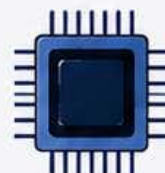
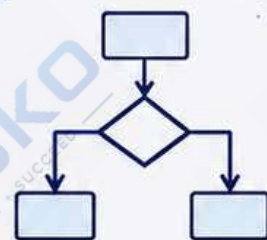


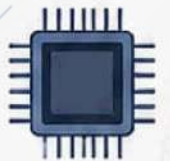
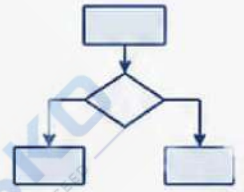
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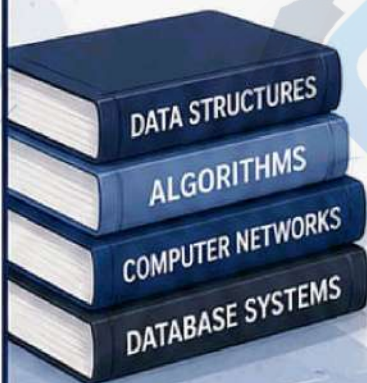
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Unit-I



INTRODUCTION TO E-COMMERCE

BUY. SELL. CONNECT. GROW.

E-Commerce (Electronic Commerce) refers to buying and selling of goods and services over the internet or other electronic networks.

WHAT IS E-COMMERCE?



E-Commerce is the process of conducting business, such as buying, selling, transferring or exchanging products, services or information through electronic means, mainly the Internet.

HISTORY OF E-COMMERCE



KEY FEATURES OF E-COMMERCE



Global Reach
Connects businesses and customers across the world.



24/7 Availability
Business can be conducted anytime, anywhere.



Cost Effective
Reduces operating costs and increases efficiency.



Convenience
Easy shopping, comparison and quick delivery.



Paperless Transactions
Reduces paperwork and promotes eco-friendly operations.

E-COMMERCE v/s TRADITIONAL COMMERCE

Feature	E-Commerce	Traditional Commerce
Market	Global (Worldwide)	Local (Limited Area)
Availability	24/7 Always Open	Fixed Hours (Store Timing)
Setup Cost	Relatively Low	High (Rent, Staff, Utilities)
Reach	Unlimited Customers	Limited Customers
Customer Convenience	High (Home Delivery, Easy Return)	Relatively Low (Heed to Visit Store)
Transactions	Digital Payments	Cash / Card (In-person)

BENEFITS OF E-COMMERCE



For Businesses
Wider market reach, lower costs, better customer insights and increased sales.



For Customers
More choices, better prices, convenience and time savings.



For Economy
Creates jobs, boosts productivity, supports digital growth and national income.

TYPES OF E-COMMERCE



B2C (Business to Consumer)
Businesses sell products/services directly to consumers.
Example: Amazon, Flipkart



B2B (Business to Business)
Businesses sell to other businesses.
Example: IndiaMART, Alibaba



C2C (Consumer to Consumer)
Consumers sell to other consumers.
Example: eBay, OLX



C2B (Consumer to Business)
Consumers offer products/services to businesses.
Example: Freelance platforms



B2G / C2G (Business/Consumer to Government)
Online services and payments related to government.
Example: Tax payment, licenses

COMPONENTS OF E-COMMERCE



EXAMPLES OF E-COMMERCE

amazon	Global online marketplace for millions of products.
Flipkart	Indian e-commerce platform for all needs.
make my trip	Online travel booking and related services.
zomato	Online food ordering and delivery.
paytm	Digital payments, recharges, and financial services.

KEY TAKEAWAYS

- ✓ E-Commerce uses the power of the internet to do business.
- ✓ It benefits businesses, customers and the economy.
- ✓ Different models serve different needs.
- ✓ Technology, trust and security are the backbone of successful e-commerce.

THE FUTURE OF E-COMMERCE

- ✓ More mobile and social commerce.
- ✓ AI and data-driven personalized shopping.
- ✓ Secure digital payments and blockchain.
- ✓ Global reach with local experience.
- ✓ Endless possibilities for growth and innovation.



IN SHORT:

E-Commerce is not just about buying and selling online; it is about creating value, building relationships and shaping the future of business.



E-COMMERCE DEFINITION AND HISTORY

Connecting Business, Consumers and Opportunities Digitally

1. DEFINITION OF E-COMMERCE



E-Commerce (Electronic Commerce) refers to the buying and selling of goods and services or the transmitting of funds or data, over an electronic network, primarily the internet.

