**

EDI is the computer-to-computer exchange of structured business information in a standard electronic format. Information stored on one computer is translated by software programs into standard EDI format for transmission to one or more trading partners. The trading partners' computers, in turn, translate the information using software programs into a form they can understand.

## **Bar Codes**

Bar codes are used for automatic product identification by a computer. They are a rectangular pattern of lines of varying widths and spaces. Specific characters (e.g. numbers 0-9) are assigned unique patterns, thus creating a "font" which computers can recognize based on light reflected from a laser.

The most obvious example of bar codes is on consumer products such as packaged foods. These codes allow the products to be scanned at the check out counter. As the product is identified the price is entered in the cash register, while internal systems such as inventory and accounting are automatically updated.

The special value of a bar code is that objects can be identified at any point where a stationary or hand held laser scanner could be employed. Thus the technology carries tremendous potential to improve any process requiring tight control of material flow. Good examples would be shipping, inventory management, and work flow in discrete parts manufacturing.

## **Electronic Mail**

Messages composed by an individual and sent in digital form to other recipients via the Internet.

## **Internet**

The Internet is a decentralized global network of millions of diverse computers and computer networks. These networks can all "talk" to each other because they have agreed to use a common communications protocol called TCP/IP. The Internet is a tool for communications between people and businesses. The network is growing very, very fast and as more and more people are gaining access to the Internet, it is becoming more and more useful.

## **World Wide Web**

The World Wide Web is a collection of documents written and encoded with the Hypertext Markup Language (HTML). With the aid of a relatively small piece of software (called a "browser"), a user can ask for these documents and display them on the user's local computer, although the document can be on a computer on a totally different network elsewhere in the world. HTML documents (or "pages," as they are called) can contain many different kinds of information such as text, pictures,

video, sound, and pointers, which take users immediately to other web pages. Because Web pages are continually available through the Internet, these pointers may call up pages from anywhere in the world. It is this ability to jump from site to site that gave rise to the term "World Wide Web." Browsing the Web (or "surfing the Net") can be a fascinating activity, especially to people new to the Internet. The World Wide Web is by far the most heavily used application on the Internet.

## **Product Data Exchange**

Product data refers to any data that is needed to describe a product. Sometimes that data is in graphical form, as in the case of pictures, drawings and CAD files. In other cases the data may be character based (numbers and letters), as in the case of specifications, bills of material, manufacturing instructions, engineering change notices and test results.

Product data exchange differs from other types of business communications in two important ways. First, because graphics are involved users must contend with large computer files and with problems of compatibility between software applications. (The difficulty of exchanging CAD files from one system to another is legendary.) Second, version control very quickly gets very complicated. Product designs, even late in the development cycle, are subject to a great deal of change, and because manufacturing processes are involved, even small product changes can have major consequences for getting a product into production.

## **Electronic Forms**

Electronic forms is a technology that combines the familiarity of paper forms with the power of storing information in digital form. Imagine an ordinary paper form, a piece of paper with lines, boxes, check-off lists, and places for signatures. To the user an electronic form is simply a digital analogue of such a paper form, an image, which looks like a form but which appears on a computer screen and is filled out via mouse, and keyboard. Behind the screen, however, lie numerous functions that paper and pencil cannot provide. Those extra functions come about because the data from electronic forms are captured in digital form, thus allowing storage in data bases, automatic information routing, and integration into other applications.

## **ELECTRONIC SHOPPING CART**

An electronic shopping cart works the same way a shopping cart does in the physical world. As you browse through an online store, you can place products in your virtual shopping cart, which keeps track of the products you have placed in it. When you're ready to leave the store, you click a "check out" link that shows you what you've placed in your virtual shopping cart. You can usually remove items that you're no longer interested in purchasing and then enter your shipping and payment information to process your order.

## **Advantages & Disadvantages of E-Commerce**

### **Advantages of E-Commerce**

Electronic Commerce can offer both short term and long-term benefits to the companies. Not only can it open new markets, enabling you to reach new customers, but it can also make it easier and faster for you to do business with your existing customer base. Moving business practices, Such as ordering, invoicing and customer support, to network-based system can also reduce the paperwork involved in business-to-business transactions. When more of the information is digital, one can better focus on meeting your customer's needs. Tracking customer satisfaction, requesting more

customer feedback, and presenting custom solutions for the clients are just some of the opportunities that can stem from E-commerce. Advantages of E-Commerce are:

- **Time saving** – is the reason number one for using electronic commerce. People now have access to their money and what they need to buy from home and work all from a desktop computer.
- **Consumers have an access to a wider range of products** – company now can use internet sites as shop fronts, so consumers can browse, buy from many different sellers and making it easier to find exactly what they are looking for.
- **Allows small businesses to mix with the big business online** – with a relatively small cost, a new business can set its self up to conduct transactions online.
- **Provide benefits to suppliers of goods and services** – company now can target a wider variety of consumers even take the product or service international, allowing them a means of supplying their goods to places that were before unreachable.
- **Business is Open 24 x 7 x 364 7/8** – it works while you play or sleep. They are open for business every hour of the day, every day of the week, every week of the year. Your receptionist, greeter and front people are always working for you because they are your website. They do not complain about the long hours.
- **Messages spreading (world wide market space)** – advertising on the web can make a big or small firm's promotional message reach out to potential customers all over the world quickly and small cost as an online marketing strategy.
- **Help protect against frauds and theft losses** – electronic payments can be easier to monitor than payments are made by cheques.
- **Thinking Outside the Globe** – selling something made by someone else, shipped by yet another and the money handled by yet another is the heart of the advantages e commerce brings to the business world. You can even employ an international staff. Some work you may need done can be more effectively done by companies or even individuals in other countries.

#### Disadvantages of E-commerce:

- **Purchase to Delivery** – when making a purchase at a brick and mortar business, you get the product when you pay for it. On the web, there may be a time lag from purchase to actually being able to consume. The consumer will have to wait for delivery of physical goods.
- **Inability to Feel the Physical** – it is nearly impossible to sell things like furniture and tires online. Furniture is something people like to sit on and know the feel. Tires need to be installed once purchased. The old tires also need to be disposed of. In both instances, there is a need for real actions to fulfill the reason for the purchase. That's why things like food, jewelry, antiques etc. can never turn to E-commerce.
- **Trouble recruiting and retaining employees** – the company needs well-expert and skilled staff to keep up and create the ecommerce facilities of the company. Many companies favor to outsource their improvement and programming tasks to decrease labor costs.
- **Consumers feel less confident with their credit card numbers** – most of the consumers are still not confident in providing their credit card numbers for making payments on the website while shopping on the Internet.
- **Not every company can take the benefit** – some of the small companies may not be able to take the benefit of E-commerce for example the lack of expertise and lack of technology. The legal environment in which E-commerce is conducted is full of unclear and conflicting laws. It should be noted that mostly these disadvantages stem from the newness and rapidly growth of the technology.

## **E-commerce Infrastructure**

Some of the infrastructure components of e-commerce include telecommunications/network technologies (wireless/wire transmission), multimedia applications, web page development, browser, data mining, security, EDI, database management, web server maintenance, internet service provider, human computer interface, smart card devices etc.

E-business infrastructure refers to the combination of hardware such as servers and client PCs in an organization, the network used to link this hardware and the software applications used to deliver services to workers within the e-business and also to its partners and customers.

Infrastructure also includes the architecture of the networks, hardware and software and where it is located. Finally, infrastructure can also be considered to include the methods for publishing data and documents accessed through e-business applications. A key decision with managing this infrastructure is which elements are located within the company and which are managed externally as third-party managed applications, data servers and networks.

It is also important that the e-business infrastructure and the process of reviewing new technology investments be flexible enough to support changes required by the business to compete effectively. For example, for the media there are many new technologies being developed which were described from 2005 onwards as Web 2.0 and IPTV (television delivered over the broadband Internet).

The technology and infrastructure used to develop the E-commerce application is the key to its success.

The hardware and software must be selected in such a way that they can fulfill the needs of the E-commerce application.

### **1. Hardware:**

A Web server hardware platform is one of the major components of the Ecommerce infrastructure on which the performance of the whole E-commerce application depends.

While selecting Web server hardware, the software that will run on the server of the E-commerce transactions to be processed must be considered.

The amount of the storage capacity and the computing power required depend on the volume of the E-commerce transaction to be processed.

If the exact requirements are not known in advance, then the hardware configuration should be highly scalable so that they can be upgraded to meet the requirements.

## **E - Commerce Softwares**

Software is the main component that implements the E-commerce services and functionality. Software for E-commerce can be categorized in the following two types-

### **Web server software:**

Web server software is required in addition to the Web server operating system software.

It is used to implement some extra functionality such as security and identification and retrieval and sending of Web pages.

Web server software creates a Web log file that identifies things such as the URL of the visitor, the length of the visit and the search engine and the key words used to find the site.

Web server software includes website development tools such as HTML editor and Web page upload support.

### **E-commerce softwares:**

With the growth of E-commerce, many applications have emerged—for example, the electronic shopping cart that tracks the items selected for purchase and their costs.

A typical E-commerce software must support the following processes:

#### **Catalog management:**

It is required to deliver the customized content to the screen or the GUI used by the customer.

The software used for catalog management combines the different product data formats into a standard format for viewing, aggregating and interacting catalog data into a central store.

#### **Product configuration:**

The Web-based product configuration software allows the user to build the product to their specifications without the intervention of the salespeople.

For example, Dell Computers and CISCO systems use configuration software to sell build-to-order and network processes to their customers over the Internet.

#### **Shopping cart**

A model known as shopping cart is used by Ecommerce sites to track the items that are selected for purchase; the shopping cart allows customers to view all the items selected by them.

The customers can add new items and remove the previously selected items from the shopping cart.

#### **Transaction processing:**

E-commerce transaction processing is used to process the data received from the. Shopping cart and to calculate the total cost of the purchase.

E-commerce infrastructure requires a variety of hardware, software, and networks. • The key infrastructures that are needed to support EC applications are Internet (access components and networks), Web (Web servers and Web server support), software, electronic catalogs and Web page design.

An organization's first venture into EC - the creation of a presence on the Internet - the development of a Website

- E-commerce transactions must be executable worldwide, without any delay or mistake.
- On a very basic website, an organization provides information about itself, its products and its services.
- A more developed Web site will allow some interactions, such as sending an e-mail to request for the information or schedule an appointment, or ordering.

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

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

1. Application services.
2. Brokerage services, data or transaction management.
3. Interface and support layers.
4. Secure messaging, security and electronic document interchange.
5. Middleware and structured document interchange, and
6. Network infrastructure and the basic communication services.

### **1. Application services**

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

### **2. Information Brokerage and Management Layer**

This layer is rapidly becoming necessary in dealing with the voluminous amounts of information on the networks. This layer works as an intermediary who provides service integration between customers and information providers, given some constraint such as low price, fast services or profit maximization for a client. For example, a person wants to go to USA from Bangladesh. The person checks the sites of various airlines for the low-price ticket with the best available service. For this he must know the URLs of all the sites. Secondly, to search the services and the best prices, he also has to feed the details of the journey again and again on different sites. If there is a site that can work as information broker and can arrange the ticket as per the need of the person, it will save the lot of time and efforts of the person. This is just one example of how information brokerages can add value.



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

### **3. Interface and Support Services**

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

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

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

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

### **4 Secure Messaging Layer**

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

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

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

### **5 Middleware services**

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

### **6 Network Infrastructure**

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

## **Internet and world wide web**

The terms Internet and World Wide Web are often used without much distinction. However, the two terms do not mean the same thing. The Internet is a global system of interconnected computer networks. In contrast, the World Wide Web is a global collection of documents and other resources, linked by hyperlinks and URIs.

World Wide Web, which is also known as a Web, is a collection of websites or web pages stored in web servers and connected to local computers through the internet. These websites contain text pages, digital images, audios, videos, etc. Users can access the content of these sites from any part of the world over the internet using their devices such as computers, laptops, cell phones, etc. The WWW, along with internet, enables the retrieval and display of text and media to your device.

The building blocks of the Web are web pages which are formatted in HTML and connected by links called "hypertext" or hyperlinks and accessed by HTTP. These links are electronic connections that link related pieces of information so that users can access the desired information quickly. Hypertext offers the advantage to select a word or phrase from text and thus to access other pages that provide additional information related to that word or phrase.

A web page is given an online address called a Uniform Resource Locator (URL). A particular collection of web pages that belong to a specific URL is called a website, e.g., [www.facebook.com](http://www.facebook.com), [www.google.com](http://www.google.com), etc. So, the World Wide Web is like a huge electronic book whose pages are stored on multiple servers across the world.

Small websites store all of their WebPages on a single server, but big websites or organizations place their WebPages on different servers in different countries so that when users of a country search their site they could get the information quickly from the nearest server.

So, the web provides a communication platform for users to retrieve and exchange information over the internet. Unlike a book, where we move from one page to another in a sequence, on World Wide Web we follow a web of hypertext links to visit a web page and from that web page to move to other web pages. You need a browser, which is installed on your computer, to access the Web.

## **Difference between World Wide Web and Internet:**

Some people use the terms 'internet' and 'World Wide Web' interchangeably. They think they are the same thing, but it is not so. Internet is entirely different from WWW. It is a worldwide network of devices like computers, laptops, tablets, etc. It enables users to send emails to other users and chat with them online. For example, when you send an email or chatting with someone online, you are using the internet.

## **What is World Wide Web**

But, when you have opened a website like google.com for information, you are using the World Wide Web; a network of servers over the internet. You request a webpage from your computer using a browser, and the server renders that page to your browser. Your computer is called a client who runs a program (web browser), and asks the other computer (server) for the information it needs.

### **History of the World Wide Web:**

#### **What is World Wide Web**

The World Wide Web was invented by a British scientist, Tim Berners-Lee in 1989. He was working at CERN at that time. Originally, it was developed by him to fulfill the need of automated information sharing between scientists across the world, so that they could easily share the data and results of their experiments and studies with each other.

CERN, where Tim Berners worked, is a community of more than 1700 scientists from more than 100 countries. These scientists spend some time on CERN site, and rest of the time they work at their universities and national laboratories in their home countries, so there was a need for reliable communication tools so that they can exchange information.

Internet and Hypertext were available at this time, but no one thought how to use the internet to link or share one document to another. Tim focused on three main technologies that could make computers understand each other, HTML, URL, and HTTP. So, the objective behind the invention of WWW was to combine recent computer technologies, data networks, and hypertext into a user-friendly and effective global information system.

#### **How the Invention Started:**

In March 1989, Tim Berners-Lee took the initiative towards the invention of WWW and wrote the first proposal for the World Wide Web. Later, he wrote another proposal in May 1990. After a few months, in November 1990, along with Robert Cailliau, it was formalized as a management proposal. This proposal had outlined the key concepts and defined terminology related to the Web. In this document, there was a description of "hypertext project" called World Wide Web in which a web of hypertext documents could be viewed by browsers. His proposal included the three main technologies (HTML, URL, and HTTP).

In 1990, Tim Berners-Lee was able to run the first Web server and browser at CERN to demonstrate his ideas. He used a NeXT computer to develop the code for his Web server and put a note on the computer "The machine is a server. Do Not Power It DOWN!!" So that it was not switched off accidentally by someone.

In 1991, Tim created the world's first website and Web Server. Its address was info.cern.ch, and it was running at CERN on the NeXT computer. Furthermore, the first web page address was <http://info.cern.ch/hypertext/WWW/TheProject.html>. This page had links to the information

related to the WWW project, and about the Web servers, hypertext description, and information for creating a Web server.

### **The Web Grows:**

NeXT computer platform was accessible by a few users. Later, the development of 'line-mode' browser, which could run on any system, started. In 1991, Berners-Lee introduced his WWW software with 'line-mode' browser, Web server software and a library for developers.

In March 1991, it was available to colleagues who were using CERN computers. After a few months, in August 1991, he introduced the WWW software on internet newsgroups, and it generated interest in the project across the world. Graphic interface for the internet, first introduced to the public on 6 August 1991 by Tim Berners-Lee. On 23 August 1991, it was available to everyone.

### **Becoming Global:**

The first Web server came online in December 1991 in the United States. At this time, there were only two types of browsers; the original development version which was available only on NeXT machines and the 'line-mode' browser which was easy to install and run on any platform but was less user-friendly and had limited power.

For further improvement, Berners-Lee asked other developers via the internet to contribute to its development. Many developers wrote browsers for the X-Window System. The first web server, outside Europe, was introduced at Standard University in the United States in 1991. In the same year, there were only ten known web servers across the world.

Later at the beginning of 1993, the National Center for Supercomputing Applications (NCSA) introduced the first version of its Mosaic browser. It ran in the X Window System environment. Later, the NCSA released versions for the PC and Macintosh environments. With the introduction of user-friendly browsers on these computers, the WWW started spreading tremendously across the world.

Eventually, the European Commission approved its first web project in the same year with CERN as one of its partners. In April 1993, CERN made the source code of WWW available on a royalty-free basis and thus made it free software. Royalty-free means one has the right to use copyright material or intellectual property without paying any royalty or license fee. Thus, CERN allowed people to use the code and web protocol for free. The technologies that were developed to make the WWW became an open source to allow people to use them for free. Eventually, people started creating websites for online businesses, to provide information and other similar purposes.

At the end of 1993, there were more than 500 web servers, and the WWW has 1% of the total internet traffic. In May 1994, the First International World Wide Web conference was held at CERN and was attended by around 400 users and developers and popularly known as the "Woodstock of the Web." In the same year, the telecommunication companies started providing internet access, and people have access to WWW available at their homes.

In the same year, one more conference was held in the United States, which was attended by over 1000 people. It was organized by the NCSA and the newly formed International WWW Conference Committee (IW3C2). At the end of this year (1994), the World Wide Web had around 10000

servers and 10 million users. The technology was continuously improved to fulfill growing needs and security, and e-commerce tools were decided to be added soon.

### **Open standards:**

The main objective was to keep the Web an open standard for all rather than a proprietary system. Accordingly, CERN sent a proposal to the Commission of the European Union under the ESPRIT program "WebCore." This project's objective was to form an international consortium in collaboration with Massachusetts Institute of Technology (MIT), the US. In 1994, Berners-Lee left CERN and joined MIT and established the International World Wide Web Consortium (W3C) and a new European partner was needed for W3C.

The European Commission approached the French National Institute for Research in Computer Science and Controls (INRIA), to substitute the CERN's role. Eventually, in April 1995, INRIA became the first European W3C host and in 1996 Keio University of Japan became another host in Asia.

In 2003, ERCIM (European Research Consortium in Informatics and Mathematics) replaced INRIA for the role of European W3C Host. Beihang University was announced as the fourth Host by W3C in 2013. In September 2018, there were over 400 member organizations around the world.

Since its inception, the Web has changed a lot and is still changing today. Search engines have become more advanced at reading, understanding, and processing information. They can easily find the information requested by users and can even provide other relevant information that might interest users.

### **Basics of Internet**

#### **THE ROLE OF THE INTERNET IN E-COMMERCE**

The Internet originated in the form of ARPANET, the original US government sponsored network in 1960s. Thereafter the hardware and the underlying network started to grow and hence the number of users of the Internet grows dramatically. As the bandwidth increases and higher speed network access reaches consumers, the adoption of e-commerce becomes a natural process. As the technology becomes easy to use, accessible and convenient, it is easier for people to jump into the bandwagon of e-commerce. Thus it becomes imperative to make the technologies accessible to people. As the research and development in e-commerce has brought a number of advancements in the quality of hardware and software, the process of reaching out to the people equally make rapid advancement. The Web allows computer users to locate and view multimedia-based documents (i.e., documents with text, graphics, animations, audios and/or videos) on almost any subject today. The Internet and the Web will surely be listed among the most important and profound creations of human kind. In the past, most computer applications ran on stand-alone computers. Today's applications can be written to communicate among the world's hundreds of millions of computers. The Internet mixes computing and communication technologies. It makes our work easier and allows information instantly and conveniently accessible worldwide. It makes it possible for individuals and small businesses to get worldwide exposure. It is changing the nature of the way business is being done. Researchers can be made instantly aware of the latest technological breakthroughs worldwide.

### **What is the Internet?**

The Internet is a global network of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information, communicate with anyone else in the world, and do much more.

You can do all of this by connecting a computer to the Internet, which is also called going online. When someone says a computer is online, it's just another way of saying it's connected to the Internet.

### **What is the Web?**

The World Wide Web—usually called the Web for short—is a collection of different websites you can access through the Internet. A website is made up of related text, images, and other resources. Websites can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers.

The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site

Once you are connected to the Internet, you can access and view websites using a type of application called a web browser. Just keep in mind that the web browser itself is not the Internet; it only displays websites that are stored on the Internet.

### **How does the Internet work?**

At this point you may be wondering, how does the Internet work? The exact answer is complicated and would take a while to explain. Instead, let's look at some of the most important things you should know.

It's important to realize that the Internet is a global network of physical cables, which can include copper telephone wires, TV cables, and fiber optic cables. Even wireless connections like Wi-Fi and 3G/4G rely on these physical cables to access the Internet.

When you visit a website, your computer sends a request over these wires to a server. A server is where websites are stored, and it works a lot like your computer's hard drive. Once the request arrives, the server retrieves the website and sends the correct data back to your computer.

Modern electronic commerce typically uses the World Wide Web at least at one point in the transaction's life-cycle, although it may encompass a wider range of technologies such as e-mail, mobile devices, social media, and telephones as well.

## **Internet components**

### **1. URL**

A Uniform Resource Locator, or URL is the address of a document you'll find on the WWW.

The elements in a URL: Protocol://server's address/filename

- Example: <http://www.google.com/index.html>

To get to a web page, you can type the URL (Uniform Resource Locator) in a browser. The URL, also known as the web address, tells the browser exactly where to find the page. However, most



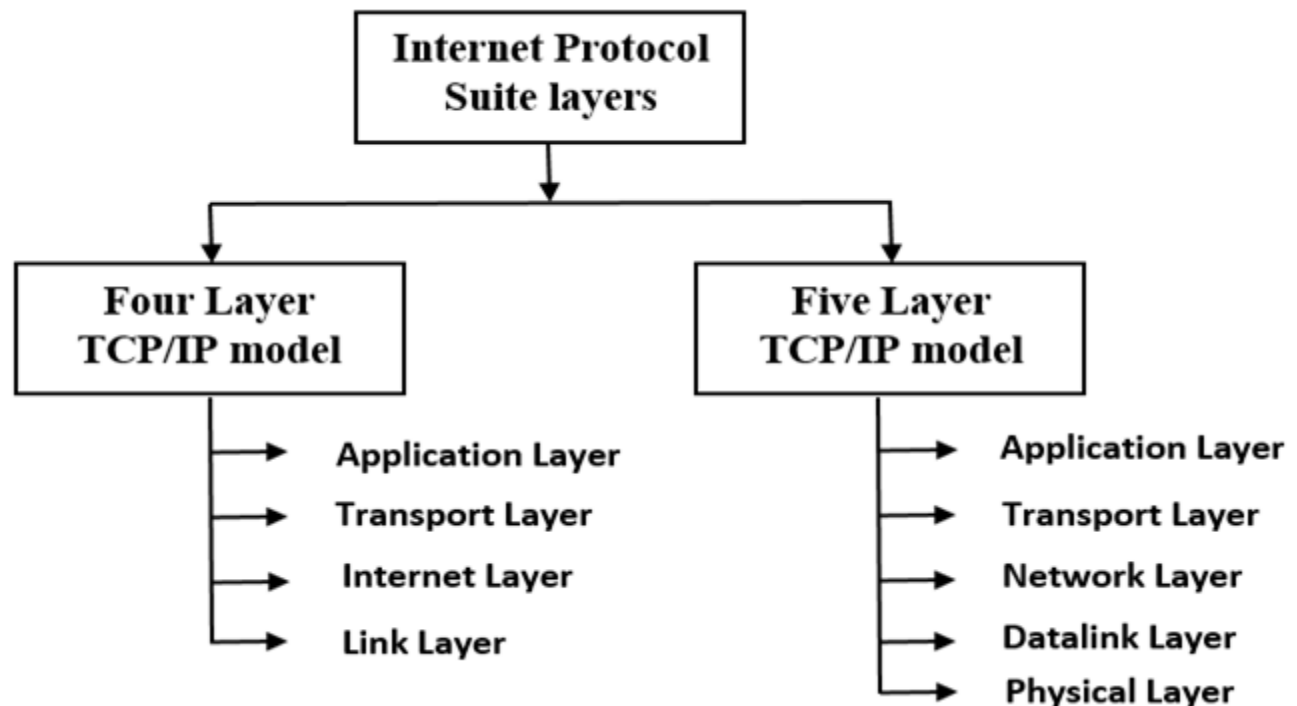
of the time, people get to a web page by following a link from a different page or by searching for the page with a search engine.

