CA Intermediate [Enterprise Information System (EIS)]

Chapter 4

E-Commerce, M-Commerce and Emerging Technologies

Summary Notes – Fast Track

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E-Commerce

Traditional Commerce

Definition

Traditional Commerce is the exchange of goods or services in person or face to face. The customer has to interact with the business owner or a representative of the business one to one.

Traditional Commerce Delivery Model: Multi-Layer

1. Manufacturer
2. Wholesaler
3. Retailer
4. Consumer

Traditional Commerce Delivery Model: Transaction Approach

1. Enter into the Shop
2. Pick the Shopping Cart
3. Select and Pick the Products
4. Go to the Billing Counter
5. Billing is Prepared
6. Make the Payment
7. Pick the Products
8. Leave the Shop

E-Commerce

Definition

E-Commerce is the process of doing business electronically. It uses the technology to process the transactions between a company, its customers and business partners. It involves the use of automation for a variety of Business to Business (B2B), Business to Consumer (B2C) etc. transaction through reliable and secure connection.

E-Commerce Delivery Model: Transaction Approach

1. Order Placed by Customer
2. Shopping Cart
3. Payment
4. Order Completed
5. E-Mail sent to Merchant and Customer
6. Sent to Warehouse for Fulfillment
7. Shipping Carrier Picks-up Shipment

E-Commerce Delivery Model: Transaction Illustration

Step **1**: Go to Website and Register or Download the App
Step **2**: Select the Type of Product
Step **3**: Select the Product
Step **4**: Go for Payment
Step **5**: Verify the Purchase
Step **6**: Select the Payment Options
Step **7**: Make the Payment
Step **8**: Product is delivered

E-Commerce: Workflow Model

1. Customer Log-in – Website or Mobile
2. Product/Service Selection
3. Customer Places Order
4. Payment Gateway
5. Dispatch and Shipping Process
6. Delivery Tracking
7. COD Tracking

Traditional Commerce Vs. E-Commerce

Basis of Comparison	Traditional Commerce	E-Commerce
Definition	Manual or Face to Face	Electronic
Scope of Business	Limited to Particular Area	Worldwide Reach
Accessibility	Limited Time	**24 x 7 x 365**
Customer Interaction	Face to Face	Screen to Face
Physical Inspection	Physically Inspected	No Physical Inspection
Resource Focus	Supply Side	Demand Side
Transaction Processing	Manual	Electronic
Payment	Cash, Cheque, Credit Card Etc.	Cash, Cheque, Credit Card, CoD Etc.
Delivery of Goods	Instantly	Takes Time
Marketing	One Way Marketing	One to One Marketing
Information Exchange	No Uniform Platform	Provides Uniform Platform
Layers of Delivery (Profit Impact)	Reduced Layer of Delivery	Profit (+), Discounts, Better Price

E-Commerce

Laws Governing E-Commerce

A. Commercial Law

Formation of Legal Entity

1. Companies Act, 2013

- E-Commerce-Private or Public Limited Co.
- Regulates corporate sector
- Governs regulatory aspects of companies in India

2. Income Tax Act, 1961

- Regulates taxation of income in India
- Origin of transaction critical for taxation

3. Goods and Service Tax Act, 2017

- Upload sales and purchases invoice on central IT infrastructure
- Reconciling the business transactions, GST tax payment, Tax Credits, and Filing of e-Return.

Foreign Trade

1. The Customs Act, 1962

- Import and export of goods
- Levy of customs duty
- India signatory to GATT
- Software downloads, debate of tariff

2. Foreign Trade Development and Regulation Act, 1992

- Regulates foreign trade – import into and export from India
- Incidental matters
- Amazon allowed purchase from global store

3. Foreign Exchange Management (FEMA) Act, 1999

- FDI and flow of foreign exchange in India
- FDI – 100% automatic route B2B
- FDI – B2C calibrated manner

Consumers

1. Indian Contract Act, 1872

- Defines constituents of a valid contract
- E-Commerce and E-Commerce transaction key to define constituents