In simple words:

E-Commerce is the conduct of business using electronic means.

Key Elements



Buying & Selling



Electronic Network (Internet)



Transfer of Funds or Data



Business Transactions

3. MILESTONES IN THE HISTORY OF E-COMMERCE



1971 – First online transaction:
A UK student sold marijuana via ARPANET.



1994 – First secure online transaction:
Sting album sold by NetMarket.



1995 – Amazon and eBay founded.



1998 – PayPal launched for online payments.



2000s – Growth of online retail, digital payments, and logistics networks.



2010s – Rise of mobile commerce, apps, and digital ecosystems.

2. HISTORY OF E-COMMERCE

E-Commerce has evolved significantly over the years.
Here is a brief timeline:



1960s – Early Beginnings

Electronic Data Interchange (EDI) introduced for business-to-business document exchange.



1970s – Online Services Begin

Online services like Minitel (France) and CompuServe started, enabling online information access.



1990s – Birth of E-Commerce

The internet became widely available. Companies began selling online.
1994 – First secure online transaction.



2000s – Growth Phase

E-commerce platforms (Amazon, eBay) grew rapidly. Online payments and logistics improved. More businesses went online.



2010s – Mobile & Social Commerce

Smartphones, mobile apps and social media boosted online shopping and digital payments.



2020s and Beyond – Smart & Global Commerce

AI, big data, personalization, voice commerce, and global reach are shaping the future of e-commerce.

4. IMPORTANCE OF E-COMMERCE EVOLUTION



Global Reach
Businesses can reach customers worldwide.



Cost Efficiency
Reduces operating costs and improves profitability.



Customer Convenience
24/7 availability, easy access and wide choices.



Business Growth
New markets, better engagement and higher sales.



Innovation
Technology drives continuous improvement.

IN SHORT



E-Commerce is transforming the way we do business. From simple data exchange in the 1960s to AI-powered global platforms today, it continues to evolve and create endless opportunities for businesses and customers.

KEY TAKEAWAY



- ✓ E-Commerce means doing business electronically over the internet.
- ✓ It has a rich history of innovation and growth.
- ✓ It continues to change the world economy and our daily lives.
- ✓ The future of e-commerce is digital, smart and global.





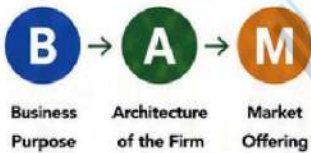
ONLINE EXTENSION OF THE BAM MODEL

Extending Business Value Creation to the Digital World



WHAT IS THE BAM MODEL?

The BAM Model, developed by Professor Charles W. L. Hill, explains how a business creates value through three key elements.



The Online Extension of the BAM Model means using digital technologies to enhance and deliver value in the online environment.

THE BAM MODEL – ONLINE EXTENSION

1. BUSINESS PURPOSE (Why we exist)



- Define the mission, vision and goals of the business.
- Understand customer needs in the digital world.
- Create value for customers, employees, partners and society.

Online Extension:

Reach a global audience and create value through digital channels.

2. ARCHITECTURE OF THE FIRM (How we do it)



- Design structure, processes and resources.
- Integrate people, technology and business processes.
- Build partnerships and manage key resources.

Online Extension:

Use digital infrastructure, cloud platforms, automation and data analytics to operate efficiently.

3. MARKET OFFERING (What we offer)



- Develop products/services that meet customer needs.
- Communicate and deliver value effectively.
- Provide excellent after-sales support.

Online Extension:

Offer digital products/services, personalized experiences, secure transactions and fast delivery online.

HOW ONLINE EXTENSION ADDS VALUE



Global Reach
Go beyond geographical boundaries.



24/7 Availability
Business operates round the clock.



Cost Efficiency
Reduces operating costs and increases scalability.



Better Customer Experience
Personalized, convenient and faster service.



Data-Driven Decisions
Real-time data helps in better planning and performance.



FEEDBACK LOOP (Online): Customer interactions, reviews, clickstream data and analytics provide continuous feedback to improve purpose, architecture and offerings.

BAM MODEL: TRADITIONAL vs ONLINE EXTENSION

ELEMENT	TRADITIONAL (OFFLINE)	ONLINE EXTENSION (E-COMMERCE)
B Business Purpose	• Focus on local/limited market • Value created through physical presence	• Focus on global market • Value created through digital presence, accessibility and convenience
A Architecture of the Firm	• Physical infrastructure • Manual processes • Limited use of technology	• Digital infrastructure (web, cloud) • Automated & integrated processes • Use of advanced technologies (analytics, AI, IoT)
M Market Offering	• Physical products/services • Face-to-face selling • Limited customization	• Digital/physical products & services • Online marketing & selling • Personalized offerings • Multiple digital payment & delivery options

KEY ENABLERS OF ONLINE EXTENSION



Internet & Web Technologies
Enable global connectivity and information access.