## 2. Internet Protocols

Internet Protocol (IP) is the principal set (or communications protocol) of digital message formats and rules for exchanging messages between computers across a single network or a series of inter-connected networks, using the Internet Protocol Suite (often referred to as TCP/IP).

### Internet Protocol Suite Layers

The TCP/IP model classified into two types they are four-layer TCP/IP model and five TCP/IP models. The layer numbers start from the bottom and go up. The classification of the TCP/IP model shown in the below figure



## 3. HTTP

**a) Application Layer:** It is the fourth layer in the TCP/IP model. The application layer has a wide variety of application protocols. Some examples of application protocols are HTTP, Telnet, DNS, SNMP, and DHCP.

**HTTP:** The standard form of HTTP is the HyperText Transfer Protocol, which provides the World Wide Web (WWW.Com) services.

**Telnet:** The Telnet is used for remote access for a computer.

**DNS:** The standard form of the DNS is the Domain Name System, it is a distributed service that used for translate domain names and IP addresses.

**SNMP:** The standard form of SNP is the Simple Network Management Protocol. It is used for managing network devices locally or remotely.

**DHCP:** The standard form of DHCP is the Dynamic Host Configuration Protocol, which is used for automating the configuration network interfaces.

## 4. ISP

An Internet service provider (ISP) is an organization that provides access to the Internet. Internet service providers can be either community-owned and non-profit, or privately owned and for-profit.

Access ISPs directly connect clients to the Internet using copper wires, wireless or connections. Hosting ISPs lease server space for smaller businesses and other people (colocation). Transit ISPs provide large amounts of bandwidth for connecting hosting ISPs to access ISPs.

### **Dial-up Internet access**

This is the oldest method of providing access to the Internet. It uses a telephone line to perform a modem-to-modem connection. For that purpose, the user's computer is attached to a telephone line enabled modem device, which dials into the node of the ISP and starts transferring data between the servers that store websites the user wants to see and their Internet connected device.

### **DSL**

DSL, short for 'digital subscriber loop' or 'digital subscriber line', is an advanced version of the dial-up Internet access method. In contrast to dial-up, DSL uses high frequency to execute a connection over the local telephone network.

### **Cable Internet**

The cable Internet is among the most preferred methods for providing residential Internet access. Technically speaking, it represents a broadband Internet access method, using the high-bandwidth cable television network to transmit data between the global network and the households.

### **Wireless Broadband (WiBB)**

This is a new-generation broadband Internet access technology, allowing the delivery of high-speed wireless Internet within a large area. Wireless broadband ISPs (WISPs) ensure connection speeds that come close to the wired broadband speeds provided by DSL and cable ISPs.

### **Wi-Fi Internet**

Wi-Fi (from Wireless Fidelity) has become one of the most widely distributed Internet access methods, with the growing usage of portable computers and Internet enabled mobile devices, such as smart phones, PDAs, game consoles, etc.

### **ISDN**

Another online data transmission method worth considering is ISDN or the Integrated Services Digital Network. ISDN represents a telephone system network, integrating a high-quality digital transmission of voice and data over the ordinary phone line

### **Ethernet**

Another Internet access type worth mentioning is Ethernet - the most widespread wired LAN (local area network) technology, also used in wireless LANs. The Ethernet technology may ensure various speed levels.

## 5. Types of ISP's

Internet Service Providers (ISP's), which first began to emerge in the late 1980s and early 1990s, are the businesses and organizations that provide users with Internet access and related services. These providers connect customers to customers of other service providers by way of networks. Often, Internet Service Providers (also called Internet Access Providers) are companies that provide telecommunications services including data communications access and telephone connection. The majority of telephone companies now function as Internet Access Providers as well. ISP's may be commercial, non-profit, privately owned or community- owned.

### Types of ISPs

A) Access ISPs — Employ a variety of technologies to facilitate consumers' connection to their network. These technologies may include broadband or dialup. Always-on types of broadband connections comprise cable, fiber optic service (FiOS), DSL (Digital Subscriber Line) and satellite. A number of access providers also provide email and hosting services.

B) Mailbox ISPs — Offer email mailbox hosting services and email servers to send, receive and store email. Many mailbox ISPs are also access providers. Hosting ISPs — Offer email, File Transfer Protocol (FTP), web-hosting services, virtual machines, clouds and physical servers.

C) Transit ISPs — Provide large amounts of bandwidth needed to connect hosting ISPs and access ISPs together.

D) Virtual ISPs (VISIP) — Purchase services from other ISPs to allow customers Internet access. Free ISPs (free nets) – Provide service free of charge and often display advertisements while users are connected.

Examples of ISPs • MTN • Airtel • UTL • Infocom • Smile • Roke Telecom • etc

Factors to consider while choosing ISP • Bandwidth (speed) • Cost (setup and service fee) • Availability (reach) • Reliability (down time) • Convenience (mobility, etc)

Services of ISPs • Internet Access • Domain Name Registration • Domain Hosting • Dial-up Access • Leased Line Access

### Types of link to ISP

**1. Wireless Radio frequency** bands are used in place of telephone or cable networks. One of the greatest advantages of wireless Internet connections is the “always-on” connection that can be accessed from any location that falls within network coverage. Wireless connections are made possible through the use of a modem, which picks up Internet signals and sends them to other devices.

**2. Mobile Phones** Many cell phone and smart phone providers offer voice plans with Internet access. Mobile Internet connections provide good speeds and allow you to access the Internet on the go.

**3. Hotspots** Hotspots are sites that offer Internet access over a wireless local area network (WLAN) by way of a router that then connects to an Internet service provider. Hotspots utilize Wi-Fi technology, which allows electronic devices to connect to the Internet or exchange data wirelessly through radio waves.

**4. Broadband** This high-speed Internet connection is provided through either cable or telephone companies. One of the fastest options available, broadband Internet uses multiple data channels to send large quantities of information. The term broadband is shorthand for broad bandwidth. Broadband Internet connections such as DSL (Digital Subscriber Line) and cable are considered high-bandwidth connections.

**5. Satellite** • In certain areas where broadband connection is not yet offered, a satellite Internet option may be available. Like wireless access, satellite connection utilizes a modem.

## **6. Domain Name**

Domain name, often referred to as “web address”, is the address that people type into a browser address bar to find your website. A registered domain name is unique to you and can’t be used by anyone else, as it functions on the Internet in a similar way like a street address in the physical world.

A domain name is written as a series of labels, separated by dots. An example is server.example.com. The rightmost label, com determines the top level domain and the other labels specify subdomains. Thus, server is a subdomain of the example.com domain and example is a subdomain of the com domain.

Another terminology used is parent domain and child domain. A domain name can have at most 127 different labels (or levels) and each label can be at most 63 characters. However, the total number of characters allowed in a domain name is 253. The labels are case insensitive, so example.com is the same as EXAMPLE.COM and any mixing of uppercase and lowercase letters.

There is sometimes confusion between hostnames and domain names. Sometimes a hostname is also a domain name, but sometimes a hostname is not a domain name and vice versa. A hostname is a name of a computer, or another device, that is connected to a network. For internal networks this is usually just a simple string, like server. A domain name does not necessarily have to correspond to a device but is instead a part of a hierarchy. It can represent a device, but it can also represent a resource, e.g., a public key used in DKIM. It can also be just a separator used to administer a set of computers. As an example, server.example.com is a domain name, but it is also a hostname if it has an IP address. Just taking the first part, server, can be the hostname on some network, but it is not an Internet hostname. The second part, example.com is a domain name, but not necessarily a host name since it may not correspond to a device.

**A Fully Qualified Domain Name (FQDN)** is a domain name that unambiguously specifies a domain name. This means that all labels are specified, including the root label which is empty. Thus, a FQDN always ends with a dot.

The DNS structure is a hierarchical structure. It can be viewed as a tree with a root node. The complete tree is called the Domain Name Space, and each node represents a domain name. This hierarchy can be compared to a file system, which also has a root and can be viewed as a tree. However, the domain name is written differently from the search path, since it starts with the child nodes and ends with the parent node. Each node in the tree represents a label in the domain name. The tree has only one root node, but in practice there are in total 13 root nodes spread around the world. The number of root DNS servers is more since some root 2 nodes correspond to many physical servers.

An authoritative DNS server is a server that is responsible for a particular domain. This server can in turn delegate the responsibility for subdomains to other DNS servers. These are then authoritative for this subdomain. This delegation can continue in several steps. The part of the domain name space that one server is authoritative for is called a zone. This hierarchy relies on the fact that a parent knows the name of the authoritative DNS server for all its children. The DNS server does not only store information about the mapping between IP addresses and hostnames, called A-records. It also stores e.g., the IP address of email servers that are responsible for accepting emails to that domain, called MX-records.

The Internet Corporation for Assigned Numbers and Names (ICANN) is authoritative for the root domain. ICANN delegates authority of Top Level Domains TLDs. There are two types of TLDs, namely generic top level domains (gTLD) such as .com, .edu and .org and country code top level domains (ccTLD) such as .se, .uk, .dk and .nu. A special type of gTLDs are the sponsored top level

domains (sTLDs) such as .museum and .travel. These cannot be registered by anyone, which in general is the case with gTLDs.

An authoritative name server is either a master or a slave. A master DNS server has local access to the zone file, i.e., the information that it is authoritative for. A slave receives the data from a master server through a zone transfer over a network. Both are authoritative for a zone, but the configuration is done

only at the primary master. Several possible configurations exist and the best configuration is situation dependent. It is of course possible to have several slaves for one zone for increased redundancy. It is also possible to have several masters, provided that the zone files are kept synchronized in some way. In that case, one is the primary master. One server can serve as master for one zone and slave for another zone. For security, the master DNS server can be hidden. By allowing only one slave to know of its existence, this slave can be updated through zone transfers and other slaves can be updated using zone transfers from that slave, regarding it as a master. Then, only slaves are known to the public and security critical information on the master server is more protected. One situation where this can be attractive is when DNSSEC is used.

The terminology primary and secondary DNS server was replaced by master and slave in BIND 8.x, but can still be seen in the literature. Things get more confusing due to the term primary master, which should not be confused with primary as historically used. A resource record is a piece of information stored on the authoritative DNS Server.

## **7. Types of domain name**

### **TLD - Top Level Domains**

These are at the highest level in the DNS structure of the Internet. There are several different types of TLD's, being:

### **ccTLD - country code Top Level Domains**

Two letter domains established for geographical locations; for example; .au signifies Australia. When originally designated, usually only residents of a country could register their corresponding ccTLD; but over the years quite a few countries have allowed parties outside their shores to register website names. An example of this is Tuvalu (.tv).

In the case of .au domain names, strict rules are still in place (and that's a good thing). For example, .com.au registrants must still be Australians or have registered business interests in Australia. The registration eligibility criteria for au names has meant .au is still strongly associated with Australia and has fostered a great deal of trust and confidence among local and even overseas online shoppers.

### **gTLD - generic Top Level Domain**

The best known generic TLD's include .com, .net, .biz, .org and .info - these can be registered by anyone, anywhere in the world. However, some of the new gTLD's more recently released have various restrictions.

### **IDN ccTLD - internationalised country code top-level domains**

A top-level name with a specially encoded format that allows it to be displayed in a non-Latin character set (i.e. special characters).

Below the TLD's are various other levels:

#### **Second level**

Directly below a TLD in the DNS hierarchy, e.g. .com.au

#### **Third level**

Directly below a second level in the DNS hierarchy. e.g. domainregistration.com.au

The difference between second and third level can be a little confusing. For example, hotmail.com is considered a second level domain, but hotmail.com.au would be classed as a third level.

#### **Subdomain**

Part of a higher ranked domain name in DNS hierarchy; e.g. example.domainregistration.com.au.

Some services offer subdomain "registration" - but this usually isn't ideal for businesses and should probably be avoided for establishing a commercial website as the registrant of the upper hierarchy name has control over the address. Having your own name can also help with credibility.

### **Other Domain Name Types**

While the above-mentioned domain name categories are the most frequent, there are other variations that you can run into.

### **Second-Level Domains**

You've probably seen these domain names before. We're talking about a domain that sits directly below a top-level domain name. We're not going to get too technical here because it's easier to show with examples, particularly when it comes to country codes.

For example, British companies occasionally use .co.uk instead of .com, and it's a perfect example of a second-level domain. Another second-level domain is .gov.uk, which is often used by governmental institutions, and .ac.uk, which is used by academic institutions and universities.

### **Subdomains**

Subdomains are useful because they don't require webmasters to purchase an additional domain name to create divisions within their site. Instead, they're able to create a subdomain that effectively points to a specific directory on the server. This can be super useful for campaign sites and other types of web content that should be kept separate from the main site.

For example, Facebook uses developers.facebook.com to provide specific information for web and app developers who want to use the Facebook API. Another great example is support.google.com

### **Free Domains**

There are also free domain names that you can get from different website builders such as WordPress.com, Squarespace, Weebly, etc.

These are similar to subdomains as they use the name of the website in your personal domain. For example, rather than having businessbooks.com it would be businessbooks.wordpress.com or businessbooks.squarespace.com.

## **Mobile commerce and Technologies**

### **Future trends of E-commerce**

**Mobile optimized:** What we can envisage is there will be an improvement in mobile shopping experiences. It was first seen that sites were created that would run decently on mobiles. Now, it is anticipated that online store owners will be trying to build sites that positively run on smartphones and tablets.

**Wearable devices:** Many products such as Google Glasses, smartwatches, and other wearable devices though have not taken off in full swing are sure to enter the market in the future with greater momentum.

When these devices become increasingly popular, it will be seen that retailers, as well as e-commerce stores, will shower discounts, promotions, offers, and updates to their customers through these wearable devices.

**Personalized ads:** Prospective customers have been served personalized ads by online stores for years. It will be also seen that storekeepers put forth more attempts to offer a progressively significant personalization to clients when clients become increasingly comfortable with imparting some personal information to brands and confided in online stores.



**Local marketing and branding:** As bigger E-commerce sites offer more up to date offices and highlight and evaluate better approaches for drawing in clients, smaller stores will go to a neighbourhood base to survive. Smaller online stores will use SEO to target clients in a constrained geographic territory and consolidate it with online networking commitment to customize relations with nearby clients. Their marketing and promoting technique will spin around focuses that separate them from larger sellers.

**Marketing automation:** Most often online customers browse around for quite a while and leave the store without purchasing. Such customers can be converted into paying customers with the help of customized and targeted marketing. The pattern of using a solution like marketing automation will keep on rising by the day. Automated lead nurturing, remarketing, email personalization and analytics will help small online store owners convert more clients.

**MOBILE COMMERCE (M-COMMERCE)** Rarely has a new area of business been heralded with such enthusiasm as "mobile commerce", that is the conduct of business and services over portable, wireless devices. Due to the astronomical growth of the Internet users, maturation of the Internet technologies, realization of the Internet's capabilities, the power of electronic commerce, and the promising advancement of wireless communication technologies and devices, mobile commerce has rapidly attained the business forefront. An m-commerce application can be B2B, B2C or any other of the classifications available with e-commerce world. M-commerce, although not fully mature, has the potential to make it more convenient for consumers to spend money and purchase goods and services. Since wireless devices travel with the consumer, the ability or perhaps temptation to purchase goods and services is always present. This is clearly a technique that can be used to raise revenue. Also, the successful future of m-commerce depends on the power of the underlying technology drivers and the attractiveness of m-commerce applications

### **M-commerce in India**

In the contemporary times, mobile commerce or m-commerce is getting a huge attention of academicians and researchers and has become a buzzword in India. With recent developments happening in wireless and mobile technologies, mcommerce is expected to change the business landscape. With increasing number of mobile subscribers, India is now second largest mobile cellular market, next to China only. Hence, opens up a huge scope for business players to step in to this arena.

Mobile Commerce or m-commerce can be referred as a wireless electronic commerce in which user can be involved in any kind of transaction including buying and selling of goods, seeking services, transacting and transfer of money over mobile devices using wireless internet. 2014 had been remarkable year for Indian e-commerce Industry and huge investments were made into mobile space by notable and key market players which include Amazon, Flipkart, Snapdeal, Myntra and Paytm. With Rapidly growing mobile subscribers and mobile internet users, India is likely to overtake USA in terms of Internet users in very short span of time. Currently India holds third largest internet user base in world, which will increase over the time.

In India, rapidly growing Smartphone market is playing significant role in m-commerce which offers huge potential and is emerging arena in business landscape.

### **Wireless Technologies**

Just as the TCP/IP and the general purpose Web browsers are being the current principal drivers of Internet growth and this in turn makes disparate devices to connect themselves and communicate and interoperate. Similar protocols, technologies and software will play a very important role

in heterogeneous wireless devices to interoperate without any complexity. In the recent past, a common communications technology and uniform interface standard for presenting and delivering several distinct wireless services on wireless devices - Wireless Application Protocol (WAP) have emerged. The WAP specifications include a micro-browser, scripting language just like JavaScript, access functions and layered communication specifications for sessions, transport and security. These specifications enable interface-independent and interoperable applications. Many of the wireless device manufacturers, service and infrastructure providers have started to adopt the WAP standard<sup>23</sup>. The transmission rate of Current access technologies (2G), such as TDMA, CDMA and GSM, is dramatically slower (between 10 and 20 Kbps) than the dial-up rates of desktop PCs connected to the Internet. 2G technology has steadily improved, with increased bandwidth, packet routing and the introduction of multimedia. The present state of mobile wireless communications is often referred to as 2.5G. It is believed that by the year 2003, 3G wireless technology will be available for use. This, in addition to higher bandwidth rates, can take the transmission speed up to 2 Mbps. 3G is expected to facilitate: enhanced multimedia (voice, data, video, and remote control) transmission, usability on all popular modes (cellular telephone, e-mail, paging, fax, videoconferencing and Web browsing), routing flexibility (repeater, satellite, LAN) and operation at approximately 2 GHz transmit and receive frequencies.

Mobile commerce (M-commerce) is the buying and selling of goods and services through wireless technology. Hand held devices such as cellular telephones and personal digital assistants (PDAs) are the common means adopted. As content delivery over wireless devices becomes faster, more secure, and scalable, some believe that m-commerce will surpass wire based e-business as the method of choice for digital commerce transactions. M-commerce is quite popular in financial services including mobile banking. Customers are using their mobile phones to access their accounts and pay their bills. The customer is also using this facility for utility services, information services and entertainment. Mobile commerce (M-commerce) has picked up in the recent years with mobile penetration rate increasing manifold. Such penetration rate has happened because of availability of technology that provides for the faster transfer of data on mobile networks, standardization of protocols and the very personal nature of mobile telephone. M-commerce allows integration of the traditional e-business models on the mobile networks. Wireless network technology is used to enable the extension of existing e-business models to service the mobile work force and consumer of the future. Touted as the next generation of e-business, m-commerce enables users to access the Internet without needing to find a place to plug in. It is one of the fastest growing e-business markets and will involve the development and design of a host of new applications, services, business models and technological solutions. In fact, it is seen as a complementary service option to both B2B and B2C e-commerce. According to market reports, the term m-commerce has recently not only achieved widespread recognition but is also becoming a highly visible symbol in the contemporary language of the information technology culture that has brought significant changes in the consumer era, along with profound changes in the terminology and technology of e-business. The major advantage of m-commerce is that it provides internet access to anyone, anytime, and anywhere, using wireless devices. The key technologies that are used in m-commerce are the mobile phone network, Wi-Fi and Bluetooth. The server-side hardware and software platform is nearly in place, and the basic bandwidth is ready. As with all areas of e-commerce, the challenge for businesses will be finding ways to use m-commerce to make money while serving customer needs. Currently, demand is highest for digital content such as downloads of ringtones, music, video content, television, news, listings, reviews, and notices. In many places around the world, mobile commerce is a viable part of e-business. Combining voice, data, images, audio, and video on a handheld wireless device in a high bandwidth network is becoming common with mcommerce. Search engine like Google has also started offering the search on cell phones to

support its mobile users. Number of other players like advertisers, gaming and loyalty service providers has developed applications for the mobile users. The main forces that will drive the m-commerce revolution include 3G technologies, wireless protocols and handset penetration. The current generation of wireless network and handsets support the very slow data rates. Mobile phones are currently the largest providers of wireless access to the internet today because it is the single most widely adopted electronic device. The success of the mobile industry is also dependent on the convergence of data, voice, and entertainment. The first generation mobile networks were analog-based. Second generation (2G) cellular networks are relatively slow circuit-switched digital networks that can't transmit data at about 10Kbps – one fifth the speed of a home modem. In some of the countries, mobile companies have developed the 2.5G. A 2.5G network provides speeds of 60 to 144 Kbps using GPRS (General Packet Radio Services), a packet-switched technology that is much more efficient and hence faster than dedicated circuit-switched networks. An enhanced version of GPRS called EDGE can carry data up to 384 Kbps. Third generations (3G) mobile networks have speeds ranging from 384 Kbps to around 2 Mbps. The high speed at which Internet data can be downloaded is one of the important characteristics of new networks. The availability of cheaper and affordable smartphones possibly increased the penetration while larger screens (phablets and tablets), bigger memory, better browsing capabilities and the evolution of the mobile app economy has made mobile transactions efficient and convenient. In addition, mobile commerce provides certain other advantages such as greater convenience, higher user engagement and retention, increased impulse buying and targeted marketing. However, a critical determinant is the quality of user experience. While mobile user engagement is noted to be higher, conversely poor user experience has a much higher adverse effect on return traffic.

## **BENEFITS AND DRAWBACKS OF M-COMMERCE IN INDIA**

With Affordable internet plans and low cost internet enables mobile devices such as smartphones and tablets, mobile commerce market in India is growing rapidly. As a result there exist both advantages and disadvantages of m-commerce to business players in India.

### **Benefits of m-commerce in India**

**Mobility associated with Mobile devices**-user feel relaxed and it is very easy to carry mobile devices anywhere.

**Flexibility**-mobile devices can be used in real time to search and access information at any point of time.

**Geo Localization and Targeting**-companies can benefit using latest technologies and locate user, target them using ads and persuade them to make purchase.

**User Friendly content**-companies are designing website content which is user friendly and helps user to search a particular product extensively.