2. Consumer Protection Act, 1986

- Protects consumer rights
- Transactions source of most of the

3. The Competition Act, 2002

- Regulates adverse effects on competition in India
- Competition commission's vigilance

Employees

1. The Factories Act, 1948

- Regulate working conditions of workers
- Extends to place of storage and transportation

B. Special Law

1. Information Technology Act, 2000

- Regulates online transactions, penalties, prosecution for non-compliance
- Important aspects:
  - Legality of products;
  - Data protection;
  - Privacy;
  - Online advertising;
  - Other provisions

2. Reserve Bank of India Act, 1932

- Credit/Debit card to be chip based
- OTP or PIN for all transactions
- Capital Adequacy norms for payment wallets like SBI buddy, PAYTM etc.

E-Commerce

Guidelines for E-Commerce

1. Product Warranty or Guarantee

- Proper Display
- Documents along-with the Product

2. Billing

- Format of Billing
- Details on Billing
- Applicable GST

3. Shipping

- Shipping Time
- Frequency of Shipping
- Packing

4. Delivery

- Mode of Delivery
- Time of Delivery
- Location or Place of Delivery

5. Return

- Type of Goods
- Time Period
- Verification of Authenticity
- Time of Refund

6. Payment

- Mode of Payment
- Restrictions

Benefits

1. Customers/Individuals/ Users

- Anytime, Anywhere, 24x7 Access
- Various Options
- Easy to find Reviews
- Coupons and Deals
- Convenience
- Time Savings
- Competitive Benefits

2. Business/ Sellers

- Creation of New Markets
- Easier Entry into New Markets
- Increasing Customer Base
- Instant Transactions
- Provide a Dynamic Market
- Elimination of Time Delays
- Reduction in Costs
  - Overhead Costs
  - Advertising Costs
  - Competitive Environment
- Improvement in Efficiency Due to:
  - Reduction in Processing Cycle
  - Reduction in Errors in Processing
  - Reduction in Inventory

3. Government

- Instrument to Fight Corruption
- Ecological Impacts

E-Commerce

Components

A. Users

B. E-Commerce Vendors

1. Suppliers and Supply Chain

- Availability of enough and right goods suppliers
- Operationally and financially safe
- Real time stock inventory

2. Warehouse Operations

- Products are stored
- Picked and packed as per specifications
- Dispatched for delivery

3. Shipping and Return

- Fast Return - USP
- Effective & Efficient

4. E-Commerce Catalogue and Product

- Proper display of all products
- Customers gauge the products
- Good catalogue – customer experience

5. Guarantees

- Money back guarantees
- Customer satisfaction and safety

6. Marketing and Loyalty Programs

- Long term relationship with customers
- Airline Industry

7. Different Ordering Methods

- Debit Cards and Credit Cards
- Cash on Delivery (CoD)

8. Showroom and Offline Purchase

- Feel, touch or see the products
- Customers gauge the products
- Good catalogue – customer experience

9. Privacy Policy

- Policy via-a-vis customer data and information
- Disclosure to use the information of customers

10. Security

- State security policy
- Online data to transact is safe
- SSL
- Fall into the hands of malicious hackers

C. Technology Infrastructure

1. Computers, Servers & Database

- Backbone for success
- Stores program and data
- Shared infrastructure

4. Web Portal

- Front-end interface
- Simplicity and clarity
- Accessed through devices

3. Digital Libraries

- Collection of digital objects
- Organizing, storing and retrieving files

E-Commerce

Components

c. Technology Infrastructure

4. Digital Libraries

- Collection of payment
- Credit Card, Debit Card, Online Payment, UPIS

5. Data Interchange

- Electronic communication of data
- Specific Protocols and Standards for communication between players

6. Internet / Network

- Key for E-Commerce
- Traditional and New Technology
- 4G Services

7. Mobile Apps

- Software Application Program
- Android, iOS, Blackberry, Windows Mobile, Tizen, Firefox OS
- Mobile Devise Specific
- Key Components:
  - Mobile Storefront
  - Mobile Ticketing
  - Mobile Marketing & Advertising
  - Mobile Customer Support & Information
  - Mobile Banking

Architecture of Network System

Architecture denotes the way network architecture is built and e-Commerce runs through network connected system

1. Two-Tier Architect

A. Client Application

- Client Application handles both presentation and application layers.
- Acts as an interface between user and e-Commerce and m-Commerce vendor.
- User logs-in
- Connects to database application

B. Database Application

- Server system handles database layer.
- Stores data of products, prices, customers, and other related data.
- User can not access data directly.
- Data displayed through application tier.