Cloud Computing
Provides scalable and cost-effective infrastructure.



Mobile Technologies
Allows business and customers to connect anytime, anywhere.



Data Analytics
Transforms data into insights for better decisions.



Digital Security
Ensures secure transactions and protects information.



E-Payment & Logistics
Facilitates secure payments and fast delivery.

EXAMPLES OF ONLINE EXTENSION OF THE BAM MODEL



Amazon

- **Purpose:** Customer obsession, global reach
- **Architecture:** Advanced tech platform, AI recommendations, efficient supply chain
- **Offering:** Wide range of products, easy ordering, fast delivery, secure payments



Zomato

- **Purpose:** Better food experience for all
- **Architecture:** App platform, data analytics, restaurant partnerships
- **Offering:** Food discovery, online ordering, tracking, multiple payment options



Netflix

- **Purpose:** Entertainment for everyone
- **Architecture:** Streaming technology, global servers, personalization algorithms
- **Offering:** On-demand content, personalized recommendations, multi-device access

KEY TAKEAWAY



The Online Extension of the BAM Model helps businesses redefine their purpose, strengthen their architecture and deliver superior offerings using digital technologies to create value in the online world.

BAM IN E-COMMERCE = RIGHT PURPOSE + SMART ARCHITECTURE + VALUABLE OFFERING



Right Purpose

Understand and serve customers better online.



Smart Architecture

Use technology and processes to operate effectively.



Valuable Offering

Deliver outstanding value and experiences to customers online.



TRANSITION TO E-COMMERCE IN INDIA

From Traditional Trade to a Digital Revolution

India's journey to e-commerce is a story of technology adoption, policy support, changing consumer behavior and innovation, creating a vibrant digital marketplace.



WHAT IS E-COMMERCE?



E-commerce (Electronic Commerce) refers to the buying and selling of goods and services, or the transmission of funds or data, over electronic networks, primarily the Internet.

JOURNEY OF E-COMMERCE IN INDIA



KEY DRIVERS OF TRANSITION

- Internet Penetration**
Affordable data and widespread internet access across India.
- Smartphone Revolution**
Low-cost smartphones brought millions of new users online.
- Digital Payments**
UPI, wallets, and secure payment systems built trust and convenience.
- Government Initiatives**
Digital India, Startup India, Make in India, and ONDC promote digital commerce.
- Changing Consumer Behavior**
Growing preference for convenience, variety, and better prices online.
- Logistics & Infrastructure**
Better logistics, warehousing and last-mile delivery networks enabled growth.

KEY DEVELOPMENTS AND MILESTONES

- 2007**
Flipkart (B2C) and Myntra (Fashion) founded.
- 2008**
Launch of 3G services in India boosted mobile internet.
- 2010**
Cash on Delivery (COD) built trust among customers.
- 2011 – 2013**
Rise of online travel (MakeMyTrip), food delivery and digital wallets.
- 2016**
Jio 4G launch – Data prices fell sharply; internet usage exploded.
- 2016**
Demonetization + UPI launch accelerated digital payments.
- 2018**
E-commerce reaches Tier 2 & 3 cities and small towns.
- 2021**
ONDC (Open Network for Digital Commerce) initiative launched.
- 2023 – Present**
Growth of quick commerce, social commerce, voice search, AI recommendations and cross-border e-commerce.

IMPACT OF E-COMMERCE IN INDIA

- Economic Growth**
Creates jobs, boosts MSMEs, increases exports and contributes to GDP.
- Entrepreneurship**
Empowers startups and small businesses to reach national and global markets.
- Consumer Benefits**
Wider choice, better prices, convenience, doorstep delivery and easy returns.
- Digital Inclusion**
Brings more people and businesses into the digital economy.
- Global Recognition**
India is one of the world's fastest growing e-commerce markets.