**Safe and Secure transaction**- companies can benefit from safe and secure transaction done through mobile payment gateway or through confirmation code on email and sms. This provides companies to persuade customer to shop and pay via mobile.

**Low internet connectivity**-mobile devices use less internet data and also resolve the issue of less internet connectivity or in case of website which are difficult to load.

### **Drawbacks of m-commerce in India**

**Limited graphics**- because of low graphic resolution in mobile devices, particular product is not properly visible and therefore reduces consumer interest.

**Privacy concern-** consumers still is concerned about their personal details and are not willing to share information and it leads to trust issue with m-commerce and with companies doing business with it.

**Internet Education-** People in India are still ignorant about m-commerce and its application, usefulness. With Literacy rate of 74% in 2011, India is lagging behind world literacy rate of 84% in 2011.

**Language barrier-** in India, not many people are comfortable with English as primary language and with internet enabled mobile devices, language becomes critical element while buying and selling goods or services.

**Connectivity-** Less data speed and unavailability of high speed bandwidth to most people is acting as a roadblock.

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## **UNIT-2**

### **Business to Business E-commerce (B2B)**

E-business is the process of conducting business on the Internet. Its scope includes not only buying and selling but also services, fulfilling the needs of customers and collaborating with business partners.

Business to business e-commerce is smart business. The opportunity for business to business e-commerce is even greater.

A wholesaler may sell products to the retailer. There are advanced e-commerce software which support multi-tier pricing. This helps to set up online stores to offer preferred pricing to some vendors and shared price to others.

This includes internet-enabled initiatives of an enterprise to form commercial linkages with another enterprise, dealer, warehouse or manufacturer. In this form of e-commerce, e paperwork and time-to-market get vastly reduced. Throughout the world, this ecommerce mode is the biggest.

In a B2B transaction, the interaction is between businesses. For example, a website that is catching for the steel industry might have facility for buyers and sellers to list their requirements and post their products. It helps them in quickly closing the transactions and the buyer can get quality, material and can choose from different suppliers.

B2B commerce is a growing business in the e-commerce arena- with the increasing use of the internet, more and more business are realizing the commercial advantage of giving business clients a streamlined and easy manner to order products or service online. It facilitates access to the ordering process to only those with whom a concern has a commercial relationship.

Business to Business e-commerce provides small and medium enterprises (SMES) with an excellent opportunity to access new markets, improve customer service and reduce costs. And while hurdles exist, they should be viewed more as speed breakers rather than road barriers. As a medium of information storage and dissemination, the internet has and is emerging a clear winner. Its rate of penetration has far outpaced the growth of other popular media such as newspaper, radio and television.

B2B transactions are however relatively high value in nature and organizations are slow to change their traditional systems for the supply chain management. The reasons for the growth in B2B e-commerce are many. In an increasing competitive scenario, e-commerce offers highly attractive cost saving options. The shift to this process is often driven by the needs of buyers. Innovative methods of enhancing B2B and B2C levels of e-commerce include:

- CD-ROM catalogues that are linked to the user's online catalogue, enabling him to browse offline and order online.
- Kiosks placed at physical store locations or in shopping malls to introduce users to the easy online ordering options.
- Extranets to link businesses together that conduct regular business to .business transactions and

- Affiliate programmes to drive business to your commerce site from other content related sites.

B2B e-commerce is expected to be the largest mode of transacting e-business and is a global phenomenon. It involves taking internet enabled initiatives to form commercial links with other enterprises, dealers or manufacturers. In this form of e-commerce, a business firm places orders for supplies with another business firms directly over the Internet. Paperwork and time required for processing the order and delivery of the goods are thus reduced to a great extent.

### **Business to Consumers E-commerce (B2C)**

It is for the customers to buy stores from the web. The problem to be recognized in this is to secure payment, using encryption, transaction integrity, quick response, time and reliability.

B2C e-commerce involves selling of goods and services to consumers or end users. It allows them to browse the product catalogue, select products or services and complete the order online.

In a B2C transaction, the interaction is between a consumer and the preferred business. For example, the most popular site is amazon.com, which is the first online bookseller which has proved a potential competitor to the traditional bricks and mortar booksellers such as Barrens and Noble.

In this category of e-commerce, businesses use the internet to offer to consumers sales and services around the world 24 hours a day, seven days a week and 365 days a year. The sites Amazon, Rediff and Uphar are among those belonging to this category. These websites are meant for selling goods directly to consumers through the internet. The two way accessibility of the internet enables operating companies to directly ascertain customer preference and buying trends. Businesses are using these consumer insights to formulate marketing strategies and offer to the customers what they want and when they want. E-business in this mode significantly reduces the costs associated with intermediaries, service centres and mass marketing campaigns. Since e-commerce makes just in time delivery possible, the supplier does not have to store the goods. He can procure them from the suppliers as and when he gets the order from the buyer through the internet.

B2C is the most popular form of e-commerce, wherein the individuals are directly involved in B2C e-commerce, and businesses use the internet for offering their products or services 24 hours a day through global access. The sites Amazon.com and Rediff are among these. These websites sell goods directly to consumers over the Internet. The two way accessibility feature of the internet enables operating companies to ascertain consumer preferences and buying trends directly.

### **Consumer to Consumer E-commerce (C2C)**

Here interaction is between consumer to consumer. For example, in sites like e-Buy Bid or Buy.com, Baazi.com which are auction sites, one can virtually sell and buy any goods (either used or new ones).

This form of e-commerce is nothing but the cyber version of the good old auction houses. If anyone wants to sell anything, all one has to do is post a message on the site, giving details of the product and the expected price and wait for an interested customer to turn



up and buy it. The buyer gets in touch with the seller through the Internet and the deal is crossed once the amount is finalised. Online message boards and barter are also examples of C2C e-commerce.

### **Consumer-to-Business E-commerce (C2B)**

E-commerce, by empowering the customer, has been strategically redefining business. An example of C2B model of e-commerce is the site Price line.Com, which allows prospective airline travellers, tourists in need of hotel reservations etc. to visit its websites and indicate their preferred price for travel between any two cities. If an airline is willing to issue a ticket on the customers offered price, the consumer can then travel to the mentioned destination at his terms.

### **Business to Employees E-commerce (B2E)**

This is concerned more with marketing a corporation's internal processes more efficiently. Customer care and support activities also hold ground. The requirement is that are all self-service with applications on the web that the employees can use themselves.

### **Electronic Data Interchange(EDI):**

Electronic Data Interchange (EDI) - interposes communication of business information in standardized electronic form.

Prior to EDI, business depended on postal and phone systems that restricted communication to those few hours of the workday that overlap between time zones.

Why EDI?

- Reduction in transaction costs
- Foster closer relationships between trading partners

EDI & Electronic Commerce

- Electronic commerce includes EDI & much more
- EDI forges boundary less relationships by improving interchange of information between trading partners, suppliers, & customers.

3.9 EDI layered architecture:

- Semantic (or application) layer
- Standards translation layer
- Packing (or transport) layer
- Physical network infrastructure layer

EDI semantic layer:

- Describes the business application
- Procurement example
  - Requests for quotes
  - Price quotes
  - Purchase orders
  - Acknowledgments
  - Invoices
- Specific to company & software used

Standards translation:

- Specifies business form structure so that information can be exchanged

- Two competing standards
  - American National Standards Institute(ANSI)X12
  - EDIFACT developed by UN/ECE, Working Party for the Facilitation of International Trade Procedures

#### EDI transport layer

- How the business form is sent, e.g. post, UPS, fax
- Increasingly, e-mail is the carrier
- Differentiating EDI from e-mail
  - Emphasis on automation
  - EDI has certain legal status

#### Physical network infrastructure layer

- Dial-up lines, Internet, value-added network, etc.

#### Information flow with EDI:

1. Buyer sends purchase order to seller computer
2. Seller sends purchase order confirmation to buyer
3. Seller sends booking request to transport company
4. Transport company sends booking confirmation to seller
5. Seller sends advance ship notice to buyer
6. Transport company sends status to seller
7. Buyer sends Receipt advice to seller
8. Seller sends invoice to buyer
9. Buyer sends payment to seller

### **Applications of EDI:**

#### **1. Role of EDI in international trade:**

Reduced transaction expenditures

Quicker movement of imported & exported goods

Improved customer service through —track & trace programs

Faster customs clearance & reduced opportunities for corruption, a huge problem in trade

#### **2. Interbank Electronic Funds Transfer (EFT)**

- EFTS is credit transfers between banks where funds flow directly from the payer's bank to the payee's bank.
- The two biggest funds transfer services in the United States are the Federal Reserve's system, Fed wire, & the Clearing House Interbank Payments System (CHIPS) of the New York clearing house.

#### **3. Health care EDI for insurance EDI**

- Providing good & affordable health care is a universal problem
- EDI is becoming a permanent fixture in both insurance & health care industries as medical provider, patients, & payers
- Electronic claim processing is quick & reduces the administrative costs of health care.
- Using EDI software, service providers prepare the forms & submit claims via communication lines to the value-added network service provider

- The company then edits sorts & distributes forms to the payer. If necessary, the insurance company can electronically route transactions to a third-party for price evaluation
- Claims submission also receives reports regarding claim status & request for additional Information.

#### 4. **Manufacturing & retail procurement using EDI**

- These are heavy users of EDI
- In manufacturing, EDI is used to support just-in-time.
- In retailing, EDI is used to support quick response

#### **EDI Protocols:**

→ ANSI X12

→ EDIFACT

Comparison of EDIFACT & X.12 Standards:

These are comprised of strings of data elements called segments.

A transaction set is a set of segments ordered as specified by the standard.

ANSI standards require each element to have a very specific name, such as order date or invoice date.

EDIFACT segments, allow for multiuse elements, such as date.

EDIFACT has fewer data elements & segments & only one beginning segment (header),but it has more composites.

It is an ever-evolving platform.

Below are 11 known Benefits of EDI:

#### 1. **Better Speed:**

EDI decreases the time it takes for an employee to make invoices and handle purchase orders manually. Timing is crucial when it comes to processing of an order. With EDI, businesses can speed up their cycles by 61% creating an allowance for more automation process that significantly reduces, if not eliminated, time delays related to manual processes that entail you to compare, enter, and file data. Records management is reorganized and made more effective with simultaneous data updates. Transferring documents electronically improves transaction speed and perceptibility while reducing the cost involved in manual approach. Stock levels are also kept regularly updated and visible.

#### 2. **Business Efficiency.**

For the reason that human error is lessened, businesses can profit from improved levels of proficiency. Rather than place attention on common and tedious activities, staffs can dedicate their attention to more significant value-adding tasks. EDI transfer guarantees immediate processing and eradicates time wasting related with manual entering, receiving, and sending orders. Improved quality of data provided by EDI lessens data entry errors, improves accounts activity times as procedures become efficient and can be made available for forecasting.

#### 3. **Collective Productivity.**

The EDI technology permits more business to take on more operations with less human resources. Business teams can handle tasks with advanced additional worth. With EDI, the whole process is completed in a matter of seconds. This is due to the reason that automated process allows for instant completion of tasks like registering and balancing validation.

#### 4. Cost Savings

This is amongst the most popular benefits of EDI. With EDI, the costs for processing business documents get at least 35% cut, but it can be much more remarkable in case of electronic invoices, with 90% savings a possibility. Then again, this extreme economic saving is due to transactions automation, and, also the less involvement of paper usage. EDI reduces your operating outlay by removing the costs of document retrieval, filing, mailing, paper, postage, printing, recycling, re-production, and storage. EDI significantly reduces administrative, maintenance, and resource costs.

#### 5. Enhancing Financial Ratios.

With the Implementation of EDI, transferring and getting e-invoices takes place almost instantly. EDI also adds automatic authentication and checking procedures, which enable rapid dispensation at the endpoint, aiding estimate cash necessities. In appreciation of this foresight, customers can take advantage of quick payment rebates and the dealer's liquidity is enhanced.

#### 6. Environment-Friendly Services.

The movement from paper-based services to the use of electronic transactions available on EDI decreases CO2 discharges. Thus, the use of EDI encourages corporate social accountability and help organization achieve sustainable supply chain management.

#### 7. Information Availability on Process Status.

Replacing paper with e-documents makes it easy to maintain and track data. EDI safeguards traceability and transactions integrability like changes to purchase orders, invoices, pending payment status, receipt acknowledgment, and other similar events. Additionally, sending data through private networks, make available lasting control over message status about processing, reading, and receipt, etc.

#### 8. Improved Accuracy

Apart from inadequacy, the manual approach is also highly susceptible to error, usually ensuing from entering and re-keying errors, indecipherable handwriting, and improper document management. EDI considerably improves your business data quality and removes the problem of re-working orders by bringing at least a 30% to 40% drop in transactions errors. The use of ethics acknowledged by both parties (receiver and sender) guarantee correct interpretation of data, irrespective of activity sectors or nationalities.

#### 9. Operations Automation.

The benefits of EDI tool considerably lighten the burden on management. Several tasks, like enveloping, franking or registering, printing out business documents, would fade entirely. EDI's adaptableness modernizes the communication flow and improves typically business relations with other trade partners.

#### 10. Refining Service to Partners and End Users.

Implementation of EDI implies the application of optimal workflows and response time. The Implementation of EDI benefits the end user most of all, as manufacture plans and distributions become much more accurate. EDI also enlarges your customer base and managing trade partner relationship due to its quicker goods and services distribution.

#### 11. Security

EDI boosts the level of protection for any transactions by strongly allocation data across a more extensive variation of communicating protocols and safety standards, hence, reducing supply chain risks. Your trading partners would profit from the seamless movement of data and accessibility to the technology creates prospects for newer business breaks.

### **Limitations of EDI**

While countless businesses enjoy the benefits of EDI, some companies are still cautious to try it out due to the following limitations of EDI.

#### 1. 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.

#### 2. 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.

#### 3. Preliminary Setup Consumes Time

Not only is the implementation of EDI system expensive to install, but it also consumes a considerable amount of time to set up the essential parts. Thus, such limitations of EDI can hinder fast-tracking of services if urgently required.

#### 4. Several Standards to Maintain.

Numerous businesses looking to implement EDI also consider the several standards involved. These limitations of EDI do not allow small businesses to exchange data with larger establishments that make use of latest edition of a document standard. Some known measures include ANSI ASC X12, GS1 EDI, HL7, TRADACOMS, and UN/EDIFACT.

## 5. Suitable Backup System

EDI implementation also requires regular maintenance as the business functionality is highly dependent on it. Some robust data backup system is needed in case of system crash or for statistical purpose. Such limitations of EDI can cost some substantial amount to implement.

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## Unit - 3

### E-Commerce Payment Systems

#### **Limitations of traditional payment systems**

Many organizations are still held back by traditional payment gateway services which present following limitations:

##### **1. Not Bank Independent**

Traditional payment gateway services are provided by and tie businesses to a single bank, limiting your ability to improve performance and control of your payment experience. Unfortunately, this can lock a company into paying higher transaction costs, accepting poor customer service and unable to process transactions if the banks' payment service goes down. This service stickiness with the bank is often in the banks best interest and not the merchants.

Modern payment service providers such as IPSI avoid lock-in to acquiring banks by delivering multi-bank connectivity and bank independence. This independence puts companies back in control of their payment strategy enabling them to access a wider variety of benefits providing the flexibility and control they require.

One of the main challenges faced by traditional gateways is the pain associated with trying to change their acquiring bank. A modern payment gateway avoids the front-end re-engineering required to switch to alternative banking gateways, putting businesses in a much stronger position to control their payments destiny.

##### **2. Lack of Support**

Banks aren't known for a high level of customer support when it comes to payment services. Unfortunately, if the acquiring bank is underperforming, and you are locked into a banking contract there isn't much you can do about it.

With a modern payment gateway, the power is reversed. It is now in the hands of the merchant, rather than the bank. Previously, changing gateways and banks came with a high cost, allocation of internal resources and long-lead times that were a significant barrier to change. Now, organisations can easily switch between banks to ensure the optimum mix of innovation, services, bank fees and support.

##### **3. Lack of Flexibility**

Customer expectations and payment technology are changing rapidly, and with this comes the need for flexibility. Something traditional banking payment gateways often don't have.

A rigid, inflexible payment gateway can be costly and limit your ability to migrate to a different financial institution, add new features or access reduced financial institution costs.

A flexible payment service will also give you the ability to scale. Rapid growth and expansion can be difficult and come at a high cost if you are locked into a traditional payment gateway service. Additional investment is often required for new integration capability and re-engineering which can be avoided with a more flexible payments service.

##### **4. Built for the mass market, not individual customer needs**

Unfortunately, most traditional payment gateways won't suit the customised needs of a larger enterprise. Services are sold to merchants based on the 'type' of business they are, rather than the unique requirements of the customer.

This can restrict the number of features you can access and often result in a low solution fit, requiring internal investment to bridge the gap. As an example, an off-the-shelf gateway specifically for a retail business may not support custom page designs and configurable real-time notifications which limits a merchant's ability to tailor the user experience to meet customers evolving expectations. IPSI's services allow you to customise and add features as your business requires, giving the flexibility to adapt and scale.

### **5. More Reactive Than Innovative**

Change within the payments industry is constant. The emergence of new payment channels and the ever-present threat of data breach require an innovative approach. Unfortunately, traditional payment gateways cannot adapt and scale with changing needs. They often react slowly, rather than being proactive and innovative.

Increasingly, payment infrastructure comes under pressure to change, requiring increasing speed and the ability to connect easily with new players and technology. This change will only serve to enhance the customer experience through better and faster payment solutions.

## **Requirements of E-Payment system**

The success or failure of any on-line payment systems depends not only on technical issues but also on user's acceptance. The user's acceptance depends on a number of issues such as advertisement, market position, user preferences etc. So when some one discuss about the characteristics of online payment technologies, they should not only think about technical issues but also about user acceptance related issues .

### **Atomicity**

Atomicity guarantees that either the user's on-line payment transaction is completed or it does not take place at all. If the current on-line payment transaction fails then it should be possible to recover the last stable state. This feature resembles the transactional database systems, in which either a transaction is committed or rolled back. 34 Anonymity/Privacy Anonymity suggests that the identity, privacy and personal information of the individuals using the on-line payment methods should not be disclosed. In some on-line payment methods, it is possible to trace the individual's payment details. In case of purchases using Debit Card, it is possible to find out the purchase details as that information is registered at the vendor and the bank's databases. So some on-line payment systems like Debit cards are not anonymous systems. In some other payment systems, anonymity can be weak as the efforts to get the purchase details of the user can be more expensive than the information itself. There are privacy laws in several countries to guarantee the privacy of the user and protect the misuse of personal information by the financial institutions.

### **Scalability**

As the on-line payment methods are getting more and more acceptance of the users, the demand for on-line payment infrastructure will also be increasing rapidly. Payment systems should handle the addition of users without any performance degradation. To provide the required quality of service without any performance degradation, the payment systems need a good number of central servers. The central servers are needed to process or check the payment transactions. The growing demand for the central servers, limits the scalability of the on-line payment systems.

### **Security**

Security is one of the main concerns of the on-line payment methods and it is one of the crucial issues which decide the general acceptance of any on-line payment methods. Internet is an open network without any centralized control and the on-line payment systems should be 35 protected

against any security risks to ensure a safe and reliable service to the users. When users are paying on-line they want to be sure that their money transaction is safe and secure. On the other hand, banks and payment companies and other financial institutions want to keep their money, financial information and user information in a secure manner to protect it against any possible misuse.

### Reliability

As in any other business activity, even in on-line payment methods, the user expects a reliable and an efficient system. Any on-line payment system would fail, despite of its advanced technological features, if it fails to get the users acceptance and pass their reliability tests. There are many reasons, which can make the system unreliable to the users. Some of them are Security threats, poor maintenance and unexpected breakdowns.

### Usability

Usability is an important characteristic of an interactive product like on-line payments. On-line payment systems should be user friendly and easy to use. Any On-line payment system with complicated procedures, complex payment process and other associated complications with the payment environment, can't get users acceptance. Poor usability of a web shopping or a payment method could also discourage on-line shopping. To make the online payments simple and user friendly, some of the on-line payment systems allow the users to make payments with minimum authorization and information inputs.

### Is E-Commerce Safe?

No e-commerce system can guarantee 100-percent protection for your credit card, but you're less likely to get your pocket picked online than in a real store. Although Internet security breaches have received a lot of press attention, most vendors and analysts argue that transactions are actually less dangerous in cyberspace than in the physical world. For merchants, E-commerce is actually safer than opening a store that could be looted, burned, or flooded. The difficulty is in getting customers to believe that E-commerce is safe for them. Consumers don't really believe it yet, but experts say E-commerce transactions are safer than ordinary credit card purchases. Ever since the 1.0 versions of Netscape Navigator and Microsoft Internet Explorer, transactions can be encrypted using Secure Sockets Layer, a protocol that creates a secure connection to the server, protecting the information as it travels over the Internet. SSL uses public key encryption, one of the strongest encryption methods around. A way to tell that a Web site is secured by SSL is when the URL begins with https instead of http.

Browser makers and credit card companies are promoting an additional security standard called Secure Electronic Transactions (SET). SET encodes the credit card numbers that sit on vendors' servers so that only banks and credit card companies can read the numbers.

### Systems of payments in E-Commerce

E-Commerce or Electronics Commerce sites use electronic payment where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing paper work, transaction costs, labour cost. Being user friendly and less time consuming than manual processing, helps business organization to expand its market reach / expansion. Some of the modes of electronic payments are following:

- Credit Card
- Debit Card

- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

## Credit Card

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder - Customer
- The merchant - seller of product who can accept credit card payments.
- The card issuer bank - card holder's bank
- The acquirer bank - the merchant's bank
- The card brand - for example , visa or mastercard.

Credit card payment process

Step	Description
Step 1	Bank issues and activates a credit card to customer on his/her request.
Step 2	Customer presents credit card information to merchant site or to merchant from whom he/she want to purchase a product/service.
Step 3	Merchant validates customer's identity by asking for approval from card brand company.
Step 4	Card brand company authenticates the credit card and paid the transaction by credit. Merchant keeps the sales slip.
Step 5	Merchant submits the sales slip to acquirer banks and gets the service chargers paid to him/her.
Step 6	Acquirer bank requests the card brand company to clear the credit amount and gets the payment.
Step 7	Now card brand company asks to clear amount from the issuer bank and amount gets transferred to card brand company.

## Debit Card

Debit card, like credit card is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between debit card and credit card is that in case of payment through debit card, amount gets deducted from card's bank account immediately and there should be sufficient balance in bank account for the transaction to get completed. Whereas in case of credit card there is no such compulsion.

Debit cards free customer to carry cash, cheques and even merchants accepts debit card more readily. Having restriction on amount being in bank account also helps customer to keep a check on his/her spendings.

## **Smart Card**

Smart card is again similar to credit card and debit card in appearance but it has a small microprocessor chip embedded in it. It has the capacity to store customer work related/personal information. Smart card is also used to store money which is reduced as per usage.

Smart card can be accessed only using a PIN of customer. Smart cards are secure as they store information in encrypted format and are less expensive/provide faster processing. Mondex and Visa Cash cards are examples of smart cards.

## **E-Money**

E-Money transactions refer to a situation where payment is done over the network and amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient and save a lot of time.

Online payments done via credit card, debit card or smart card are examples of e-money transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant both have to sign up with the bank or company issuing e-cash.