- Additional Note:
- Communication takes place between client and server.
- Client sends request to server system.
- Server processes request & sends back data.

Advantages	Disadvantages
Higher Performance	Scalability
Simplicity	Flexibility
Multiple Users	

2. Three-Tier Architect

A. Presentation Layer

- Client and Top Layer.
- User interacts at the time of using software.
- Communicates with application layer.
- User information passed to application layer.
- Example – G-Mail logs-in

B. Application Layer

- Business Logic Layer or Logical Layer.
- Mediator between Presentation Layer and Database Layer.
- Controls business logic and application's functionality.
- Interacts with Database Layer.
- Sends information to Presentation Layer.
- Performs operations on applications.
- Example, G-Mail validates credentials and interacts with database layer

C. Database Layer

- Stores data.
- Application Layer communicates with Database Layer and retrieves data.
- Contains methods to connect to Database Layer.
- Performs required action e.g. insert, update, delete etc.
- Example, User gets the mails on inbox retrieving information from database layer

3. Three-Tier Architect

Advantages	Dis-advantages
Clear separation of user-interface control & data presentation from application layer	Increased need for network traffic management, server load balancing and fault tolerance
Dynamic Load Balancing	Immature and Complex
Change Management	Inadequate Maintenance Tools

E-Commerce

E-Commerce Architecture Vide Internet

Presentation Layer	Application Layer	Database Layer
Approach: User, Internet, Web Browser (Internet Explorer/ Chrome/Firefox), and Web Server. Example: User buys a product from e-Commerce. Purpose: e-Commerce customer connects to e-Commerce merchant	Approach: Application Server and Back End Server Example: E-Merchants, Reseller and Logistics Partner Purpose: Customer logs into merchant systems. Allows customer to check the products available on merchant's website.	Approach: Stores data relating to products, price etc. Purpose: Accessible to user through application layer.

E-Commerce Architecture Vide Mobile Apps

Presentation Layer	Application Layer	Database Layer
Approach: Mobile Web Browser and Internet Example: Mobile App, User Purpose: e-Commerce customer connects to e-Commerce merchant	Approach: Application Server and Back End Server Example: E-Merchants, Reseller, Logistics Partner, and Payment Gateway Purpose: Customer logs into merchant systems. Allows customer to check the products available on merchant's	Approach: Stores data relating to products, price etc. Purpose: Accessible to user through application layer.

E-Commerce

Risks

1. Infrastructure

A. Infrastructure

- Need digital infrastructure
- Roads and Railways

2. Technology

A. Need Access to Internet & Lack of Personal Touch

- Additional cost
- Lacks personal touch

B. Privacy and Security

- Personalized info. vulnerable to misuse
- Poses a higher degree of threats by hackers

C. Attack from hackers

- Vulnerable to hackers

D. Security and Credit Card Issue

- Cloning debit cards and credit cards
- Poses security threats and financial loss

E. Data Loss or Theft or Duplication

- Data transmitted over internet
- Lost, duplicated, tampered with or relayed

F. Problem of Piracy

- Intellectual Property not protected
- Transaction through e-Commerce

3. Product

A. Quality Issues

- Original product differ from ordered

B. Delay in delivery of goods & hidden cost

- Delay in delivery of goods
- Hidden costs for cross-border transaction

4. Transaction

A. Problem of anonymity

- Identify & authenticate users
- Anyone from anywhere buy & sell

B. Repudiation of contract

- Electronic transaction for purchase & sale denied

C. Lack of authenticity of transactions

- Electronic transactions
- Not reliable & authentic

D. Denial of service

- Non-availability of system
- Viruses, e-Mail Bombs & Floods

E. Lack of audit trails

- Incomplete logs
- Too voluminous & Easily tempered

Controls

Internal Control, as defined in accounting and auditing is a process for assuring achievement of an organization's objectives in operational effectiveness and efficiency, **reliable financial reporting, and compliance with laws, regulations and policies.**