EXAMPLES OF E-COMMERCE GROWTH IN INDIA

- | Company | Impact |
|------------------|---|
| Flipkart | Pioneered online retail in India with a wide range of products and strong supply chain. |
| amazon.in | Global player with vast selection, fast delivery and Prime membership benefits. |
| paytm | Leader in digital payments, wallets, recharges and financial services. |
| zomato | Expanded from food delivery to groceries, dining and more. |
| meesho | Social commerce platform enabling millions of small entrepreneurs to sell online. |

CHALLENGES AHEAD

- Trust & Security** – Building confidence in online transactions and protecting customer data.
- Logistics in Remote Areas** – Last-mile delivery remains challenging in many regions.
- Regulation & Compliance** – Adapting to evolving laws, taxes and data policies.
- Intense Competition** – High competition and customer acquisition costs.
- Digital Literacy** – Need to upskill businesses and consumers for digital adoption.

KEY TAKEAWAY

The transition to e-commerce in India is powered by technology, innovation and trust. It continues to transform businesses, empower consumers and build a stronger digital India.

THE FUTURE IS DIGITAL



More Internet Users



AI & Personalization



Social & Voice Commerce



Cross-border E-commerce



Sustainable & Inclusive Growth



E-COMMERCE IN INDIA – DIGITAL TODAY, LIMITLESS TOMORROW!





E-COMMERCE VS TRADITIONAL COMMERCE

— Two Ways to Trade, One Goal – Customer Satisfaction —



E-COMMERCE

E-Commerce (Electronic Commerce) refers to the buying and selling of goods and services or the transmission of funds or data over the internet or electronic networks.



TRADITIONAL COMMERCE

Traditional Commerce refers to the buying and selling of goods and services through physical stores and face-to-face interaction between buyers and sellers.

BASIS OF COMPARISON	E-COMMERCE	TRADITIONAL COMMERCE
1. Meaning	Business is conducted online over the internet.	Business is conducted in physical stores or markets.
2. Place	No physical location; can operate from anywhere.	Required physical location for setting up a store.
3. Time	24/7 availability; no time restrictions.	Limited working hours; closed on holidays.
4. Reach	Global reach; can serve customers worldwide.	Limited reach; mainly local customers.
5. Cost	Lower operational costs (no rent, less manpower, etc.).	Higher operational costs (rent, utilities, staff, etc.).
6. Convenience	Highly convenient; shop from anywhere, anytime.	Requires physical visit; time and effort consuming.
7. Customer Interaction	Virtual interaction through chat, email, calls, etc.	Face-to-face interaction.
8. Product Range	Wider variety; easy to add new products.	Limited by physical space.
9. Payment	Digital payments (cards, UPI, net banking, wallets, COD, etc.).	Cash, card or cheque in person.
10. Marketing	Digital marketing (SEO, social media, email, ads, etc.).	Traditional marketing (print, hoardings, flyers, word of mouth, etc.).
11. Record Keeping	Automatic, digital and easy to manage.	Manual records; time-consuming and prone to errors.
12. Scalability	Easy to scale up with low cost.	Difficult and costly to expand.
13. Example	Amazon, Flipkart, Meesho, Myntra, Paytm, etc.	Local Kirana store, Supermarket, Retail shops, etc.

ADVANTAGES OF E-COMMERCE



- ✓ Global reach and more customers
- ✓ 24/7 availability and convenience
- ✓ Lower cost and higher profit potential
- ✓ Easy comparison and more choices
- ✓ Digital payments and fast delivery



CONCLUSION

Both E-Commerce and Traditional Commerce have their own importance. The best approach is to use the right channel at the right time to meet customer needs and grow business.

ADVANTAGES OF TRADITIONAL COMMERCE



- ✓ Personal touch and better customer trust
- ✓ Immediate product availability
- ✓ No need for internet or advanced technology
- ✓ Supports local economy and community
- ✓ Easy return and after-sales service



The future is not about replacing Traditional Commerce with E-Commerce, but about combining the strengths of both for better business and happier customers.





E-COMMERCE vs E-BUSINESS

Different in Scope, United by Technology



WHAT IS E-COMMERCE?



E-Commerce (Electronic Commerce) refers specifically to buying and selling of goods and services, and the transfer of money or data, over the Internet.

WHAT IS E-BUSINESS?



E-Business (Electronic Business) refers to the broader use of electronic technology to conduct and manage all major business processes, including e-commerce.