## **Electronic Fund Transfer**

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in same bank or different bank. Fund transfer can be done using ATM (Automated Teller Machine) or using computer.

Now a day, internet based EFT is getting popularity. In this case, customer uses website provided by the bank. Customer logs in to the bank's website and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers amount to other account if it is in same bank otherwise transfer request is forwarded to ACH (Automated Clearing House) to transfer amount to other account and amount is deducted from customer's account. Once amount is transferred to other account, customer is notified of the fund transfer by the bank.

### **Security Aspects:**

#### **Security Overview**

A secure system accomplishes its task with no unintended side effects. Using the analogy of a house to represent the system, you decide to carve out a piece of your front door to give your pets' easy access to the outdoors. However, the hole is too large, giving access to burglars. You have created an unintended implication and therefore, an insecure system.

In the software industry, security has two different perspectives. In the software development community, it describes the security features of a system. Common security features are ensuring passwords that are at least six characters long and encryption of sensitive data. For software consumers, it is protection against attacks rather than specific features of the system. Your house may have the latest alarm system and windows with bars, but if you leave your doors unlocked, despite the number of security features your system has, it is still insecure. Hence, security is not a number of features, but a system process. The weakest link in the chain determines the security of the system. In this article, we focus on possible attack scenarios in an e-Commerce system and provide preventive strategies, including security features, that you can implement.

Security has three main concepts: confidentiality, integrity, and availability. Confidentiality allows only authorized parties to read protected information. For example, if the postman reads your mail, this is a breach of your privacy. Integrity ensures data remains as is from the sender to the receiver. If someone added an extra bill to the envelope, which contained your credit card bill, he has violated the integrity of the mail. Availability ensures you have access and are authorized to resources. If the post office destroys your mail or the postman takes one year to deliver your mail, he has impacted the availability of your mail.

## The players

In a typical e-Commerce experience, a shopper proceeds to a Web site to browse a catalog and make a purchase. This simple activity illustrates the four major players in e-Commerce security. One player is the shopper who uses his browser to locate the site. The site is usually operated by a merchant, also a player, whose business is to sell merchandise to make a profit. As the merchant business is selling goods and services, not building software, he usually purchases most of the software to run his site from third-party software vendors. The software vendor is the last of the three legitimate players. The attacker is the player whose goal is to exploit the other three players for illegitimate gains.

The attacker can besiege the players and their resources with various damaging or benign schemes that result in system exploitation. Threats and vulnerabilities are classified under confidentiality, integrity, and availability. A threat is a possible attack against a system. It does not necessarily mean that the system is vulnerable to the attack. An attacker can threaten to throw eggs against your brick house, but it is harmless. A vulnerability is a weakness in the system, but it is not necessarily known by the attacker. For example, only you know that you have left your front door unlocked. Vulnerabilities exist at entry and exit points in the system. In a house, the vulnerable points are the doors and windows. When the burglar threatens to break into your house and finds the vulnerability of the unlocked door, he is exploiting the assets in the house.

## Security features

Security is an essential part of any transaction that takes place over the internet. Customer will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions:

- **Confidential** - Information should not be accessible to unauthorized person. It should not be intercepted during transmission.
- **Integrity** - Information should not be altered during its transmission over the network.
- **Availability** - Information should be available wherever and whenever requirement within time limit specified.
- **Authenticity** - There should be a mechanism to authenticate user before giving him/her access to required information.
- **Non-Repudiability** - It is protection against denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly the recipient of message should not be able to deny receipt.



- **Encryption** - Information should be encrypted and decrypted only by authorized user.
- **Auditability** - Data should be recorded in such a way that it can be audited for integrity requirements.

### **The criminal incentive**

- Attacks against e-Commerce Web sites are so alarming, they follow right after violent crimes in the news. Practically every month, there is an announcement of an attack on a major Web site where sensitive information is obtained. Why is e-Commerce vulnerable? Is e-Commerce software more insecure compared to other software? Did the number of criminals in the world increase? The developers producing e-Commerce software are pulled from the same pool of developers as those who work on other software. In fact, this relatively new field is an attraction for top talent. Therefore, the quality of software being produced is relatively the same compared to other products. The criminal population did not undergo a sudden explosion, but the incentives of an e-Commerce exploit are a bargain compared to other illegal opportunities.
- Compared to robbing a bank, the tools necessary to perform an attack on the Internet is fairly cheap. The criminal only needs access to a computer and an Internet connection. On the other hand, a bank robbery may require firearms, a getaway car, and tools to crack a safe, but these may still not be enough. Hence, the low cost of entry to an e-Commerce site attracts the broader criminal population.
- The payoff of a successful attack is unimaginable. If you were to take a penny from every account at any one of the major banks, it easily amounts to several million dollars. The local bank robber optimistically expects a windfall in the tens of thousands of dollars. Bank branches do not keep a lot of cash on hand. The majority is represented in bits and bytes sitting on a hard disk or zipping through a network.
- While the local bank robber is restricted to the several branches in his region, his online counterpart can choose from the thousands of banks with an online operation. The online bank robber can rob a bank in another country, taking advantage of non-existent extradition rules between the country where the attack originated, and the country where the attack is destined.
- An attack on a bank branch requires careful planning and precautions to ensure that the criminal does not leave a trail. He ensures the getaway car is not easily identifiable after the robbery. He cannot leave fingerprints or have his face captured on the surveillance cameras. If he performs his actions on the Internet, he can easily make himself anonymous and the source of the attack untraceable.
- The local bank robber obtains detailed building maps and city maps of his target. His online counterpart easily and freely finds information on hacking and cracking. He uses different sets of tools and techniques everyday to target an online bank.

### **Measures to ensure Security**

Major security measures are following:

- **Encryption** - It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypt the data using a secret code and specified receiver only can decrypt the data using the same or different secret code.
- **Digital Signature** - Digital signature ensures the authenticity of the information. A digital signature is a e-signature authentic authenticated through encryption and password.
- **Security Certificates** - Security certificate is unique digital id used to verify identity of an individual website or user.

### Security Protocols in Internet

Following are the popular protocols used over the internet which ensures security of transactions made over the internet.

#### Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements:

- Authentication
- Encryption
- Integrity
- Non-reputability

"https://" is to be used for HTTP urls with SSL, where as "http://" is to be used for HTTP urls without SSL.

#### Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication and digital signature over the internet. Secure HTTP supports multiple security mechanism providing security to end users. SHTTP works by negotiating encryption scheme types used between client and server.

#### Secure Electronic Transaction

It is a secure protocol developed by MasterCard and Visa in collaboration. Thereoritically, it is the best security protocol. It has following components:

- **Card Holder's Digital Wallet Software** - Digital Wallet allows card holder to make secure purchases online via point and click interface.
- **Merchant Software** - This software helps merchants to communicate with potential customers and financial institutions in secure manner.
- **Payment Gateway Server Software** - Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.

- **Certificate Authority Software** -This software is used by financial institutions to issue digital certificates to card holders and merchants and to enable them to register their account agreements for secure electronic commerce.

## **Summary**

E-commerce is a new way of conducting, managing and executing business transactions using computer and telecommunications networks. As awareness of the Internet throughout the commercial world and general public increases, competitiveness will force lower entry barriers, continued rapid innovation and expansion of markets. The real key to making electronic commerce over the Internet a normal, everyday business activity is the convergence of the telecommunications, content/media and software industries. E-Commerce is expected to improve the productivity and competitiveness of participating businesses by unprecedented access to an on-line global market place with millions of customers and thousands of products and services.

## **E- Payment**

Electronic Payment is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument (such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an intermediary, or by a legal tender.

An E- payment system is an online system that facilitates the acceptance of electronic payment for online transactions and any kind of non-cash payment that doesn't involve a paper check.

The electronic payment system has grown increasingly over the last decades due to the widely spread of internet-based banking and shopping. As the world advance more on technology development, a lot of electronic payment systems and payment processing devices have been developed to increase, improve and provide secure e-payment transactions while decreasing the percentage of check and cash transaction.

### **Types of E- Payment systems:**

1. A one-time customer-to-vendor payment:

It is commonly used when user shop online at an e-commerce site, such as Amazon. User clicks on the shopping cart icon, type in the credit card information and click on the checkout button. The site processes the credit card information and sends an e-mail notifying the user that the payment was received. On some Web sites, an e-check can be used instead of a credit card.

2. Recurring customer-to-vendor payment:

It is used when user pay a bill through a regularly scheduled direct debit from their checking account or an automatic charge to their credit card. This type of payment plan is commonly offered by car insurance companies, phone companies and loan management companies.

3. Automatic bank-to-vendor payment:

User's bank must offer a service called online bill pay where the user log on to the bank's Web site, enter the vendor's information and authorize the bank to electronically transfer money from

their account to pay their bill. User can choose whether to do this manually for each billing cycle or have their bills automatically paid on the same day each month.

## **Methods of Electronic Payment**

### **1. Banking and financial payments**

The banks can accept a restricted deposit which is limited to a specific amount per customer. The banks cannot issue loans and credit cards. Both current account and savings accounts can be operated by banks. Payments banks can issue services like ATM cards, debit cards, online banking and mobile banking.

Banking and financial payments include:

- Large-Scale or wholesale payments (e.g. bank to bank transfer)
- Small-Scale or Retail payments (e.g. automated teller machine and cash dispenses)
- Home banking (e.g. bill payment)

### **2. Online Electronic Commerce Payment**

[i] Token Based Payments system-Electronic cash, Electronic cheques, Smart Cards or debit cards.

[ii] Credit card based payment system.

#### **Digital token payment E- Payment**

A token based payment system is one in which tokens are purchased from authorized vendors may be used as credit in the purchase of goods and services. E-token is equivalent to cash that is backed by a bank.

Digital token payment is of 3 types:

1. Cash or real time: Transactions are settled with the exchange of electronic currency. Example- E-cash.
2. Debit or prepaid: Users pay in advance. Example-Smart Cards.
3. Credit or postpaid: The server authenticates the customers and verifies with the bank that funds are adequate before purchase.

Benefits of Digital token based payment system-

#### **A. Benefits to buyer:**

1. Convenience of global acceptance, a wide range of payment options, and enhanced financial management tools.
2. Enhance security and reduce liability for stolen or miss used cards.
3. Consumer protection through an established system of dispute resolution.
4. Convenient and immediate access to funds on deposit via debit cards.

5. Accessibility to immediate credit, intuitively, the comparative cost of arranging for a consumer loan related to the ability to obtain credit at the point of sell is substantial in considering both the direct processing costs as well as the implicit opportunities costs to borrower and lender.

#### B. Benefits to Seller:

1. Speed and security of the transaction processing chain from verification and authorization to clearing and settlement.
2. Freedom for more costly labour, materials and accounting services that are required in paper based processing.
3. Better management of cash flow, inventory and financial planning due to swift bank payment.
4. Incremental purchase power on the part of the consumer.
5. Cost and risk saving by eliminating the need to run an in house credit facility.

#### Types Digital token payment based Payment

##### 1. E-CASH

- It is cryptographic electronic money cash system designed in 1983 used as micropayment system.
- It combines computerized convenience with security and privacy that improve on paper cash. E-Cash is based on cryptographic systems called digital signature. This method involves a pair of numeric keys that work in tandem; one for locking and the other for unlocking. It focuses on replacing cash as the principal payment vehicle in consumer oriented payments system. Customers open an account with bank and either buy or receive free special software for their PC's.
- Two approaches to holding electronic cash are online storage where the consumer does not personally have possession of it and off-line where the consumer does have physical control. A smart card is an example of off-line electronic cash storage.

#### Properties of E-Cash

1. Monetary value: It is back by either cash, a bank authorized credit, or a bank certified cashier cheque. When e-cash created by one bank is accepted by others, reconciliation must occur without any problem.
2. Interoperable: It is exchangeable as payment for other e-cash, paper cash, goods or services, lines of credit, deposit in banking account, bank notes or obligation, electronic benefit transfer and the like. Most e-Cheque proposal use a single bank.
3. Storable and retrieval: Remote storage and retrieval would allow user to exchange e-cash from home or office or while traveling. The cash could be stored on the remote computer memory, in smart cards or special purpose devices. It is preferable that cash is stored on a dedicated device that can't be altered and should have suitable interface. To facilitate personal authentication using passwords or other means.
4. Security: E-Cash is not easy to copy or temper with while being exchanged. This includes preventing or detecting duplication or double spending. Detection is essential in order to audit whether prevention is working or not or to know the tricky issue of double spending.

### Advantages of E-Cash:

1. More efficient than cash, checks or credit cards for both the consumer and the merchant.
2. Lower transaction costs and perhaps product costs related to increases in efficiency.
3. The distance which electronic cash must travel in a transfer does not effect the transmission costs or the time as it does with traditional payment methods.
4. Electronic cash does not require any special authorization, so anyone may use it for almost any kind of transaction, large or small.

### Disadvantages of E-Cash:

1. Potential collection problems if an Internet tax is ever enacted.
2. Since electronic cash does not leave an audit trail, it could be used in money laundering operations or as a medium of exchange in other illegal activities.
3. Electronic cash is susceptible to forgery and double spending abuses.

### 2. E-Cheques

- Electronic Cheques are designed to accommodate the many individuals and entities that might prefer to pay on credit or through some mechanism other than cash.

- In e-Cheque system, consumer posses an e-Cheque book on a Personal computer memory card International Associations (PCMCIA Card). The buyers must register with a third party account server before they are able to write e-Cheque. As needed, Cheque are return electronically from an e-Cheque book on the card. They are then send over the internet to the retailer, who in turn sends the e-Cheque to the customer banks. Settlement is made through a financial network such as ACH. E-Cheque method was deliberately created to work in much the same way as a conventional paper Cheque.

### Disdvantages of E-Cash:

1. They work in the same way as traditional Cheque, thus simplifying customer education.
2. E-Cheque is well suited for clearing micro payments; their use of conventional cryptography makes it much faster than e-cash.
3. E-Cheque creates float and the availability of float is an important requirement for commerce.
4. Financial risk is assume by the accounting server and may result in easier acceptance. Reliability and scalability are providing by using multiple accounting servers.

### 3. SMART CARDS

- o A smart card is a plastic card with a small, built in microcomputer chip and integrated circuit that can store and process a lot of data.
- o These are generally made of polyvinyl chloride, but sometimes polyethylene terephthalate based polyesters, acrylonitrile butadiene styrene or polycarbonate.
- o They can provide personal identification, authentication, data storage, and application processing and strong security authentication for single sign-on (SSO) within large organizations.
- o Depending on your application you should choose right card.



## Types of Smart Card

### 1. Contact Smart Card:

- o These pads provide electrical connectivity when inserted into a reader, which is used as a communications medium between the smart card and a host (e.g., a computer, a point of sale terminal) or a mobile telephone.
- o These cards do not contain batteries; power is supplied by the card reader.
- o These have a contact area of approximately 1 square centimetre (0.16 sq in), comprising several gold-plated contact pads.

### 2. Contactless Smart Card:

- o These cards are those in which the card communicates with and is powered by the reader through RF induction technology (at data rates of 106–848 kbit/s).
- o These cards require only proximity to an antenna to communicate.
  - Like smart cards with contacts, contactless cards do not have an internal power source. Instead, they use an inductor to capture some of the incident radio-frequency interrogation signal, rectify it, and use it to power the card's electronics.

### 3. Memory Card

The most common and least expensive smart cards are memory cards.

This type of smart cards, contains EEPROM (Electrically Erasable Programmable Read-Only Memory), non-volatile memory. Because it is non-volatile when you remove the card from the reader, power is cut off, card stores the data.

This microcontroller is responsible for accessing the files and accepting the communication.

The data can be locked with a PIN (Personal Identification Number), your password. PIN's are normally 3 to 8 digit numbers those are written to a special file on the card. Because this type is not capable of cryptography, memory cards are used in storing telephone credits, transportation tickets or electronic cash.

### 4. Microprocessor cards:

- o A microprocessor smartcard is defined as an IC chip contact card with a microprocessor and memory.
- o This smart card contains a small microchip that can process and store thousands of bits of electronic data.
- o Memory cards or magnetic stripe cards can only store information, while the microprocessor smart card is truly smart as it has its own operating system able to process data in reaction to a given situation. This capability to record and modify information in its own non-volatile, physically protected memory makes the smart card a powerful and practical tool.
- o These smart cards are small and portable, they can interact with computers and other automated systems, and the data they carry can be updated instantaneously.
- o Also with the ongoing mass adoption of microprocessors, predominantly in the banking (EMV) and mobile phone markets (SIM cards), it has led to falling costs through economies of scale. This makes microprocessor cards attractive to developers in the emerging markets such as access control, E-passport, PKI and multi applications where their cryptographic capabilities addresses the issues of security.

- o There are open platforms available such as Java Card, Native Operating systems and the emerging .net architectures.

## 5. Hybrid Cards

- o A hybrid smart card which clearly shows the antenna connected to the main chip.
- o Hybrid cards implement contactless and contact interfaces on a single card with dedicated modules/storage and processing.

## 6. Dual Interface Cards

- o Dual-interface cards implement contactless and contact interfaces on a single card with some shared storage and processing.
- o An example is Porto's multi-application transport card, called Andante, which uses a chip with both contact and contactless (ISO/IEC 14443 Type B) interfaces.

## 7. USB Cards

- o The CCID (Chip Card Interface Device) is a USB protocol that allows a smartcard to be connected to a Computer, using a standard USB interface. This allows the smartcard to be used as a security token for authentication and data encryption such as Bitlocker.
- o CCID devices typically look like a standard USB dongle and may contain a SIM card inside the USB dongle.

## Applications of Smart Cards

### 1. Financial

- o Smart cards serve as credit or ATM cards, fuel cards, mobile phone SIMs, authorization cards for pay television, household utility pre-payment cards, high-security identification and access-control cards, and public transport and public phone payment cards.
- o Smart cards may also be used as electronic wallets. The smart card chip can be "loaded" with funds to pay parking meters, vending machines or merchants. Cryptographic protocols protect the exchange of money between the smart card and the machine. No connection to a bank is needed. The holder of the card may use it even if not the owner.

### 2. Identification

- o Smart-cards authenticate identity by storing an encrypted digital certificate issued from the PKI (public key infrastructure) provider along with other relevant information.
- o Examples include the U.S. Department of Defense (DoD) Common Access Card (CAC), and other cards used by other governments for their citizens.
  - If they include biometric identification data, cards can provide superior two- or three-factor authentication.

### 3. Public transit

- o Smart cards and integrated ticketing are used by many public transit operators.
  - Card users may also make small purchases using the cards. Some operators offer points for usage, exchanged at retailers or for other benefits.

#### 4. Computer security

- o Smart cards are used as a security token. The Mozilla Firefox web browser can use smart cards to store certificates for use in secure web browsing.
- o Some disk encryption systems, such as Microsoft's BitLocker, can use smart cards to securely hold encryption keys, and also to add another layer of encryption to critical parts of the secured disk.
- o GnuPG, the well known encryption suite, also supports storing keys in a smart card.
- o Smart cards are also used for single sign-on to log on to computers.

#### 5. Electronic commerce

- o Smart cards are used in electronic commerce for customized services.
  - Example, in order for the service supplier to deliver the customized service, the user may need to provide each supplier with their profile, a boring and time-consuming activity. A smart card can contain a non-encrypted profile of the bearer, so that the user can get customized services even without previous contacts with the supplier.

### Advantages of Smart Card:

#### 1. Flexibility

Smart cards have multiple functions which simultaneously can be an ID, a credit card, a stored-value cash card, and a repository of personal information such as telephone numbers or medical history.

The card can be easily replaced if lost, and, the requirement for a PIN (or other form of security) provides additional security from unauthorized access to information by others.

At the first attempt to use it illegally, the card would be deactivated by the card reader itself.

#### 2. Security

Smart cards can be electronic key rings, giving the bearer ability to access information and physical places without need for online connections.

They are encryption devices, so that the user can encrypt and decrypt information without relying on unknown, and therefore potentially untrustworthy, appliances such as ATMs.

Smart cards are very flexible in providing authentication at different level of the bearer and the counterpart.

With the information about the user that smart cards can provide to the other parties, they are useful devices for customizing products and services.

#### 3. Data Integrity

Information on a smart card cannot be erased or removed accidentally by any electrical or magnetic means.

#### 4. Portability

Smart cards have the ability of software to be transferred from one machine or system to another.

### Disadvantages of Smart Card

#### 1. EASILY LOST

o Smart cards are small, lightweight and can be easily lost if the person is irresponsible as they have multiple uses and so the loss may be much more inconvenient.

## 2. SLOW ADOPTION

o If used as a payment card, not every store may have the hardware necessary to use these cards as it is more expensive to produce and use. Therefore, some stores may charge a basic minimum fee for using smart cards for payment, rather than cash.

## 2. POSSIBLE RISK OF IDENTIFY THEFT

- When used correctly for identification purposes, they make the jobs of law enforcement and healthcare professionals easier. However, for criminals seeking a new identity, they are like gold, based on the amount of information it can contain on an individual.

## Credit Card Payment System

A credit card is a payment card issued to users (cardholders) to enable the cardholder to pay a merchant for goods and services, based on the cardholder's promise to the card issuer to pay them for the amounts so paid plus other agreed charges.

- The card issuer (usually a bank) creates a revolving account and grants a line of credit to the cardholder, from which the cardholder can borrow money for payment to a merchant or as a cash advance.

Characteristics or features of Credit Card:

Alternative to cash.

Credit limit.

Aids payment in domestic and foreign currency.

Record keeping of all transactions.

Regular charges.

Grace period or grace days.

Higher fees on cash withdrawals.

Additional charges for delay in payment.

## ADVANTAGES OF CREDIT CARD

1. Purchase Power and Ease of Purchase – Credit cards can make it easier to buy things as the cardholder need not carry large amounts of cash with them and becomes convenient to pay big amounts to airlines, hotels, and car rental agencies.

2. Protection of Purchases - Credit cards may also offer you additional protection if something you have bought is lost, damaged, or stolen. Both your credit card statement (and the credit card company) can vouch for the fact that you have made a purchase if the original receipt is lost or stolen. In addition, some credit card companies offer insurance on large purchases.

3. Building a Credit Line - Having a good credit history is often important, not only when applying for credit cards, but also when applying for things such as loans, rental applications, or even some

jobs. Having a credit card and using it wisely (making payments on time and in full each month) will help you build a good credit history.

4. Emergencies - Credit cards can also be useful in times of emergency. While you should avoid spending outside your budget (or money you don't have!), sometimes emergencies (such as your car breaking down or flood or fire) may lead to a large purchase (like the need for a rental car or a motel room for several nights.)

5. Credit Card Benefits - In addition to the benefits listed above, some credit cards offer additional benefits, such as discounts from particular stores or companies, bonuses such as free airline miles or travel discounts, and special insurances (like travel or life insurance.)

## DISADVANTAGE

1. Blowing Budget -- The biggest disadvantage of credit cards is that they encourage people to spend money that they don't have as most credit cards do not require to pay off the balance each month. While this may seem like 'free money' at the time, you will have to pay it off -- and the longer you wait, the more money you will owe since credit card companies charge you interest each month on the money you have borrowed.

2. High Interest Rates and Increased Debt -- Credit card companies charge the cardholder an enormous amount of interest on each balance that they don't pay off at the end of each month. Most credit cards charge you up to 10 times that amount of interest on balances.

3. Credit Card Fraud - They may be physically stolen if lose the wallet or someone may steal the credit card number (from a receipt, over the phone, or from a Web site) and use the card to rack up debts. If, cardholder realize that their credit card or number has been stolen, report it to your credit card company immediately.