Objectives

- System effectiveness objectives
- System efficiency objectives
- Safeguard assets from un-authorized access
- Ensure data integrity
- Prevent loss of computer hardware, software and personnel
- Prevent organizational costs of data Loss
- Prevent loss from incorrect decision-making
- Prevent from high costs of computer Error

E-Commerce

Controls

Persons in Value Chain

1. Users	2. Sellers/Buyers/Merchants	3. Network Service Providers	4. Technology Service Providers	5. Logistic Service Providers
• Genuine users • Accounts hacked • Buy products and services	• Product catalogues • Price catalogues • Discounts & promotional schemes • Product returns • Accounting for cash received through cash on delivery mode of	• Availability & security of network • Downtime of network	• Cloud computing back ends • Application back ends • Risk of availability & Security **6. Payment Gateways** • Efficient, effective & foolproof	• Timely product deliveries **7. Government** • Tax accounting • Legality of products

E-Commerce

Communication

▪ Educating the participants about the nature of risks	▪ Communication of organizational policies to its customers	▪ Ensure compliance with industry body standards	▪ Protect e-Commerce business from intrusion
► Infrastructure policies and guidelines: ► Frequency & nature of education programs ► Participants	► Privacy policies ► Information security ► Shipping & billing policies ► Refund policies	► Compliances and adherence to law of land	► Viruses ► Hackers ► Passwords ► Regular software updates ► Sensitive data

E-Commerce

Cyber Security Risk Consideration

- E-Commerce platform operates on ever changing and evolving technology environment.
- It is imperative for the consideration of cyber security risks in the audit procedures.
- Risk Assessment is always a very important part of the audit procedures.
- It must give due consideration to the changing risks in the entity and its environment due to the ever-evolving technology landscape
- It can have a potential impact on the financial statements.

Impact

Direct Financial Impact

- Weak Password at OSI layers
- Issue of integrity of data

Indirect Operational Impact

- Leakage of sensitive customer information
- Legal & regulatory actions

Standard on Auditing (SA-31)

- Programs processing data inaccurately, inaccurate data or both.
- Risk of unauthorized access of data
- IT access privileges and breaking SoDs
- Unauthorized changes to data in master files.
- Unauthorized changes to systems or programs.
- Failure to make necessary changes to systems or programs.
- Inappropriate manual intervention.
- Potential loss of data or inability to access data as required

Control

1. IT Infrastructure Landscape

- Diagram-Servers, Databases, Hubs, Routers, Internal & External networks

2. IT Infrastructure Assets

- List of digital assets
- Physical location of assets
- IT managers responsible for protection

3. Policy and procedure document of IT infrastructure Assets

- Criticality of digital assets
- Use
- Direct impact on the financial statements
- Access restrictions

4. IT Security Policy

- Circulated to all employees
- Adherences to procedures accessing IT system or resources
- Password security, restricted use of internet etc.

5. Firewalls

- Internet activity in accordance with rules defined.

6. Access Approval Process

- Approval process exists before access granted

7. Authentication

- Two factor authentication for remote access
- Username, password, pin, token etc.

8. Issue resolution process for cyber security breach

- Actions for breach
- Controls from occurring

9. Back-up plan

- Back-up schedules timely & properly
- Applicable for outsourced assets:
  - Server maintenance
  - Security

10. Baseline configuration review

- Established under security standards
- Periodically reviewed

11. Vulnerability scan or penetration testing

- Scan or testing performed
- Findings noted

12. Annual Review

- CIO review digital assets and IT infrastructure
- Critical cyber security risks
- Design control to address

13. Skill set & training of IT managers

- Skilled & trained to perform the

14. Awareness campaigns

- Employee awareness
- Focusing on methods of intrusion
- Stopped based on individual actions