4. Cash advance fees and rates. Financial institutions make it very expensive to use your credit card to get cash out or make other "cash equivalent" transactions (such as buying foreign currency or gambling). Using a credit card for a cash withdrawal will attract a cash advance fee worth around 3% of the total transaction amount. It also typically attracts an interest rate of 19-22% right away.

5. Annual fees. While a cardholder can often get debit cards without annual fees, most credit cards have them. These can cost as little per year, or depending on the card type. Generally, the more perks, the higher the cost of the annual fee.

6. Credit card surcharges. Businesses often apply a surcharge when you pay with a credit card. For MasterCard and Visa products, this fee is usually 0.5-2% of the total transaction cost, while for Amex cards it could be closer to 3%. Whatever the case, this is an extra cost for the convenience of paying with plastic.

## TYPES OF CREDIT CARDS

### 1. BUSINESS CREDIT CARDS

- o Business credit cards are specialized credit cards issued in the name of a registered business, and can only be used for business purposes. Their use has grown in recent decades.
- o Business credit cards offer a number of features specific to businesses. They frequently offer special rewards in areas such as shipping, office supplies, travel, and business technology. They can be harder to apply for than personal cards, however, and often carry high credit score requirements.
- o Business credit cards are offered by almost all major card issuers—like American Express, Visa, and MasterCard in addition to local banks and credit unions. Charge cards for businesses, however, are currently only offered by American Express.

## 2. SECURED CREDIT CARDS

- o A secured credit card is a type of credit card secured by a deposit account owned by the cardholder. Typically, the cardholder must deposit between 100% and 200% of the total amount of credit desired. In some cases, credit card issuers will offer incentives even on their secured card portfolios. This deposit is held in a special savings account.
- o This type of credit card is used by people with little to no credit or a past history of bad credit. Sometimes a credit card will be secured by the equity in the borrower's home.

## BENEFITS

1. These cards provide the ability to rebuild or establish a credit history which at some point may allow users to gain unsecured credit cards or other forms of credit finance.
2. Holders can purchase products that can only be paid for with credit cards such as with some online retailers.

## DISADVANTAGE

Fees and service charges for secured credit cards often exceed those charged for ordinary non-secured credit cards. For people in certain situations, after charging off on other credit cards, or people with a long history of delinquency on various forms of debt, secured cards are almost always more expensive than unsecured credit cards.

## PREPAID CARDS

A "prepaid credit card" is not a true credit card, since no credit is offered by the card issuer: the cardholder spends money which has been "stored" via a prior deposit by the cardholder or someone else, such as a parent or employer.

However, it carries a credit-card brand such as Discover, Visa, MasterCard, American Express, or JCB and can be used in similar ways just as though it were a credit card.

Unlike debit cards, prepaid credit cards generally do not require a PIN. An exception are prepaid credit cards with an EMV chip, which require a PIN if the payment is processed via Chip and PIN technology.

After purchasing the card, the cardholder loads the account with any amount of money, up to the predetermined card limit and then uses the card to make purchases the same way as a typical credit card.

Prepaid cards can be issued to minors (above 13) since there is no credit line involved.

## ADVANTAGE



1. No credit check.
2. The cardholder is not required to come up to any specific amount or more to open an account.
3. Pre-paid cards are available for teenagers and students.
4. Act as a basic type of bank account.
5. Improve the credit rating of cashholder.
6. Digital cards
7. A digital card is a digital cloud-hosted virtual representation of any kind of identification card or payment card, such as a credit card.

### **Types of Electronic Payment Systems**

- Electronic payment systems are proliferating in banking, retail, health care, on-line markets, and even government—in fact, anywhere money needs to change hands.
- Organizations are motivated by the need to deliver products and services more cost effectively and to provide a higher quality of service to customers.
- The emerging electronic payment technology labeled electronic funds transfer (EFT).
- EFT is defined as —any transfer of funds initiated through an electronic terminal, telephonic instrument, or computer or magnetic tape so as to order, instruct, or authorize a financial institution

EFT can be segmented into three broad categories:

- Banking and financial payments
  - Large-scale or wholesale payments (e.g., bank-to-bank transfer)
  - Small-scale or retail payments (e.g., automated teller machines)
  - Home banking (e.g., bill payment)
- Retailing payments
  - Credit Cards (e.g., VISA or MasterCard)
  - Private label credit/debit cards (e.g., J.C. Penney Card)
  - Charge Cards (e.g., American Express)
- On-line electronic commerce payments
  1. Token-based payment systems
    - Electronic cash (e.g., DigiCash)
    - Electronic checks (e.g., NetCheque)
    - Smart cards or debit cards (e.g., Mondex Electronic Currency Card))
  2. Credit card-based payments systems
    - Encrypted Credit Cards (e.g., World Wide Web form-based encryption)

- Third-party authorization numbers (e.g., First Virtual)

### 3. E-Commerce

- Digital Token-Based Electronic Payment Systems

Electronic tokens are three types:

#### 1. Cash or Real-time

- Transactions are settled with exchange of electronic currency.
- Ex: on-line currency exchange is electronic cash (e-cash).

#### 2. Debit or Prepaid

- Users pay in advance for the privilege of getting information.
- Ex: prepaid payment mechanisms are stored in smart cards and electronic purses that store electronic money.

#### 3. Credit or Postpaid

- The server authenticates the customers and verifies with the bank that funds are adequate before purchase.
- Ex: postpaid mechanisms are credit/debit cards and electronic checks.

#### Properties of Electronic Cash:

- There are many ways that exist for implementing an e-cash system, all must incorporate a few common features.

- Specifically, e-cash must have the following four properties:

1. Monetary value
2. Interoperability
3. Retrievability
4. Security

#### 1. Electronic Cash in Action

- Electronic Cash is based on cryptographic systems called —digital signatures—.
- This method involves a pair of numeric keys: one for locking (encoding) and the other for unlocking (decoding). (Through public key and private key).

#### Purchasing E-cash from Currency Servers

The purchase of e-cash from an on-line currency server (or bank) involves two steps:

- Establishment of an account and Ecommerce
- Maintaining enough money in the account to bank the purchase.

Some customers might prefer to purchase e-cash with paper currency, either to maintain anonymity or because they don't have a bank account.

#### 2. Using the Digital Currency

- Once the tokens are purchased, the e-cash software on the customer's PC stores digital money undersigned by a bank.
- The users can spend the digital money at any shop accepting e-cash, without having to open an account there or having to transmit credit card numbers.

- As soon as the customer wants to make a payment, the software collects the necessary amount from the stored tokens.

### 3. Electronic Checks

- It is another form of electronic tokens.
- In the given model shown in fig, buyers must register with third-party account server before they are able to write electronic checks.
- The account server acts as a billing service.

#### **The advantages are:**

1. They work in the same way as traditional checks.
2. These are suited for clearing micropayments
3. They create float & availability of float is an important for commerce
4. Financial risk is assumed by the accounting server & may result in easier acceptance.

### 4. Ecommerce

#### Smart Cards & Electronic Payment Systems

- Smart cards have been in existence since the early 1980s and hold promise for secure transactions using existing infrastructure.
- Smart cards are credit and debit cards and other card products enhanced with microprocessors capable of holding more information than the traditional magnetic stripe.
- The smart card technology is widely used in countries such as France, Germany, Japan, and Singapore to pay for public phone calls, transportation, and shopper loyalty programs.

Smart cards are basically two types:

Relationship-Based Smart Credit Cards

Electronic Purses, which replace money, are also known as debit cards and electronic money.

#### Relationship-Based Smart Credit Cards

It is an enhancement of existing cards services &/ or the addition of new services that a financial institution delivers to its customers via a chip-based card or other device. These services include access to multiple financial accounts, value-added marketing programs, or other information card holders may want to store on their card. It includes access to multiple accounts, such as debit, credit, cash access, bill payment & multiple access options at multiple locations.

#### Ecommerce

### 5. Electronic Purses

- To replace cash and place a financial instrument are racing to introduce electronic purses, wallet-sized smart cards embedded with programmable microchips that store sums of money for people to use instead of cash for everything
- The electronic purse works in the following manner:
  1. After purse is loaded with money at an ATM, it can be used to pay for candy in a vending machine with a card reader.

2. It verifies card is authentic & it has enough money, the value is deducted from balance on the card & added to an e-cash & remaining balance is displayed by the vending machine.

### Credit Card-Based Electronic Payment Systems

Payment cards are all types of plastic cards that consumers use to make purchases:

– Credit cards

- Such as a Visa or a MasterCard, has a preset spending limit based on the user's credit limit.

– Debit cards

- Removes the amount of the charge from the cardholder's account and transfers it to the seller's bank.

– Charge cards

- Such as one from American Express, carries no preset spending limit.

Advantages:

– Payment cards provide fraud protection.

– They have worldwide acceptance (nearly!).

– They are good for online

transactions. Disadvantages:

– Payment card service companies charge merchants per-transaction fees and monthly processing fees.

Payment Acceptance and Processing

- Open loop (such as VISA) and closed loop (such as American Express) systems will accept and process payment cards.

- A merchant bank or acquiring bank is a bank that does business with merchants who want to accept payment cards.

## 6. Ecommerce

Software packaged with your electronic commerce software can handle payment card processing automatically.

- Electronic cash is a general term that describes the attempts of several companies to create value storage and exchange system that operates online in much the same way that government-issued currency operates in the physical world.

- Concerns about electronic payment methods include:

– Privacy

– Security

– Independence

– Portability

– Convenience

Electronic Cash Issues

- Primary advantage is with purchase of items less than £5

- Credit card transaction fees make small purchases unprofitable

- Facilitates Micropayments – eg for items costing less than £1

- Must be anonymous, just like regular currency

- Safeguards must be in place to prevent counterfeiting

- Must be independent and freely transferable regardless of nationality or storage mechanism.

## 7. Electronic Cash Storage

- Two methods

- On-line
  - Individual does not have possession personally of electronic cash
  - Trusted third party, e.g. e-banking, bank holds customers' cash accounts
- Off-line
  - Customer holds cash on smart card or electronic wallet
  - Fraud and double spending require tamper-proof encryption

#### Risks in Electronic Payment systems

- Customer's risks
  - Stolen credentials or password
  - Dishonest merchant
  - Disputes over transaction
  - Inappropriate use of transaction details
- Merchant's risk
  - Forged or copied instruments
  - Disputed charges
  - Insufficient funds in customer's account
  - Unauthorized redistribution of purchased items
- Main issue: Secure payment scheme

#### Electronic payments Issues

- Secure transfer across internet
- High reliability: no single failure point
- Atomic transactions
- Anonymity of buyer
- Economic and computational efficiency: allow micropayments
- Flexibility: across different methods
- Scalability in number of servers and users

#### Designing Electronic Payment systems

It includes several factors:

- Privacy. A user expects to trust in a secure system; just as a telephone is a safe
- Security. A secure system verifies the identity of two-party transactions through —user authentication & reserves flexibility to restrict information/services through access control
- Intuitive interfaces. The payment interface must be as easy to use as a telephone.
- Database integration. With home banking, for ex, a customer wants to play with all his accounts.
- Brokers. A —network banker—someone to broker goods & services, settle conflicts, & financial transactions electronically—must be in place
- Pricing. One fundamental issue is how to price payment system services. For e.g., from cash to bank payments, from paper-based to e-cash. The problem is potential waste of resources.
- Standards. Without standards, the welding of different payment users into different networks & different systems is impossible.

## Unit – 4

### Applications of E-Commerce

#### **E-Commerce Applications:**

1. **E-MARKETING:** E-Marketing also known as Internet marketing, Online marketing, Web marketing. It is the marketing of products or services over the internet. It is considered to be broad in scope because not refers to marketing on the internet but also done in Email and wireless media. E-Marketing ties together the creative and technical aspects of the internet, including design development, advertising and sales. Internet marketing is associated with several business models ie., B2C, B2B, C2C. Internet marketing is inexpensive when examine the ratio of cost to the reach of the target.

2. **E-ADVERTISING:** It is also known as online advertising it is a form of promotion that uses internet and world wide web to deliver marketing messages to attracts customers. Example: Banner ads, Social network advertising, online classified advertising etc. The growth of these particular media attracts the attention of advertisers as a more productive source to bring in consumers. An online advertisement also offers various forms of animation. The term online advertisement comprises all sorts of banner advertisement, email advertising, in game advertising and key soon.

3. **E-BANKING OR INTERNET BANKING:** Means any user with a personal computer and browser can get connected to his banks, website to perform any of the banking functions. In internet banking system the bank has a centralized data base i.e., web-enabled. example for E-Banking is ATM.

#### **SERVICES THROUGH E-BANKING:**

- Bill payment service.
- Fund Transfer
- Investing through internet Banking
- Shopping.

4. **MOBILE-COMMERCE:** Mobile Commerce also known as M-Commerce, is the ability to conduct, commerce as a mobile device, such as mobile phone.

#### **SERVICES ARE:**

1. Mobile ticketing
2. Mobile Vouchers, Coupons and
3. Mobile contract purchase and delivery mainly consumes of the sale of ring tones, wall-papers and games of mobile phones.

5. **E-LEARNING:** E-Learning comprises all forms of electronically supported learning and teaching's-Learning specially the computer and network skills and knowledge's-Learning applications include web-based learning, computer-based learning. Content is delivered via. The internet, intranet, audio, or video tape, satellite TV, and ED-ROM. Computer-Based Learning, refers to the use of computers as a key component of the education environment.



6. **ONLINE SHOPPING:-** Online shopping is the process whereby consumer directly buy goods or services from a seller in real time, without an intermediary services over the internet . Online shoppers commonly use credit card to make payments, however some systems enable users to create accounts and pay by alternative means ,such as:

1. Billing to mobile phones and landline.
2. Cheque.
3. Postal money order.

7. **SEARCH ENGINE:-** A web search engine is designed to search for information on the WWW and FTP servers. The search results are generally presented in list of result and are often called hits. The information may consist of web pages, images, information, and other types of files.

8. **ONLINE TRADING:-** An online trading community provides participants with a structured method for trading bantering (exchanging goods with goods) or selling goods and services. These communities often have forums and chat rooms, designed to facilitate communication between the members.

9. **ENTERTAINMENT:-** The conventional media that have been used for entertainment are

1. Books/magazines.
2. Radio.
3. Television/films.
4. Video games.

### **Applications of E-Commerce in Banking**

Here are some of the most important current applications of e-commerce in banking.

#### **1. Electronic billing**

Electronic billing is one of the biggest benefits that e-commerce has brought to both consumers and businesses. Banks now offer the ability to automatically pay your bills through their website or on their app. Companies can send out electronic invoices to their customers and receive payment automatically instead of waiting for and cashing a physical check. The connection between the ability for banks to send and receive payment digitally and the rise of e-commerce as a primary driver of sales and revenue in many businesses is not a coincidence; it would be nearly impossible to effectively have one without the other.

#### **2. ID verification**

Banks can and should take identification very seriously. The job of a credible financial institution is to ensure that the person spending is the person who should have access to the funds in the account. This has become harder the more technology has advanced. But technology has also helped drive innovation in the ability to confirm the identity and other credentials so that customers can conduct their e-commerce transaction more securely, without the possibility of data being stolen or leaked This identification process is not just a protection for the customer, but also for the retailer or vendor. It's the responsibility of all stakeholders – banks and e-commerce retailers alike – to uphold ID verification and customer information security standards.

### 3. Mobile payments

Mobile commerce, or m-commerce, is an important part of e-commerce. Mobile focused commerce has become a new normal for many people who are now able to buy everything from a dog sitter to a plane ticket from their phone. A smartphone has become another important e-commerce tool, however – a digital wallet. Customers can now pay for many of their in-person purchases with a smartphone app, whether it's a bank-backed credit card app or an app like Apple Pay which keeps payment options for customers' various financial sources together in one place for easy payment. While mobile payments are more often used to describe in-person digital transactions, they are definitely born out of the application of e-commerce in banking endeavors.

### 4. Digital-only banking

E-commerce has enabled app payments and transactions, leading the way for reeducation in physical brick and mortar banks. While many large banks with an e-commerce presence do still have in-person presences in certain communities, many banks have opened as online-only operations, such as Ally. Mortgage brokers have joined the only online finance trend as well. Having users interact with their banking primarily through an app is in line with how consumers interact with many other parts of their daily lives, from paying for coffee to ordering groceries to set doctor's appointments and more. Online-only banks can also offer a better banking experience by often being able to give customers a better interest rate on savings accounts or loans because of the money the bank itself was able to save by not having to pay overhead costs like rent, etc.

### 5. B2B innovation

The e-commerce experience has changed the way B2B buyers anticipate buying and selling experiences to go. This has largely been due to the implication of e-commerce in banking in B2C spheres. E-commerce has enabled banks to offer faster account opening, digital invoice payment, and other conveniences that B2C buyers have long enjoyed. B2B buyers have experienced these features in their non-business life and are making demands in the marketplace that their B2B experience is more consistent and matches the rest of modern life. E-commerce and banking, then, have a responsibility to continue to elevate the customer experience.

### 6. International commerce

E-commerce has made it easier for people to bank internationally or pay for goods and services from another country without having to work around banking regulations or exchange rates. Third-party vendors like PayPal work as a go-between for e-commerce retailers and financial organizations and banks.

E-commerce has created a lot of opportunities for banking and the applications of e-commerce in banking continue to grow, with both retailers and finance organizations working to create a better customer experience through technology that will help businesses from both industries grow revenue and strengthen their brand.

In the early 1990s, the Internet introduced consumers to a new shopping experience. eCommerce refers to the entire process of marketing, selling, delivering goods and servicing customers over the Internet. It has revolutionized the way companies do business. Consumers can buy almost anything online 24 hours a day. When deciding if your company should establish eCommerce as a method of retailing, carefully weigh both the advantages and disadvantages.

### Convenience

eCommerce has become the preferred method of shopping for many people. They love the ease with which they can shop online from their home at any time of the day or night. Purchasing options are quick and convenient with the ability to transfer funds online. Consumers save time

and money by searching for items and making their purchases online. It can take several days of physically going from location to location, costing time and fuel, to purchase a hard-to-find item.

### **E-commerce in retailing**

E-Commerce is an efficient retail method for business transactions. Start-up costs for establishing an E-Commerce business are far less than expanding your business with more brick and mortar locations. Fewer licenses and permits are required to start an online business than that of a physical store location. You will also save money by using fewer employees to perform operations such as managing inventory and billing customers. You won't have to search for an appropriate geographic location or worry about paying high utility costs for the facility.

#### **Privacy**

Some consumers are reluctant to embrace eCommerce because of privacy issues. Making an online purchase often requires disclosing personal information such as an address, telephone number and banking or credit card account information. While many people feel making an online purchase does not compromise their personal information, some still prefer not to take a chance of having their account information accessed by a third party, and will only make their purchases at a store-front operation.

#### **Unfamiliarity**

There are always going to be people who prefer to do their shopping at a brick and mortar location. Some people are resistant to change and may not want to embrace eCommerce due to a lack of knowledge about the process or a general reluctance to purchase an item they cannot physically examine. If the product does not meet the customer's expectations in some way, such as being the wrong size or defective, he must then spend time sending it back and waiting for the replacement product to arrive.

**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**

- Through electronic retailing, customers can save both the efforts and time.
- The wide range of products is available online, so the comparison can be made easily before the purchase.
- The customer can shop anytime and from anywhere, the facility is available 24\*7
- The huge discounts can be availed while shopping online.

- The detailed information about the product is available online; that helps the customer to make the purchase decision.
- The electronic retailing offers the easy payment terms such as payment on delivery that instigate the customer to shop online.

### **Disadvantages of Electronic Retailing:**

- The customers may not be sure of the quality of the products offered online.
- It is the tendency of every individual to bargain before making the final purchase, but this quotient is missing in electronic retailing.
- Also, the customers may not trust on the payment gateways and fear the misuse of credit cards or any other mode of payment.
- 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.
- The product is not readily available; the customer has to wait for some time to get the product in his hands.
- 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 Commerce and Online Publishing**

The Web may have blossomed because of peer-to-peer publishing, but judging from recent product offerings, there is an enormous groundswell of interest among both commercial and corporate publishers in the Web. For instance, it was reported that, in less than three months, the Wall Street Journal Interactive Edition attracted 500,000 registered readers on the Web, and that number is growing by some 3,000 readers per day. Also, the electronic edition has attracted more than thirty advertisers paying to reach this audience.

Initially, growth in the online publishing marketplace was driven by the potential of new interactive technologies and applications. The promise of new interactive publishing captured the imagination of both content providers and the public. However, from 1993 to 1995 much of online publishing was inhibited by a lack of business purpose. At that time, the content creation side of online publishing was dominated by techno-savvy individuals who were not experienced at selling and who did not understand the business of publishing. In addition, there were publishing companies who took a “Just Get Me on the Web!” approach, failing to define the business purposes driving their online presence.

As the initial euphoria wore off, publishers realized that simply having a presence on the Web did not guarantee profits. They discovered that offering exciting technology without compelling content is insufficient to capture market share. These firms are learning that the best way to capture consumers’ attention is to develop a business model that allows the company to offer unique and valuable information, programming, and services. This content, no matter how it is delivered, must be packaged so that it provides more value than alternative sources of information. The key is to identify what the customer wants and finds interesting and to avoid being distracted by new technologies. Publishers need to pay more attention to their core competency of packaging and delivering content and

making money online. These are tricky but necessary conditions to successful online publishing.

Many online publishing pioneers have gone up the technology curve and are confronting tough management questions such as how to gain market share and how to be profitable sooner than later. Some of these firms have invested tens of millions of dollars in people, equipment, and marketing, and they have not yet turned a profit. Some of the sites employ hundreds of people, with millions of dollars in payroll alone. Many early pioneers invested a huge amount of money into brand building, marketing, and content, but they have not been able to figure out which business model works best for making money.

Online publishers are developing new business models to charge customers directly and convince them that such charges are justified. As more and more firms begin to offer online content, they are being forced to adjust to new customer attitudes regarding pricing. Publishers currently finance their businesses by offering advertisers mass markets for delivering their message in return for large advertising fees. The public has been trained to think that the news, information, and entertainment they receive should be subsidized or nearly free and that advertisers will pay the bill. This approach may not be viable in the online medium when mass markets are re-placed by customers selecting their information and delivery methods.

The early online publishing pioneers are trying to accomplish a difficult feat. Newspaper and magazine publishers, some of the first to stake their claims on the Internet, are tinkering with new advertising models for their fledgling Web sites. In general, mainstream advertisers have been skittish about pumping money into a medium with an audience whose size and habits are nearly impossible to figure out. As a result of relatively low ad revenues, none of the Web publishers have turned a profit. While ad revenues are not coming close to covering expenses now, they could grow substantially in coming years as the traffic increases and brand names become established. Brand development is important because every time a user sits in front of a Web browser, she needs to make a decision about where to go. The better the brand, the more likely it is to pop up in the consumer's mind.

Another key issue in online publishing relates to digital copyrights. Effective technological protection mechanisms are vital to ensuring the availability of quality content online. Today, publishers such as only offer catalogs or sample selections of works available online. They do not and cannot offer more because in an environment where the culture and technology provide so little protection for the rights of content producers, there is too great a risk to their intellectual property. The Internet makes it extremely easy to copy, retransmit, and alter works without the permission or the copyright holder. Moreover, the digital world has no international boundaries, and policing is impossible since the levels of protections and sanctions against infringement vary widely in countries across the globe, which makes the risk even greater.

### **Online Publishing Strategies:**

As with any new development, there are generally three strategies for publishing companies to consider:

#### **Early Movers**

These are highly skilled independent publishers with existing access to such key capabilities as direct marketing and order fulfillment. These publishers have the capacity to derive the highest

benefits from new media as their learning curves are much shorter than others, and they already have many of the necessary resources at hand.

### **Watchers**

These are large publishing companies that employ scale-sensitive economics. They are unlikely to view online publishing as a sufficiently attractive channel until costs fall and distribution widens. This category includes publishers of unbranded or less distinctive content who cannot attract a sufficiently large initial consumer franchise, as well as focused publishers in categories not easily suited for the online medium.

### **Testers**

These are the majority of publishers that face either attractiveness and/ or skill challenges. Gathered here are many multi category and specialty publishers who are competing successfully in traditional markets, who are uncertain who will win in the online marketplace, and who neither need nor want to make a choice now. Testers also include branded general publishers with robust consumer franchises and attractive distribution channels already in place. For this group, the online medium appears to be an alternative.

In general, publishers are educating themselves about the potential opportunities without committing themselves to anyone position. Those with strong brand images and existing consumer franchises may choose to post-pone entry until they find viable service providers and distributors. Publishers such as the Wall Street Journal and New York Times are taking part in targeted tests and pilot projects aimed at learning what online publishing has to offer, building required skills, and exploring the attractiveness of potential channels. These tests often include a skill-building program as well as an early warning system so that a company can quickly identify and re-act to changes within the industry or economy.

Content, incentives, service, quality, and price will not be enough to compete in this new environment. Speed of delivery, bundling of products, and diversity of choice also become critical success factors. Publishers will have to innovate constantly and challenge present concepts if this form of commerce is to become widely accepted and popular. Winning in online publishing will entail developing new skills in areas such as tailored advertising, order processing and fulfillment, and customer service as well as re-learning the fundamental principles concerning why people subscribe.

### **Online Publishing Approaches**

There are four contrasting content publishing approaches.

- **The online archive approach.** This is new to the Web, but is a logical extension of the trends in electronic delivery over the past several years.
- **The new medium approach.** This is more controversial and more difficult to implement, but also more exciting.
- **The publishing intermediation approach.** This is an online extension of the third-party publisher role off-line.



- **The dynamic and just-in-time approach.** In this approach, content is assembled in real-time and transmitted in the format best suited to the user's tastes and preferences.

### **The Online Archive Approach**

The online archive approach (including bibliographic databases and full-text search/retrieval services) is one that appeals to corporate publishers and, to some extent, commercial publishers (such as academic or journal publishers) who have an existing digital archive that they want to deliver over the Web as well as on paper, CD-ROM, or other media.

The most prevalent example of online archive approach is library catalogs and bibliographic databases. Most libraries have replaced traditional card catalogs with sophisticated electronic online bibliographic databases offering an incredible range of functions. At revenues of over \$1 billion a year, bibliographic databases represent a sizable chunk of the online data-base market. An example of a bibliographic database is MEDLINE, developed by the National Library of Medicine (NLM), which caters to an increasing number of physicians who rely on online medical databases to keep up to date with the latest developments and literature. The spread of PCs has enabled physicians to directly search databases used only by librarians in the past. MEDLINE and other medical databases are available free of charge on the Internet.

The online archive approach is also being used by niche publishers such as Ziff-Davis, which began its venture into electronic publishing in 1985 with a bulletin board system for readers of PC Magazine. That bulletin board evolved in 1988 to become PC MagNet on CompuServe, which quickly grew in popularity. In 1991, Ziff-Davis created the ZD Net subscription service on CompuServe to provide a service supporting online versions of all its publications. Members of the ZD Net/CompuServe edition have access to several features, including the ZD Net University series of comprehensive online "continuing education courses, sophisticated on-line forums with top industry personalities, and a comprehensive database of past articles. In addition to its successful CompuServe subscription service, the ZD Net Web Edition (<http://www.zdnet.com>) logs access by more than 700,000 Internet hosts each month and is reportedly showing a profit.

### **The New Medium Approach**

The new medium approach (including real-time news delivery, personalized news delivery, and edutainment) aims to create new material for the Web-to treat the Web as its own medium, one deserving its own material. This approach will have the most appeal to commercial print publishers, such as magazines, that view the Web as an alternative, not a replacement, for print publications. For example, Wired magazine sees very little crossover in content between its magazine and its HotWired venture. Some writers may write for both media, but separate content streams will be developed for each medium.

This approach currently has some teething problems because of technological limitations. For instance, the formatting limitations of the Web are frustrating at the moment, but with technological advancements they will soon be forgotten. The frustrations are more than offset by the excitement of the inter-activity the Web offers; its model is both broadcasting and conversation at the same time. With online publishing there may be a well-known starting point, but with no controlling gatekeeper, the subsequent value-added improvisation from readers makes each online magazine a unique experience.

Even if the technology constraints were overcome, the expectations of the Web are so different from print media that new content, written for a Web audience, must be created. It quickly becomes apparent that under this model, the old paradigms do not work. The publisher gives up not only its brand name, but its intellectual content, too—once the information is out there, it is no longer owned. Faced with that model, all a publisher can do is “be the first with the most interesting stuff,” an approach that HotWired is taking in its attempt to create a place where readers can see what the world has to say on a minute-by-minute basis.

### **The Publishing Intermediation Approach**

The publishing intermediation approach (including online directories) exploits new service opportunities for intermediaries. For example, in the growing market for educational material such as course packs and other customized books, companies offering material owned by more than one publisher face the daunting task of obtaining permissions. New organizations that specialize in the management of copyright clearance are emerging as key players.

Online directories are important for several reasons. Companies and consumers interested in conducting electronic commerce often struggle to navigate the Internet to create an electronic marketplace. Once on that sprawling network, they are having trouble finding other companies, products, and services. The success of Yahoo’s initial public offering (IPO) underscores the importance of online directories. Yahoo (which stands for Yet Another Hierarchical Official Oracle) was created in 1994 by David Filo and Jerry Yang, two Stanford University electrical engineering PhD students who began DY simply compiling lists of their favorite Web sites. It went on to become one of the most popular means of navigating around the Internet. Yahoo is the first place millions of Internet users go when they try to find their way around the rapidly growing Internet. At one time, Yahoo was getting about 6 million visitors per day, which made it the second most active Web site next to Netscape’s home page.

Clearly, there will be a demand for intermediation because there will always be a need for a good directory to help people locate goods, services, and products. The future is bright for the publishing intermediaries who offer ease of operation, speed, and detailed information.

### **The Dynamic and Just-in-Time Publishing Approach**

Online content is no longer static information. Content can now be created in real-time and transmitted on the fly in the format best suited to the user’s location, tastes, and preferences. More importantly, the content engine recognizes repeat visitors to a site and configures the Web pages to match the individual’s known preferences. For example, a publisher planning to deploy a large product catalog will no longer have to author and update each individual Web page. Instead, the elements of each page—text, graphics, video, and sound—are stored separately in a database and used to create individualized pages on the fly as each user browses the site. The page content can be further customized to reflect which Web browser is being used, the user’s geographic location, and modem speed.

Another way of looking at dynamic publishing is that it is just-in-time publishing. That is, the stories, applets, and content flow into the computer just as consumers need them, and then self-destruct after usage. A six-story subscription to Sports World might cost 99 cents. Pictures of your favorite actor might go for \$1.99. Want to buy a round in a cyber adventure game? How about a quarter? However, there is one question that constrains this vision: How can payments be collected

on a product that costs a nickel or dime? So who cares if it costs 15 cents or more to process the transaction? Businesses do, and to satisfy the small-amount transaction market need, “micropayments” are essential.

A number of micropayment schemes are emerging. The world of online entertainment-specifically “pay-for-play” outlets being developed by Sony, Sierra On-Line, and others-could serve as the best model for every-one else [PCW96]. Clearly publishers and developers should be thinking about low-value payments, but it is still too early for most companies to de-ploy. For micro payments to work, transaction costs must be very small (around 10 cents), and they are nowhere near that yet. What is more, the proposed schemes vary widely and many kinks in the micro payment puzzle have to be worked out.

## **E-commerce and online marketing**

Marketing is carried out with the intent of reaching out to a maximum number of people in exchange of minimum cost. When Internet was still in its formative years, marketing people used to depend on traditional media such as television, radio, handbills, billboards, newspapers, and magazines.

Today, the Internet is premium source for promoting your business. There has been a rapid rise in the number of internet users since last few years. Thus Internet is the lucrative place to promote the business.

## **What is Marketing?**

As defined by the American Marketing Association, “marketing is the activity, set of institutions and processes for creating, communicating, delivering, and exchanging offers that have value for customers, clients, partners, and society at large”.

Marketing changes the perspective of a person. There are two approaches of marketing –

Traditional marketing

Online marketing

What is Online Marketing?

Online marketing is advertising and marketing the products or services of a business over Internet.

Online marketing relies upon websites or emails to reach to the users and it is combined with e-commerce to facilitate the business transactions. In online marketing, you can promote the products and services via websites, blogs, email, social media, forums, and mobile Apps.

Online marketing is also termed as Internet marketing, Web marketing, or simply, OLM.

## **Difference between Traditional and Online Marketing**

The goal of traditional marketing and online marketing are same – To attract and drive visitors of advertise to buy the product thereby increasing the business profit. Let us see the difference between two approaches now –

Traditional Marketing	Online Marketing
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It is difficult to measure. You cannot know how many people read your advertise and how many took favorable action upon viewing it.

It is measurable. You can know the number of people who viewed the online advertise, and the number of ones who purchased the product.

It is not cost-effective.

It is more cost-effective.

It is not so good for brand building.

It is fast and efficient for brand building.

In some way, it interrupts regular activities of users such as television advertises interrupt the program you are watching, billboards divert focus of the driver, etc. It is not interrupting. The user can attend online advertises as per his/her convenience and preferences.

It may leave users' queries unanswered as printing or narrating complete information about the product or service may not be always feasible.

It can provide maximum information about the product or service, offers, and transactions.

Online marketing is widely practiced strategy of advertising or promoting sales and name of the business. Wise use of the online marketing strategies can take the business to unprecedented levels of success.

### Components of Online Marketing

Online marketing has various components as shown in the illustration below –

### Components of Online Marketing

Here in this tutorial, we will provide an insight into each of these components one by one in detail.

#### Market Research

Business organizations need to set clear objectives and strong market understanding. To research the market, you can:

Review your website traffic.

Review the Ad conversion rates.

Review the queries asked by your existing customers.

Identify the customers' pain points that they post on various platforms such as yahoo answers, blogs, social media, and other sites.

Anticipate and compile a list of Frequently Asked Questions (FAQs) with their clear answers and align them to customers' pain points.

Include the fact sheet about product if required.

#### Keyword Research

Choosing a correct and relevant set of keywords can help design a crisp and persuasive advertise for online marketing. Before accessing any keyword research tool, ask yourself –

What is the purpose of this web page?

How clearly can I state the conversion event?

Have I clearly answered all the pain points that users might look for on this page?

Which phrases the users might enter while looking for a solution?

Are my keywords relevant to the users' intent?

#### SEO Friendly Website

Mapping the right keywords around the users' pain points in a hierarchical manner makes an effective website. You need to categorize the keywords in a thematic order and then link the respective articles to the keywords. This makes the website easy maintain.

#### Web Analytics

The ultimate goal of analytics is to identify actionable insights on monthly basis which can help to make favorable changes to the website gradually. This in turn ultimately leads to strong profits in long term.

#### Online Advertising

It is placing crisp, simple, and tempting Ads on the websites to attract the viewers' attention and developing viewers' interest in the product or service.

#### Mobile Advertising

It is creating awareness about the business and promoting it on smart phones that people carry with them inseparably.

#### Search Engine Optimization (SEO)

It is the activity of optimizing web pages or complete website in order to make them search engine friendly, thus getting higher position in the search results. It contributes to overall rankings of the keywords through influencing factors such as appropriate titles, meta descriptions, website speed, links, etc.

#### Social Media Marketing

It includes creating profiles of your brand on social media platforms such as Google Plus, LinkedIn, Pinterest, Twitter, Facebook, etc. It assures that you remain connected to the existing or potential customers, build awareness about the products and services, create interest in and desire to buy your product, and interact with the customers on their own terms and convenience.

#### Email Marketing

You can interact with the customers to answer their queries using automatic responders and enhance the customer experience with your website.

You can offer the options such as signing-in to subscribe to your newsletter. You can make the emails catchy and crisp, so that they don't make recipients annoyed. Also, you can use selected best words in the subject line to boost the open rate.

#### Content Marketing

It includes creation and sharing of media and publishing the content in order to acquire and retain customers.

#### Blogs

Blogs are web pages created by an individual or a group of individuals. They are updated on a regular basis. You can write blogs for business promotion.

#### Banners

Banners are long strips of cloth with a slogan or design. They are carried for demonstration, procession, or hung in a public place. There are internet banners in parallel to tangible banners for advertising.

#### Internet Forums

They are nothing but message boards of online discussion websites, where people posts messages and engage into conversation.

#### Online Marketing - Terminology

Here is a list of the standard terms used in the domain of online marketing –

##### Advertiser

It is a person or an organization that places advertisements to drive sale or lead through it.

##### Banner

It is an online advertisement in the form of a graphic image that appears on a web page.

##### Bid

It is the maximum amount an advertiser is ready to pay for a click.

##### Black Hat and White Hat Tactics

They both are the tactics of online marketing. There is no color significance about being good or bad.

Black Hat Tactics are less pure and farther from search engine's terms of service.

White Hat Tactics of online marketing are closely bound to a search engine's terms of service.

##### Breadcrumbs Navigation

It is a navigation scheme that reveals user's location on the website or application. It offers a way to trace the path back to the user's original landing point.

##### Campaign

It is a series of operations performed to achieve a desired goal in a particular area.

##### Click Through Rate (CTR)

Click Through Rate = Clicks / Impressions %

##### Conversion

A visitor when completes a target action.

##### Cost Per Acquisition (CPA)

It is the cost the advertiser pays only when a desired action is achieved.

##### Cost Per Click (CPC)

It refers to the amount the advertiser pays when his Ad is clicked on, giving him a visitor to his website – typically from a search engine in PPC marketing.

##### Cost per Mille (CPM)



It is the amount paid for every 1000 impressions of an advertisement.

#### Customer Pain Points

They are annoying, frustrating, and difficult to solve things or situations for the customer, which the customers may not have anticipated or cannot verbalize. They need urgent addressing.

#### If This Then That (IFTTT)

It is a web-based service with which the users can create chain of primitive conditional statements, called recipes. The recipes are triggered based on changes to other web services such as Gmail, Facebook, Instagram, etc.

#### Inbound Link

It is a hyperlink on a third-party web page that points to a web page on your website.

#### Key Performance Indicator (KPI)

It is a metric that shows whether an objective of the business is achieved.

#### Market Reach

It is the total number of people or households exposed at least once to a medium of Advertising in given span of time.

#### Paid Search Advertising

It refers to paid advertising on search engines, sometimes called PPC advertising. The advertiser pays only for each click on the Ad.

#### Publisher

It provides the advertisers a required amount of space on its website to publish the advertisement.

#### Quality Score

It is a variable that influences ranking of a website.

#### Search Engine Optimization

It is process of elevating website ranking in the unpaid results of search engine.

#### Tracking

It is measuring the effectiveness of an online advertise by collecting and evaluating statistics.

#### Web Indexing

It is the method of indexing the contents of the website or the internet as a whole.

In the era of Internet, people can get a lot of information online, which increases their awareness about lifestyles, products, and services. For them, the Internet serves as a channel for not only communication but also for transaction and distribution. People can visit the website and can pay online for what they purchase.

You can increase the business profit in multifold by online advertises of your products and services.

## **E-commerce in e-advertising**

Online advertising is a type of business promotion which uses Internet to deliver marketing messages to attract customers.

With the rapid growth of Internet users and Internet technology, a number of businesses started to advertise their products and services online.

### **Publishing an Online Advertise**

Publishing an online Ad is a sequential process. The following diagram shows the basic steps an Ad publisher takes to create and post the Ad online –

#### **Ad Planning**

The marketing team conducts analysis of various domains.

- Marketing analysis
- Product targeting analysis
- Audience analysis
- Customer targeting analysis

Based on the analysis results, the advertiser decides on –

- Selecting a publisher
- Ad presentation approach
- Approach of posting the Ad
- Ad posting schedules
- Creating Ad Space Catalog

Ad space list is created to record Ad space availability status, space profile, location, presentation, scheduling method, frequency, etc.

#### **Trading Ad Space**

Advertisers and Publishers interact to determine online Ad space. There are three types of Ad space trading –

**Buy and Sell** – Publishers sell the Ad space schedule to Advertisers on first-come-first-serve basis.

**Space Auction** – Ad space bidding is conducted to settle the trade.

**Space Exchange** – Multiple publishers interact with each other to sell the space schedules available with them, which have not been sold.

#### **Scheduling the Ad Space**

The online publishers create and maintain advertising schedules for the online Ad space. They help the advertisers for booking, purchasing, and confirming various schedules for online advertisements.

#### **Materializing the Ad Space**

The online publishers collect advertisement from the advertiser and materialize the specified ad spaces by displaying the advertisement as per the specified schedules.

## **Measuring an Ad Space**

All active Ad spaces in the publishing websites are monitored and measured. After the Ad is actually visible and accessible online, it is evaluated regularly for performance. The analyzers collect data and evaluate the effectiveness on the viewers, its popularity, Ad space management, etc.

## **Ad Closure**

The advertisers pay the publishers by pre-decided terms of payment for the published online Ad.

## **Online Advertising Performance Measurement**

The performance of an online Ad is measured to enable the marketing team to analyze the readings of measurement.

What Does the Performance Measures Tell?

The performance measurement can uncover the following facts –

Effectiveness of the Ad on views.

Problems related to the Ad such as inappropriate content, incorrect targeting of people, Ad place, and timing for publishing.

Estimation and prediction of sales in short and long terms.

Online Advertising - What to Measure?

The performance metrics of Online Ad are as follows –

Clicks – It is the number of times viewer clicks the Ad. It can be taken as viewer's acknowledgement to your Ad. It suggests that the viewer has seen the Ad and wants further information.

Impressions – It is the number of times your Ad is displayed on the web page.

Click Through Rate (CTR) – It is the ratio of Ad clicks to Ad impressions. The higher the CTR, the more relevant your Ad is.

Cost Per Click (CPC) – It is the amount advertiser pays for each click on the Ad. The number of clicks determines the amount of payment. The lower CPC is better.

Cost Per Thousand Impressions or Cost Per Mille (CPM) – It is the amount the advertiser pays for thousand clicks.

Return On Investment (ROI) – It is  $(\text{Return} - \text{Investment}) \times 100$ . The higher ROI is better.

## **Advantages of Online Advertising**

Online advertising is beneficial over conventional advertising in many ways.

Internet access is easy and affordable. Today, the number of global internet users is almost 3 billion. No other conventional advertising medium can bring such huge audience for your products or services.

Internet is capable of serving multimedia substance such as audio and video content apart from text and graphics. Multimedia advertisements are highly persuasive.

Internet by nature is interactive. It can provide a reliable platform for smooth shopping experience for people. The conversion rate is high for compelling advertises.

No time or demographic constraints on delivering the online advertise.

Online advertising is promotional as well as informational.

It brings speedy outcomes.

It provides effective performance tracking.

### **E-Commerce and E-branding**

Internet branding is one strategy that business owners can employ to establishing their position in the marketplace. Even well-established companies are investing on creating an online brand reputation since internet branding strategies have also produced massive impact on a brand's effort to expand. This is most important these days wherein the internet has taken on a significant role in the everyday lives of the consumers. Hence, you need to utilize it as one of the means that you can communicate your message to them.

With internet branding, you are basically utilizing the tools provided by the internet as leverage to all your marketing efforts. The objective with using the internet as a medium for promoting your brand works the same way as any other branding methods, which is to increase the demand for the products in your brand.

### **Importance of Internet Branding**

Every business owner is aware of the benefits that a good brand can make for your company. Since the brand is basically what distinguishes you from any other companies that offer the same product or service, you must execute your branding strategies properly to produce the results you want. Take a look at some successful brands in the industry, which have become so distinct to the point wherein their names have been associated with a certain product. This is what business owners must try to aim for.

In business terms, this is referred to as brand positioning. It establishes the main locus of your product to the target market. Therefore, you will be utilizing the specific features that make your product distinct from the other and use that as a focus of your message in the internet branding effort. Indeed, product differentiation and product positioning are closely linked to one another. These are two basic plays that you can utilize in your internet branding strategies to own a segment of the market and produce a loyal customer base from that.

### **E-Branding**

In today's net-savvy world, e-branding is an essential requirement for survival amongst the competition. Your brand is what your product is and what it stands for including your core values, competencies, attitudes, vision, mission, personality and appearance. Companies, as well as individuals, understand the importance of e-Branding, and the untapped potential of social networks which are quite essential for growth.

**Impeccable Advertising Asset :-** As our entire society is transferred to digital bits, your eBrand becomes a digital asset and an avatar for being a part of a great advertising new world

**Acknowledgment: –** E-Branding provides you a tag of Knowledgeable and technologically savvy company which marches ahead with the demand of the hour.

**Renounce and Reputation:-**E-Branding is growing exponentially, and both individuals and corporations who underestimate the power of their online reputation will suffer from arriving late to a venue that is already crowded with established brands. Thus, if you capture the golden opportunity of E-branding you will not only gain you renounce in the market and reputation amongst the customers.

**Familiarity and Loyalty: –** The Internet is transforming customer buying behavior, with major consequences for how the new breed of consumer develops familiarity with, and ultimately loyalty to, brand.

**Successful Marketing Strategy :-**E-branding is just recomposing marketeering traffic, build brand equity and capture customer loyalty in the Internet age with one of the most economical and specific audience-targeted way .

**Expand Customer Relationship: –** e brand will not only advertise or popularize your product or service but it will also expand your customer relationship. With the advantage of communicating to your customers you can also build a strong relationship and bond between them which would surely lure and attract them to your products and services.

**Deepen Market Penetration: –** your own e brand will bring you a deeper market penetration that is you would get much inside the roots of the marketing and advertising your product and ultimately achieving your goals of an established market standing.

**Lead Generation :-** In this 21st century it's the need of the hour for your company to be in the virtual field that is to have a e brand so that you are also the part of the grand global internet community where you can easily and feasibly showcase your product and can capture the tech savvy generation .

E-branding is one of the most integral parts of a marketing campaign for any organization. A well designed informative website is the only medium through which an organization can reach out to the world in a short span of time and give the potential customers a glimpse of the business an organization is into.

**Challenges brands face online**

There are many challenges that personal and corporate brands face online. Companies are being forced to open their culture and communicate with the outside world in a way that embraces two-

way communication. People need to be found and positioned as experts in their niches. In both situations, there are challenges that may impede the branding process. The following experts shed light on these challenges:

Brands face two main challenges online today: making sure they have a presence where their current and future customers are and moving forward with trends faster than ever before. With the explosion of so much personal digital communication—social networks, IM platforms, blogs, podcasts, virtual worlds, mobile, etc.—brands are facing the prospect of too many channels. We’ve gone from the concept of mass marketing to mass micromarketing in an incredibly short period of time, and it’s difficult for brand managers to understand which are the most important to focus on.

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## Unit – 5

### E-Commerce Security

#### **E-commerce Security**

E-commerce security is the protection of e-commerce assets from unauthorized access, use, alteration, or destruction. While security features do not guarantee a secure system, they are necessary to build a secure system. Dimensions of E-commerce Security:

1. Integrity – The ability to ensure that information being displayed on a web site or transmitted or received over the internet has not been altered in any way by an unauthorized party.
2. Nonrepudiation – The ability to ensure that e-commerce participants do not deny (i.e. repudiate) their online actions.
3. Authenticity – The ability to identify the identity of a person or entity with whom you are dealing in the internet.
4. Confidentiality – The ability to ensure that messages and data are available only to those who are authorized to view them.
5. Privacy – The ability to control the use of information about oneself.
6. Availability – The ability to ensure that an e-commerce site continues to function as intended.

#### **E-Commerce Security Tools**

Security is an essential part of any transaction that takes place over the internet. Customer will lose his/her faith in e-business if its security is compromised. The various E-Commerce Security Tools are as follows:

1. Firewalls – Software and Hardware.
2. Public Key infrastructure.
3. Encryption software.
4. Digital certificates.
5. Digital Signatures.
6. Biometrics – retinal scan, fingerprints, voice etc.
7. Locks and bars – network operations centres.

##### **1. Firewalls – Software and Hardware**

Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks

connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. Firewalls can be either hardware or software but the ideal firewall configuration will consist of both. In addition to limiting access to your computer and network, a firewall is also useful for allowing remote access to a private network through secure authentication certificates and logins.

##### **2. Public Key infrastructure**

A public key infrastructure (PKI) supports the distribution and identification of public encryption keys, enabling users and computers to both securely exchange data over networks such as the Internet and verify the identity of the other party. The purpose of a PKI is to facilitate the secure electronic transfer of information for a range of network activities such as e-commerce, internet banking and confidential email.

### 3. Encryption software

Encryption is a generic term that refers to the act of encoding data, in this context so that those data can be securely transmitted via the Internet. Encryption software is software that can encrypt and decrypt data, often in the form of files on a hard drive or packets sent over a network. Software encryption is a fundamental part of modern computer communications and file protection. The purpose of encryption is to prevent third parties from recovering any of the original data, or even any information about the data, from the encrypted data.

### 4. Digital certificates

Digital Certificates are a means by which consumers and businesses can utilise the security applications of Public Key Infrastructure (PKI). PKI comprises of the technology to enable secure e-commerce and Internet based communication.

### 5. Digital Signatures

Digital signatures are the public-key primitives of message authentication. In the physical world, it is common to use handwritten signatures on handwritten or typed messages. They are used to bind signatory to the message. Similarly, a digital signature is a technique that binds a person/entity to the digital data. Like a written signature, the purpose of a digital signature is to guarantee that the individual sending the message really is who he or she claims to be. Digital signatures are especially important for electronic commerce and are a key component of most authentication schemes. To be effective, digital signatures must be unforgeable. There are a number of different encryption techniques to guarantee this level of security.

### 6. Biometrics

Biometrics generally refers to the study of measurable biological characteristics. In computer security, biometrics refers to authentication techniques that rely on measurable physical characteristics that can be automatically checked.

There are several types of biometric identification schemes:

face: the analysis of facial characteristics

finger: the analysis of an individual's unique fingerprints

hand geometry: the analysis of the shape of the hand and the length of the fingers

retina: the analysis of the capillary vessels located at the back of the eye

iris: the analysis of the colored ring that surrounds the eye's pupil

signature: the analysis of the way a person signs his name.

vein: the analysis of pattern of veins in the back of the hand and the wrist

voice: the analysis of the tone, pitch, cadence and frequency of a person's voice.

## 7. Network operations centres

A network operations centre (NOC) is a place from which administrators supervise, monitor and maintain a telecommunications network. Large enterprises with large networks as well as large network

service providers typically have a network operations centre, a room containing visualizations of the

network or networks that are being monitored, workstations at which the detailed status of the network can be seen, and the necessary software to manage the networks. The network operations centre is the

focal point for network troubleshooting, software distribution and updating, router and domain name management, performance monitoring, and coordination with allied networks.

## Privacy Issues in E-Commerce

Users may be reluctant to share their personal data if they believe their privacy can be invaded, at risk or shared with third parties without their consent.

Unauthorized access to or reuse of their personal data, as well as illegal sale of their private information to other parties, are one of their main concerns. Threats affecting an e-commerce site can compromise personal data from their visitors. These can be accidental, intentional or due to human error. The most typical security and privacy threats include phishing and social engineering, personal or card data theft or misuse, malware, and hacking.

Two highly prevalent threats that can adversely impact the personal information of an e-commerce site visitor are phishing and social engineering attacks. With this technique, hackers send emails to customers presenting themselves as a legitimate business and attempting to get users into clicking on malware links or disclosing their personal or card information.

Another privacy threat to e-commerce is password and identity theft. Sites should enforce strong passwords or advanced authentication methods while raising awareness to their visitors or customers about best practices when creating passwords (i.e. do not reuse passwords or use simple patterns). Otherwise, attackers might find patterns and easily discover user passwords allowing for their personal data to be stolen

## Security Issues in E-Commerce Transactions

**Authentication:-** Authentication ensures that the origin of an electronic message is correctly identified. This means having the capability to determine who sent the message and from where or which machine. Without proper authentication, it will be impossible to know who actually placed an order and whether the order placed is genuine or not.

**Non-Repudiation:-** Non-Repudiation is closely related to authentication and this ensures that the sender cannot deny sending a particular message and the receiver cannot deny receiving a message.

**Access Control:-** If access control is properly implemented, many other security problems like lack of privacy will either be eliminated or mitigated. Access control ensures only those that legitimately require accesses to resources are given access and those without valid access cannot have access.

**Confidentiality or Privacy:-** Privacy ensures that only authorized parties can access information in any system. The information should not be distributed to parties that should not receive it. Issues related to privacy can be considered as a subset of issues related to access control.

**Integrity:-** Integrity ensures that only authorized parties can make changes to the documents transmitted over the network.

### **Secure Electronic Transaction (SET)**

Secure Electronic Transaction (SET) is an open protocol which has the potential to emerge as a dominant force in the security of electronic transactions.

Jointly developed by Visa and MasterCard, in conjunction with leading computer vendors such as IBM, Microsoft, Netscape RSA, and GTE.

SET is an open standard protocol for protecting the privacy and ensuring the authenticity of electronic transactions.

#### **Functions of SET**

- § Provide confidentiality of payment and ordering information.
- § Ensure the integrity of all transmitted data.
- § Provide authentication that a card holder is a legitimate user of a credit card account.
- § Provide authentication that a merchant can accept credit card transactions through its relationship with a financial institution.
- § Ensure the use of best security practices and system design techniques to protect all legitimate parties in an electronic commerce transaction.
- § Create a protocol that neither depends on transport security mechanisms nor prevents their use.
- § Facilitate and encourage interoperability among software & network providers.

#### **Participants in the SET system**

##### **Scope of SET**

1. Motivated by the large amount of unsecured credit-card based transactions on the Internet.
2. Network payments treated in a similar way to Mail Order/Telephone Order (MOTO) transactions.
3. SET applies only to the 'front end' of payment no need to change the 'back end'.
4. SET only addresses Payment - other protocols for shopping, payment method selection etc. will be developed by others.

#### **Secure Socket Layer (SSL)**

SSL is a protocol developed by Netscape for transmitting private documents via the Internet.

SSL uses 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.

The SSL provides end-to-end secure data transmission between the web server and the web client.

It is sandwiched between the TCP/IP and the application layer.

Unlike TCP/IP that offers only reliable packet transfer, SSL ensures secure packet transfer.

How SSL works?

The SSL performs two functions-it authenticates the websites and ensures secure data transmission between the web server and the client.

It achieves this either by using symmetric encryption or asymmetric encryption.

In symmetric encryption, a key called the private key is used both for encrypting and decrypting the data. For symmetric encryption to work, the sender & receiver should share the private key.

This is possible only when the sender & receiver know each other.

In asymmetric encryption, two separate keys are used to encrypt & decrypt data. The public key is shared with the other person and the private key is known only to the person who decrypts the data. So, the private key will remain a secret while the public key will be known to both the parties.

E-commerce security is the protection of e-commerce assets from unauthorized access, use, alteration, or destruction. While security features do not guarantee a secure system, they are necessary to build a secure system.

Dimensions of E-commerce Security:

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E-Commerce Security Tools

Security is an essential part of any transaction that takes place over the internet.

Customer will lose his/her faith in e-business if its security is compromised. The various E-Commerce Security Tools are as follows:

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2. Public Key infrastructure.
3. Encryption software.
4. Digital certificates.
5. Digital Signatures.
6. Biometrics – retinal scan, fingerprints, voice etc.
7. Locks and bars – network operations centres.

## **Security Issues in E-Business**

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions:

Confidentiality – Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.

Integrity – Information should not be altered during its transmission over the network.

Availability – Information should be available wherever and whenever required within a time limit specified.

Authenticity – There should be a mechanism to authenticate a user before giving him/her an access to the required information.

Non-Repudiability – It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.

Encryption – Information should be encrypted and decrypted only by an authorized user.

Auditability – Data should be recorded in such a way that it can be audited for integrity requirements.

### **E-commerce security can be divided into two broad types:**

#### **(1) Client-Server Security**

Client-server securities are popular because they increase application processing efficiency while reducing costs and gaining the maximum benefit from all resources working together. These benefits are gained by splitting processing between the client machine/software and server machine/software. Each process works independently but in cooperation and compatibility with other machines and applications (or pieces of applications).

All independent processing must be performed to complete the requested service. Cooperation of application processing produces another client-server advantage, it reduces network traffic. Since each node (client and/or server) performs part of the processing within itself, network communication can be kept to a minimum. For example, static processes, like menus or edits, usually take place on the client-side. The server, on the other hand, is responsible for processes like updating and reporting.

#### **(2) Data and Transaction Security**

Secure Electronic Transaction (SET) is a system for ensuring the security of financial transactions on the Internet. It was supported initially by Mastercard, Visa, Microsoft, Netscape, and others. With SET, a user is given an electronic wallet (digital certificate) and a transaction is conducted and verified using a combination of digital certificates and digital signatures among the purchaser, a merchant, and the purchaser's bank in a way that ensures privacy and confidentiality. SET makes use of Netscape's Secure Sockets Layer (SSL), Microsoft's Secure Transaction Technology (STT), and Terisa System's Secure Hypertext Transfer Protocol (S-HTTP). SET uses some but not all aspects of a public key infrastructure (PKI).



## E-Commerce Threats

Some of the common security threats we may come across:

### Malware

Malware, or malicious software, is any program or file that is harmful to a computer user. Malware includes computer viruses, worms, Trojan horses and spyware. These malicious programs can perform a variety of functions, including stealing, encrypting or deleting sensitive data, altering or hijacking core computing functions and monitoring users' computer activity without their permission.

### Virus

A computer virus is a type of malicious software program ("malware") that, when executed, replicates itself by modifying other computer programs and inserting its own code. When this replication succeeds, the affected areas are then said to be "infected" with a computer virus.

Computer viruses currently cause billions of dollars' worth of economic damage each year, due to causing system failure, wasting computer resources, corrupting data, increasing maintenance costs, etc. In response, free, open-source antivirus tools have been developed, and an industry of antivirus software has cropped up, selling or freely distributing virus protection to users of various operating systems. As of 2005, even though no currently existing antivirus software was able to uncover all computer viruses (especially new ones), computer security researchers are actively searching for new ways to enable antivirus solutions to more effectively detect emerging viruses, before they have already become widely distributed.

### Spam

Spam is the electronic equivalent of the 'junk mail' that arrives on your doormat or in your post-box. However, spam is more than just annoying. It can be dangerous – especially if it's part of a phishing scam.

Spam emails are sent out in mass quantities by spammers and cybercriminals that are looking to do one or more of the following:-

- a. Make money from the small percentage of recipients that actually respond to the message.
- b. Run phishing scams – in order to obtain passwords, credit card numbers, bank account details and more
- c. Spread malicious code onto recipients' computers,

### Spyware threats

A Spyware is generally loosely defined as software that's designed to gather data from a computer or other device and forward it to a third party without the consent or knowledge of the user. This often includes collecting confidential data such as passwords, PINs and credit card numbers, monitoring keyword strokes, tracking browsing habits and harvesting email addresses. In addition to all of this, such activities also affect network performance, slowing down the system and affecting the whole business process. It is generally classified into four main categories: Trojans, adware, tracking cookies and system monitors.

### Trojan horse

A Trojan horse is a destructive program that masquerades as a benign application. Unlike viruses, Trojan horses do not replicate themselves but they can be just as destructive. One of the most insidious types of Trojan horse is a program that claims to rid your computer of viruses but instead introduces viruses into your system.

### Worms

A computer worm is a standalone malware computer program that replicates itself in order to spread to other computers. Often, it uses a computer network to spread itself, relying on security failures on the target computer to access it. Worms almost always cause at least some harm to the network, even if only by consuming bandwidth, whereas viruses almost always corrupt or modify files on a targeted computer.

## Securing E-Commerce Network

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions:

Confidentiality – Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.

Integrity – Information should not be altered during its transmission over the network.

Availability – Information should be available wherever and whenever required within a time limit specified.

Authenticity – There should be a mechanism to authenticate a user before giving him/her an access to the required information.

Non-Repudiability – It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.

Encryption – Information should be encrypted and decrypted only by an authorized user.

Auditability – Data should be recorded in such a way that it can be audited for integrity requirements.

## Measures to Ensure Security

Encryption – It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and only the specified receiver can decrypt the data using the same or a different secret code.

Digital Signature – Digital signature ensures the authenticity of the information. A digital signature is an e-signature authenticated through encryption and password.

Security Certificates – Security certificate is a unique digital id used to verify the identity of an individual website or user.

## Security Protocols in Internet:-

We will discuss here some of the popular protocols used over the internet to ensure secured online transactions.

### (1) Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements –

Authentication

Encryption

Integrity

Non-reputability

“https://” is to be used for HTTP urls with SSL, where as “http://” is to be used for HTTP urls without SSL.

## (2) Hypertext Transfer Protocol(HTTP)

The Hypertext Transfer Protocol (HTTP) is an application protocol for distributed, collaborative, and hypermedia information systems. HTTP is the foundation of data communication for the World Wide Web.

Hypertext is structured text that uses logical links (hyperlinks) between nodes containing text. HTTP is the protocol to exchange or transfer hypertext.

HTTP functions as a request–response protocol in the client–server computing model. A web browser, for example, may be the client and an application running on a computer hosting a web-site may be the server. The client submits an HTTP request message to the server. The server, which provides resources such as HTML files and other content, or performs other functions on behalf of the client, returns a response message to the client. The response contains completion status information about the request and may also contain requested content in its message body.

A web browser is an example of a user agent (UA). Other types of user agent include the indexing software used by search providers (web crawlers), voice browsers, mobile apps, and other software that accesses, consumes, or displays web content.

## (3) FIREWALL

In computing, a firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules. A firewall typically establishes a barrier between a trusted internal network and untrusted external network, such as the Internet.

Firewalls are often categorized as either network firewalls or host-based firewalls. Network firewalls filter traffic between two or more networks and run on network hardware. Host-based firewalls run on host computers and control network traffic in and out of those machines.

Types:-

An illustration of where a firewall would be located in a network

Firewalls are generally categorized as network-based or host-based. Network-based firewalls are positioned on the gateway computers of LANs, WANs and intranets. They are either software appliances running on general-purpose hardware, or hardware-based firewall computer appliances. Firewall appliances may also offer other functionality to the internal network they protect, such as

acting as a DHCP or VPN server for that network. Host-based firewalls are positioned on the network node itself and control network traffic in and out of those machines. The host-based firewall may be a daemon or service as a part of the operating system or an agent.

#### (4) PERSONAL FIREWALL

A personal firewall is an application which controls network traffic to and from a computer, permitting or denying communications based on a security policy. Typically it works as an application layer firewall.

A personal firewall differs from a conventional firewall in terms of scale. A personal firewall will usually protect only the computer on which it is installed, as compared to a conventional firewall which is normally installed on a designated interface between two or more networks, such as a router or proxy server. Hence, personal firewalls allow a security policy to be defined for individual computers, whereas a conventional firewall controls the policy between the networks that it connects.

#### (5) INTRUSION DETECTION SYSTEM (IDS)

An intrusion detection system (IDS) is a type of security software designed to automatically alert administrators when someone or something is trying to compromise information system through malicious activities or through security policy violations.

An IDS works by monitoring system activity through examining vulnerabilities in the system, the integrity of files and conducting an analysis of patterns based on already known attacks. It also automatically monitors the Internet to search for any of the latest threats which could result in a future attack.

An intrusion detection system (IDS) is a device or software application that monitors a network or systems for malicious activity or policy violations. Any malicious activity or violation is typically reported either to an administrator or collected centrally using a security information and event management (SIEM) system. A SIEM system combines outputs from multiple sources, and uses alarm filtering techniques to distinguish malicious activity from false alarms.

#### (6) VIRTUAL PRIVATE NETWORK

A virtual private network (VPN) extends a private network across a public network, and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running across the VPN may therefore benefit from the functionality, security, and management of the private network.

VPNs may allow employees to securely access a corporate intranet while located outside the office. They are used to securely connect geographically separated offices of an organization, creating one cohesive network. Individual Internet users may secure their transactions with a VPN, to circumvent geo-restrictions and censorship, or to connect to proxy servers for the purpose of protecting personal identity and location in order to stay anonymous on the internet. However, some Internet sites block access to known VPN technology to prevent the circumvention of their geo-restrictions. Therefore, many personal use VPN providers have been developing technologies to bypass the blocking of proxies.

## (7)PUBLIC KEY INFRASTRUCTURE

A public key infrastructure (PKI) is a set of roles, policies, and procedures needed to create, manage, distribute, use, store, and revoke digital certificates and manage public-key encryption. The purpose of a PKI is to facilitate the secure electronic transfer of information for a range of network activities such as e-commerce, internet banking and confidential email. It is required for activities where simple passwords are an inadequate authentication method and more rigorous proof is required to confirm the identity of the parties involved in the communication and to validate the information being transferred.

In cryptography, a PKI is an arrangement that binds public keys with respective identities of entities (like people and organizations). The binding is established through a process of registration and issuance of certificates at and by a certificate authority (CA). Depending on the assurance level of the binding, this may be carried out by an automated process or under human supervision.

### Measures to ensure Security

**Encryption:** It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and only the specified receiver can decrypt the data using the same or a different secret code.

**Digital Signature:** Digital signature ensures the authenticity of the information. A digital signature is an e-signature authenticated through encryption and password.

**Security Certificates:** Security certificate is a unique digital id used to verify the identity of an individual website or user.

### Security Protocols in Internet

We will discuss here some of the popular protocols used over the internet to ensure secured online transactions.

### Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements:

Authentication

Encryption

Integrity

Non-repudability

“https://” is to be used for HTTP urls with SSL, where as “http://” is to be used for HTTP urls without SSL.

### Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication, and digital signature over the internet. Secure HTTP supports multiple security mechanism, providing security to the end-users. SHTTP works by negotiating encryption scheme types used between the client and the server.

## Secure Electronic Transaction

It is a secure protocol developed by MasterCard and Visa in collaboration. Theoretically, it is the best security protocol. It has the following components:

**Card Holder's Digital Wallet Software:** Digital Wallet allows the card holder to make secure purchases online via point and click interface.

**Merchant Software:** This software helps merchants to communicate with potential customers and financial institutions in a secure manner.

**Payment Gateway Server Software:** Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.

**Certificate Authority Software:** This software is used by financial institutions to issue digital certificates to card holders and merchants, and to enable them to register their account agreements for secure electronic commerce.

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions –

**Confidentiality:** Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.

**Integrity:** Information should not be altered during its transmission over the network.

**Availability:** Information should be available wherever and whenever required within a time limit specified.

**Authenticity:** There should be a mechanism to authenticate a user before giving him/her an access to the required information.

**Non-Repudiability:** It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.

**Encryption:** Information should be encrypted and decrypted only by an authorized user.

**Auditability:** Data should be recorded in such a way that it can be audited for integrity requirements.

### Cryptography

Cryptography is the process through which the messages are altered so that their meaning is hidden from adversaries who might intercept them. Plain text is a message readable by anyone. Cipher text is plain text that has been modified to protect its secrecy.

Encryption converts plain text to cipher text; Decryption converts cipher text to plain text.

“Cryptography addresses the principles, means and methods used to disguise information in order to ensure its authenticity”.

Cryptography is used to achieve:-

- Confidentiality: only authorized persons can access information.
- Integrity: information that was sent is what was received.
- Authentication: guarantee of originator of electronic transmission.
- Non-repudiation: originator of information cannot deny content or transmission.

Types of Cryptography:-

Private Key Cryptography



## Public Key Cryptography

### Private Key Cryptography

In private-key cryptography, the sender and receiver agree beforehand on a secret private key. The plain text is somewhat combined with the key to create the cipher text. The method of combination is such that, it is hoped, an adversary could not determine the meaning of the message without decrypting the message, for which he needs the key.

Private-key methods are efficient and difficult to break. However, one major drawback is that the key must be exchanged between the sender and recipient beforehand, raising the issue of how to protect the secrecy of the key.

### Public Key Cryptography

In public-key cryptography, two separate keys are used to encrypt & decrypt data. The public key is shared with the other person and the private key is known only to the person who decrypts the data. So, the private key will remain a secret while the public key will be known to both the parties. Public-key cryptography depends upon the notion of one-way functions: a one way function is a function that is easy to apply, but extremely difficult to invert.

### Digital Signature

A digital signature is an electronic signature that can be used to authenticate the identity of the sender of a message or the signer of a document, and possibly to ensure that the original content of the message or document that has been sent is unchanged.

“Digital signature is a computer data compilation of any symbol or series of symbols, executed, adopted or authorized by an individual to be legally bounded equivalent to the individual’s handwritten signature”

A digital signature authenticates electronic documents in a similar manner a handwritten signature authenticates printed documents.

A digital signature is issued by a Certification Authority (CA) and is signed with the CA’s private key.

The recipient of a digitally signed message can verify that the message originated from the person whose signature is attached to the document and that the message has not been altered either intentionally or accidentally since it was signed. Also the signer of a document cannot later disown it by claiming that the signature was forged.

When a message with a digital signature is transmitted & received, the following parties are involved:-

- The signer who signs the document.

- The verifier who receives the signed document & verifies the signature.

- The arbitrator who arbitrates any disputes between the signer & the verifier if there is a disagreement on the validity of the digital signature.

A digital signature typically contains the Owner’s public key, the Owner’s name, Expiration date of the public key, the name of the issuer (the CA that issued the Digital ID), Serial no. of the digital signature and the digital signature of the issuer.

Digital signatures are based on a combination of public key encryption and one way hash function that converts a message of any length into a fixed length message digest known as hash function. The value of hash function is unique for the hashed data. Any change in the data, even deleting or

altering a single character, results in a different value. The content of the hash data cannot be deduced from hash which is why it is called 'one way'. The encrypted hash, along with other information, such as hashing algorithm is known as digital signature.

### Types of Security Attacks

#### Passive Attack

#### Active Attack

**Passive Attack:** In Passive attack a network intruder intercepts data travelling through the network. A passive attack monitors unencrypted traffic. Passive attacks include traffic analysis, monitoring of unprotected communications, capturing authentication information such as passwords.

#### Types of Passive Attacks:

- a) **Wire Tapping or Telephone Tapping:** Telephone tapping is the monitoring of telephone and internet conversations by a third party. Passive wire tapping monitors or records the traffic.
- b) **Port Scanner:** A port scan can be defined as an attack that sends client requests to a range of server port addresses on a host, with a goal of finding an active port and exploiting a known vulnerability of that service.
- c) **Idle Scan:** The idle scan is a TCP port scan method that consists of sending spoofed packets to a computer to find out what services are available. This is accomplished by impersonating another computer called a "zombie" and observing the behavior of the "zombie" system.

**Active Attack:** In active attacks intruder initiates commands to disrupt the network's normal operation. In an active attack, the attacker tries to bypass or break into secured systems. This can be done through viruses or worms. Active attacks include attempts to break protection features to introduce malicious code, and to steal or modify information.

#### Types of Active Attacks

- a) **Denial-of-service Attack (Dos):** Denial of service attack is an attempt to make a machine or network resources unavailable to its intended users. It generally consists of efforts to temporarily or indefinitely interrupt or suspend services of a host connected to the Internet. One common method of attack involves saturating the target machine with external communication requests, so much so that it cannot respond to legitimate traffic or responds so quickly as to be rendered essentially unavailable. Such attacks usually lead to a server overload.
- b) **Spoofing attack:** A spoofing attack is when a malicious party impersonates another device or user on a network in order to launch attacks against network hosts, steal data, spread malware or bypass access controls.
- c) **Man-in-the-middle attack:** The man-in-the middle is a form of active eavesdropping in which the attacker makes independent connections with the victims & relays messages between them, making them believe that they are talking directly to each other over a private connection, while in fact the entire conversation is controlled by the attacker. The attacker must be able to intercept all messages going between the two victims & inject new ones.

d) SQL injection: Sql injection is a code injection technique, used to attack data driven applications, in which malicious SQL statements are inserted into an entry field for execution.

The virus is the program code that attaches itself to application program and when application program run it runs along with it.

The worm is code that replicate itself in order to consume resources to bring it down.

Cryptography is associated with the process of converting ordinary plain text into unintelligible text and vice-versa. It is a method of storing and transmitting data in a particular form so that only those for whom it is intended can read and process it. Cryptography not only protects data from theft or alteration, but can also be used for user authentication.

Description: Earlier cryptography was effectively synonymous with encryption but nowadays cryptography is mainly based on mathematical theory and computer science practice.

Modern cryptography concerns with:

Confidentiality - Information cannot be understood by anyone

Integrity - Information cannot be altered.

Non-repudiation - Sender cannot deny his/her intentions in the transmission of the information at a later stage

Authentication - Sender and receiver can confirm each

Cryptography is used in many applications like banking transactions cards, computer passwords, and e- commerce transactions.

Three types of cryptographic techniques used in general.

1. Symmetric-key cryptography
2. Hash functions.
3. Public-key cryptography

Symmetric-key Cryptography: Both the sender and receiver share a single key. The sender uses this key to encrypt plaintext and send the cipher text to the receiver. On the other side the receiver applies the same key to decrypt the message and recover the plain text.

Public-Key Cryptography: This is the most revolutionary concept in the last 300-400 years. In Public-Key Cryptography two related keys (public and private key) are used. Public key may be freely distributed, while its paired private key, remains a secret. The public key is used for encryption and for decryption private key is used.

Hash Functions: No key is used in this algorithm. A fixed-length hash value is computed as per the plain text that makes it impossible for the contents of the plain text to be recovered. Hash functions are also used by many operating systems to encrypt passwords.

Cryptographic systems are generally classified along 3 independent dimensions:

Type of operations used for transforming plain text to cipher text

All the encryption algorithms are based on two general principles: substitution, in which each element in the plaintext is mapped into another element, and transposition, in which elements in the plaintext are rearranged. The number of keys used

If the sender and receiver uses same key then it is said to be symmetric key (or)

single key (or) conventional encryption.

If the sender and receiver use different keys then it is said to be public key encryption.

The way in which the plain text is processed

A block cipher processes the input and block of elements at a time, producing output block for each input block.

A stream cipher processes the input elements continuously, producing output element one at a time, as it goes along

### Passive Attacks

Passive attacks are in the nature of eavesdropping on, or monitoring of, transmissions. The goal of the opponent is to obtain information that is being transmitted. Passive attacks are of two types:

Release of message contents: A telephone conversation, an e-mail message and a transferred file may contain sensitive or confidential information. We would like to prevent the opponent from learning the contents of these transmissions.

Traffic analysis: If we had encryption protection in place, an opponent might still be able to observe the pattern of the message. The opponent could determine the location and identity of communication hosts and could observe the frequency and length of messages being exchanged. This information might be useful in guessing the nature of communication that was taking place.

Passive attacks are very difficult to detect because they do not involve any alteration of data. However, it is feasible to prevent the success of these attacks.

### Active attacks

These attacks involve some modification of the data stream or the creation of a false stream. These attacks can be classified in to four categories:

Masquerade – One entity pretends to be a different entity.

Replay – involves passive capture of a data unit and its subsequent transmission to produce an unauthorized effect.

Modification of messages – Some portion of message is altered or the messages are delayed or recorded, to produce an unauthorized effect.

Denial of service – Prevents or inhibits the normal use or management of communication facilities. Another form of service denial is the disruption of an entire network, either by disabling the network or overloading it with messages so as to degrade performance.

It is quite difficult to prevent active attacks absolutely, because to do so would require physical protection of all communication facilities and paths at all times. Instead, the goal is to detect them and to recover from any disruption or delays caused by them.

Symmetric and public key algorithms

Encryption/Decryption methods fall into two categories.

Symmetric key

Public key

In symmetric key algorithms, the encryption and decryption keys are known both to sender and receiver. The encryption key is shared and the decryption key is easily calculated from it.

In many cases, the encryption and decryption keys are the same.

In public key cryptography, encryption key is made public, but it is computationally infeasible to find the decryption key without the information known to the receiver.

A message is to be transferred from one party to another across some sort of internet. The two parties, who are the principals in this transaction, must cooperate for the exchange to take place. A logical information channel is established by defining a route through the internet from source to destination and by the cooperative use of communication protocols (e.g., TCP/IP) by the two principals.

Using this model requires us to:

- design a suitable algorithm for the security transformation
- generate the secret information (keys) used by the algorithm
- develop methods to distribute and share the secret information
- specify a protocol enabling the principals to use the transformation and secret information for a security service

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## Unit – 6

### Implementation of E-Commerce

#### **WWW.E-Bay.com – B2C- Registration**

Selling on eBay is a great way to clear your home of unwanted items – and to make extra money doing it! In order to sell an item on eBay, you will need to:

- Become a registered eBay member
- Create a Seller's account .There is no charge or fee to do either of these. On eBay, you're allowed you to list 50 items every month for free. And for most listings, they also allow you to list up to 12 pictures per item for free. You only pay fees if your item sells. And even then, the fee is only 9% of the total selling price (including the shipping charges).To buy and sell on www.ebay.com or other eBay sites internationally, existing users can login using their credentials or new users can register an eBay account on ebay.in. In order to maintain a safe trading environment, eBay places limits on sellers account. When your selling account reaches the global trading limit you will be blocked from selling and messaged to complete your KYC (Know Your Customer) Process.

Based on your 'Business Type' selected during seller registration you will need to give a few scanned documents as mentioned below and get your Seller Registration account KYC verified.

Please check on the Business Type and the required documents as explained in the table below.

- Individual
- Sole Proprietor
- Company /Business
- Partnership Firm
- Trust & Foundation
- Limited liability partnership(LLP)
- Hindu Undivided Family(HUF)

#### **Growth of Ebay**

eBay establishes itself as the “The world’s Online Marketplace” .Coincidentally, it is also the positioning statement of eBay,which itself means many things about the company’s identity, it enables trade on local, national and international basis, with a diverse and passionate community of individuals and small businesses, Bay offers an online platform where millions of items are traded each day. According to company lore, the idea for eBay came from founder Pierre Omidyar’s wife, who wanted to trade Pez dispensers with other collectors over the Internet.

In truth Omidyar had been pondering an Internet auction venture before he was ever aware of Pez mania. He says that he had been thinking about how to create an efficient marketplace-a level playing field, where everyone had access to the same information and could compete on the same terms as anyone else.” After writing the code for the site, Omidyar launched eBay from his home in mid-1995.the concept of an Internet marketplace caught on so quickly that by the end of the year, eBay was getting a few thousand hits daily. Even more impressive the website was profitable from its inception. The objective at ebay was to develop the work ethics and culture of eBay as a fun, open and trusting environment and to keep the organization focused on the big picture objectives and key priorities. Ebay went public in September 1998 at \$18 a share. By early march 1999,



the stock was trading approximately b\$282 per share. The company market capitalization had surpassed that of even Amazon.com, making it the world's most valuable Internet retailer.

#### eBay's strategy

eBay community values are incredibly amazing since it focuses on trading millions of dollars on mere faith and trust among the community members. Its values can be cited as below, "We believe people are basically good We believe everyone has something to contribute We believe that an honest, open environment can bring out the best in people. We recognize and respect everyone as an individual. We encourage you to treat others the way you want to be treated". These community values mean that the entire strategy lies in "trust" to build e-loyalty, for longterm profitable relationships, these set of core values encourages open and honest communication between its members.

#### Paypal – Trends in making payment online

PayPal has remained at the forefront of the digital payment revolution for more than 20 years. By leveraging technology to make financial services and commerce more convenient, affordable, and secure, the PayPal platform is empowering more than 300 million consumers and merchants in more than 200 markets to join and thrive in the global economy. For more information, visit [paypal.com](https://www.paypal.com).

is a well-known digital payments platform used by businesses and consumers alike to conduct financial transactions around the world — via the web, mobile apps, or in person. With PayPal, you can pay bills, send and receive money, accept payments, and more. Here are a few interesting facts about the service, as noted on its website:

- More than 267 million active account holders
- Available in more than 200 markets worldwide
- Supports the receipt of 100+ currencies, fund withdrawals in 50+ currencies, and balance holdings in 25+ currencies
- Founded in December 1998
- Headquartered in San Jose, California
- Owns other brands, including Braintree, Venmo, and Xoom
- Provides financial support (\$3.7M in 2017) to nonprofits and charities annually
- Has its own dedicated typeface, called PayPal Sans

#### Who uses PayPal?

Compared to a traditional merchant account you'd get through a bank or other financial institution, PayPal has a lower barrier of entry. That means just about anyone can create a PayPal account and start using it — sometimes in the same day.

The result? All types of businesses, independent ventures, and everyday consumers use PayPal. Let's look at a few examples:

- An entrepreneurial teen selling custom-made T-shirts. All someone needs to sell something is a product (or service) and access to a laptop or phone. Most teens have the latter — so all they need to do is make their shirts; download the PayPal app; and convince their friends, classmates, and family to swipe their cards or send money.
- A large group of friends at dinner.

Sometimes it's easier for one person to pay and then have everyone else pay them back afterward. Instead of trying to collect cash from each person, PayPal lets people use credit cards or funds from their bank accounts to send the money directly to an account.

- A corporate worker with a side hustle.

Many traditional employees often start their entrepreneurial journey by moonlighting — performing work that isn't supplied by their main job. Decades ago this meant having a second job somewhere like a retail store, working in the evening and/or on the weekend. Today, this could be anything from selling products online to selling services as a freelancer or consultant. In any case, PayPal gives these would-be entrepreneurs the ability to accept money for whatever they're selling.

- A Fortune 500 Company selling, whatever they sell?

PayPal isn't just for small businesses or person-to-person transactions. While large corporations may use the platform for different reasons (such as for customer convenience), they are no strangers to PayPal either. For example, Home Depot lets customers use PayPal online and in store. Why use PayPal? It instills trust with customers. Customers are less likely to trust what they haven't seen, used, or interacted with before. As a small business owner, you'll struggle with this for longer than you'd like. Thankfully, PayPal is a well-known, trusted brand. "There's a lot of value in the PayPal brand, and it's primarily in the trust it communicates to your potential customers. While they may not know your business, they know PayPal."

## NEFT

**National Electronic Funds Transfer (NEFT)** is a nation-wide payment system facilitating one-to-one funds transfer. Under this Scheme, individuals, firms and corporate can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the Scheme.

Individuals, firms or corporates maintaining accounts with a bank branch can transfer funds using NEFT. Even such individuals who do not have a bank account (walk-in customers) can also deposit cash at the NEFT-enabled branches with instructions to transfer funds using NEFT. However, such cash remittances will be restricted to a maximum of Rs.50,000/- per transaction. Such customers have to furnish full details including complete address, telephone number, etc. NEFT, thus, facilitates originators or remitters to initiate funds transfer transactions even without having a bank account.

### How Does the NEFT System Operates?

Step-1 : An individual / firm / corporate intending to originate transfer of funds through NEFT has to fill an application form providing details of the beneficiary (like name of the beneficiary, name of the bank branch where the beneficiary has an account, IFSC of the beneficiary bank branch, account type and account number) and the amount to be remitted. The application form will be available at the originating bank branch. The remitter authorizes his/her bank branch to debit his account and remit the specified amount to the beneficiary. Customers enjoying net banking facility offered by their bankers can also initiate the funds transfer request online. Some banks offer the NEFT facility even through the ATMs. Walk-in customers will, however, have to give their contact details (complete address and telephone number, etc.) to the branch. This will help the branch to

refund the money to the customer in case credit could not be afforded to the beneficiary's bank account or the transaction is rejected / returned for any reason.

Step-2 : The originating bank branch prepares a message and sends the message to its pooling centre (also called the NEFT Service Centre).

Step-3 : The pooling centre forwards the message to the NEFT Clearing Centre (operated by National Clearing Cell, Reserve Bank of India, Mumbai) to be included for the next available batch.

Step-4 : The Clearing Centre sorts the funds transfer transactions destination bank-wise and prepares accounting entries to receive funds from the originating banks (debit) and give the funds to the destination banks(credit). Thereafter, bank-wise remittance messages are forwarded to the destination banks through their pooling centre (NEFT Service Centre).

### **What are the features of NEFT?**

NEFT offers a range of features that help it stand out as a convenient and hassle-free form of payment. Some of these features include the following:

#### **Saves time and effort**

With NEFT payments, all a sender must do is log into their net banking account and select the right beneficiary. He/she must enter the correct amount to be transferred and then verify the transaction. That is all it takes. The sender or the remitter does not have to send a demand draft or cheque of any kind to the beneficiary. The process of transferring funds via NEFT is quite simple and efficient.

#### **Payments occur electronically**

With more and more services available online, why should the financial sector be left behind? NEFT payments are primarily a means of transferring funds electronically. These transfers can be initiated online through net banking services at the convenience of the user. Additionally, NEFT transfers can also be made through ATMs, making this form of payment financially inclusive for citizens who may not have a bank account, net banking, or a working internet connection. As NEFT payments occur online, consumers do not need to spend time filling out paper forms, standing in long lines at the bank, submitting them to the right branch, and so on. The beneficiary also does not require paperwork. The working bank account along with the relevant details submitted online are often enough to authenticate any payments, provided OTPs or PINs are entered at the time of conducting the transaction.

#### **Payments occur over a secure mode**

Another great feature of NEFT is that payments occur over a secure mode. Banks often place multiple authentication steps to verify the sender's identity, which ensures that issues of theft and fraud are not applicable. NEFT is managed by the Reserve Bank of India, which further adds to the overall security of this mode of payment.

#### **Transaction fee**

There will be no transaction fees for NEFT transactions. As a means to promote digital transactions, RBI has scrapped transaction fees for all NEFT transactions, irrespective of your bank. Furthermore, as you can see, RTGS has higher minimum transaction amounts (with the lowest being Rs 2, 00,000) while NEFT has a minimum transaction amount of Re 1. This makes NEFT more suitable for the average consumer and even some businesses.

***August 2019 update: RBI has announced that from December 2019 onwards, NEFT payments will be allowed round the clock.***

This feature, though in line with its time, has now proved to be a bit of a disadvantage. NEFT does not really work as well for modern consumers looking to conduct daily payments online. This is because such transactions are facilitated through instant payment platforms, making them far more convenient as vendors can immediately verify if payments are made.

NEFT's most significant advantage lies in the fact that it does not place an upper limit on the transaction amounts. As a result, this mode of payment is quite useful for businesses that must transfer large funds regularly or individuals with similar requirements. Though NEFT allows smaller transaction amounts as well, such transactions make more sense through instant payment apps, rather than NEFT. This is because NEFT operates within hourly batches of payment and may take a while to go through, depending on how quickly banks process the request.

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# Sample Question Paper Template (Internal & Practical Exams)

**Note:** This subject has been introduced as elective under CBCS system w.e.f 2018-2019 batch hence no previous paper is available. Only indicative questions are given here



**Bharati Vidyapeeth (Deemed to be University)  
Institute of Management and, New Delhi  
Internal Examination**

**Course : BCA  
Subject : E-Commerce  
Max. Marks: 40**

**Semester : 5  
Course Code: 505  
Max. Time: 2 Hours**

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**Instructions (if any):-** Give Examples & Diagrammatic Representations wherever as possible

*Question No. 1 is compulsory. Attempt any two questions from Q2 to Q5.*

*Attempt any two question from section 2.*

*Each Question in Section 1 carries 6 marks & Each Question in Section 2 carries 11 marks*

**Section 1**

**Answer in 400 words. Each question carry 06 marks.**

Q. 1.

Q. 2.

Q. 3.

Q. 4

Q.5.

A

b)

c)

**Section 2**

**Answer in 800 words. Attempt any 2 questions. Each question carry 11 marks**

Q6.

Q7.

Q8.

a)

b)

c)

### **(Questions on Theoretical Concept)**

- a) Define the term e-Commerce and explain its advantages to the business.
- b) What is an information system? Explain the different types being used various levels in the organizations
- c) Diagrammatically represent the concept of work systems framework along with the performance variables and explain in brief.
- d) explain with example difference between E-commerce and E-business.
- e) Short Notes:
  - a) Click & Mortar (Click & Brick)
  - b) E-tailing
  - c) E-Business
  - d) Goals of e-commerce security
  - e) Electronic payment systems

### **(Practical /application oriented Questions)**

Clickeme.com provides various software on the internet .Registered users can install this software on their machines over the internet .All software are clubbed under various categories like operating system, Applications software, utilities etc user selects required software and makes online payment for purchasing software and licenses .On successful payment ,users are provided installation path and license key .

- a) Which model of e-commerce is implemented ?Justify
- b) Discuss in detail the various security threats that the users can encounter while using the website?

**Or**

Recently one of the e-commerce portals declared big sale to attract huge customers worldwide. On the same line some other e-commerce portal declared such sales .Discuss the pros & cons of such scenario considering this sale as a case study.



## SAMPLE MCQs

Which of the following model is part of E-Governance?

- A. G2B
- B. G2C
- C. B2G
- D. C2G

ANSWER: D

URL stands for?

- A. Uniform Resource Locator
- B. Universal Resource Locator
- C. Universal Random Locator
- D. Uniform Random Locator

ANSWER: A

SET protocol on internet stands for?

- A. Secure Electronic Transaction
- B. Secure Internet Transaction
- C. Secure Establish Transaction
- D. Secure Electronic Transmission

ANSWER: A

URL stands for?

- A. Uniform Resource Locator
- B. Universal Resource Locator
- C. Universal Random Locator
- D. Uniform Random Locator

ANSWER: A

Which one is not a layer of E-Commerce infrastructure?

- A. Physical Layer
- B. Product Layer
- C. Service Layer
- D. None of the given options

ANSWER: D

Digital Cash has following characteristic

- A. Anonymity
- B. Security
- C. Confidentiality
- D. All of the given options

ANSWER: D

E-commerce is a ..... of E-business

- A. Subset
- B. Superset
- C. Friend
- D. None of the given options

ANSWER: A

Which of the following describes e-commerce?

- A. Doing business electronically
- B. Doing business
- C. Sale of goods
- D. All of the given options

ANSWER: A

Which of the following is part of the four main types for e-commerce?

- A. B2B
- B. B2C
- C. C2B
- D. All of the given options

ANSWER: D

Which segment do eBay, Amazon.com belong?

- A. B2Bs
- B. B2Cs
- C. C2Bs
- D. C2Cs

ANSWER: B

Which type of e-commerce focuses on consumers dealing with each other?

- A. B2B
- B. B2C
- C. C2B
- D. C2C

ANSWER: D

Which segment is eBay an example?

- A. B2B
- B. C2B
- C. C2C
- D. None of the given options

ANSWER: D

The best products to sell in B2C e-commerce are?

- A. Small products

- B. Digital products
- C. Specialty products
- D. Fresh products

ANSWER: B

Which products are people most likely to be more uncomfortable buying on the Internet?

- A. Books
- B. Precious Ornaments
- C. Movies
- D. All of the given options

ANSWER: B

Digital products are best suited for B2C e-commerce because they

- A. Are commodity like products
- B. Can be mass-customized and personalized
- C. Can be delivered at the time of purchase
- D. All of the given options

ANSWER: D

Which is a function of E-commerce?

- A. Marketing
- B. Advertising
- C. Warehousing
- D. All of the given options

ANSWER: D

Which is not a function of E-commerce?

- A. Marketing
- B. Advertising
- C. Warehousing

D. None of the given options

ANSWER: C

What are plastic cards the size of a credit card that contains an embedded chip on which digital information can be stored?

- A. Customer relationship management systems cards
- B. E-government identity cards
- C. FEDI cards
- D. Smart cards

ANSWER: D

Most individuals are familiar with which form of e-commerce?

- A. B2B
- B. B2C
- C. C2B
- D. C2C

ANSWER: B

Which of the following is a useful security mechanism when considering business strategy and IT?

- A. Encryption
- B. Decryption
- C. Firewall
- D. All the given options

ANSWER: D

Which of the following is not related to security mechanism

- A. encryption
- B. decryption
- C. e-cash

D. all the given options

ANSWER: C

A business cannot be all things to all people. Instead, a business must

- A. Identify target customers
- B. Identify the value of products/services as perceived by customers
- C. all of the given options
- D. None of the given options

ANSWER: C

Which type of products is lesser purchased using ecommerce?

- A. Automobiles
- B. Books
- C. Softwares
- D. None of the given options

ANSWER: A

Which of the following refers to creating products tailored to individual customers?

- A. Customization
- B. Aggregation
- C. Direct materials
- D. Reverse auction

ANSWER: A

Amazon.com is well-known for which e-commerce marketing technique?

- A. Banner ads
- B. Pop-up ads
- C. Affiliate programs
- D. Viral marketing

ANSWER: C

What is the name given to an interactive business providing a centralized market where many buyers and suppliers can come together for e-commerce or commerce-related activities?

- A. Direct marketplace
- B. B2B
- C. B2C
- D. Electronic marketplace

ANSWER: D

Which type of add appears on a web page?

- A. pop-under ad
- B. Pop-up ad
- C. Banner ad
- D. Discount ad

ANSWER: C

Which, if any, of the following types of ads are people most willing to tolerate?

- A. pop-under ad
- B. pop-up ad
- C. banner ad
- D. none of the given options

ANSWER: D

A combination of software and information designed to provide security and information for payment is called a what?

- A. digital wallet
- B. pop up ad
- C. shopping cart
- D. encryption

ANSWER: A



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# Scribble Sheets

## Notes

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