BASIS OF COMPARISON	E-COMMERCE	E-BUSINESS
1. Meaning	Focuses on online buying and selling of goods and services.	Covers all electronic processes of a business, including e-commerce.
2. Scope	Narrower – limited to online transactions between buyers and sellers.	Broader – includes e-commerce plus internal and external business operations.
3. Focus	Customer-facing; market and transaction oriented.	Business-wide; process and management oriented.
4. Activities Involved	Online shopping, online payments, order processing, delivery, customer service.	Includes e-commerce + supply chain management, inventory, HR, finance, CRM, data analytics, etc.
5. Reach	Primarily external – customers, suppliers, business partners.	Both internal and external – employees, departments, partners, customers.
6. Example	Buying a book online from Amazon, booking a flight, paying bills online.	Amazon managing inventory, warehousing, employee payroll, customer data, analytics, along with online sales.
7. Technology Use	Uses the internet and web technologies mainly for transactions.	Uses a wide range of ICT – Intranet, Extranet, ERP, CRM, SCM, Cloud, AI, Big Data, etc.
8. Business Impact	Increases sales, customer reach and revenue.	Improves overall efficiency, productivity, decision making and competitiveness.
9. Investment	Relatively lower initial investment.	Higher investment as it covers the entire business infrastructure.
10. Objective	Complete online transactions efficiently.	Improve overall business performance and create long-term value.
11. Time Horizon	Short to medium term benefits.	Long term, strategic benefits.
12. Relationship	Part of E-Business.	Encompasses E-Commerce.

ADVANTAGES OF E-COMMERCE



- ✓ Global market reach
- ✓ 24/7 availability
- ✓ Convenience for customers
- ✓ Lower transaction costs
- ✓ Faster payments and delivery
- ✓ Wide choice and comparison

ADVANTAGES OF E-BUSINESS



- ✓ End-to-end process automation
- ✓ Better decision making with data
- ✓ Improved efficiency and productivity
- ✓ Stronger collaboration
- ✓ Cost savings across operations
- ✓ Sustainable competitive advantage

IN SHORT

E-Commerce is about doing business online.
E-Business is about running the business online.

E-COMMERCE

Do Business Online

E-BUSINESS

Run Business Online



KEY TAKEAWAY

Every E-Commerce is a part of E-Business, but every E-Business is not limited to E-Commerce.





CUTTING EDGE TECHNOLOGIES

Powering the Future of E-Commerce



Cutting edge technologies are innovative solutions that enhance customer experience, improve business efficiency, ensure security and create new opportunities in e-commerce.

1. ARTIFICIAL INTELLIGENCE (AI)



AI enables machines to learn, analyze and make intelligent decisions.

Use in E-Commerce:
Product recommendations, chatbots, demand forecasting, fraud detection.

2. MACHINE LEARNING (ML)



ML algorithms learn from data and improve without explicit programming.

Use in E-Commerce:
Personalization, customer segmentation, dynamic pricing, inventory optimization.

3. BIG DATA ANALYTICS



Analyzing large volumes of data to discover patterns and insights.

Use in E-Commerce:
Better decision making, customer insights, market trends, targeted marketing.

4. CLOUD COMPUTING



Delivers computing services over the internet on demand.

Use in E-Commerce:
Scalability, cost savings, backup, high availability and fast deployment.

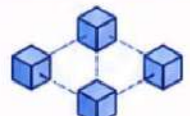
5. INTERNET OF THINGS (IoT)



Connected devices that collect and exchange data over the internet.

Use in E-Commerce:
Smart inventory, real-time tracking, connected payments, smart shelves.

6. BLOCKCHAIN TECHNOLOGY



Decentralized and secure ledger that ensures transparency and trust.

Use in E-Commerce:
Secure transactions, smart contracts, supply chain transparency, anti-fraud.

7. AUGMENTED REALITY (AR)



Overlays digital elements on the real world.

Use in E-Commerce:
Virtual try-on, product visualization, interactive shopping experience.

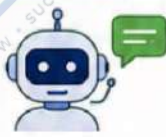
8. VIRTUAL REALITY (VR)



Creates immersive digital environments for users.

Use in E-Commerce:
Virtual stores, product demos, immersive brand experiences.

9. CHATBOTS & CONVERSATIONAL AI



AI-powered systems that understand and respond to customer queries.

Use in E-Commerce:
24/7 customer support, order tracking, FAQs, lead generation.

10. ROBOTICS & AUTOMATION



Robots and automation tools perform tasks with speed and accuracy.

Use in E-Commerce:
Warehouse automation, order fulfillment, sorting, last-mile delivery.

11. 5G TECHNOLOGY



Next-generation network that offers ultra-fast speed and low latency.

Use in E-Commerce:
Faster mobile shopping, AR/VR experiences, real-time tracking, live commerce.

12. CYBER SECURITY TECHNOLOGIES



Advanced tools and practices to protect data and systems from threats.

Use in E-Commerce:
Secure payments, data protection, fraud prevention, risk management.

BENEFITS FOR E-COMMERCE BUSINESSES

- ✓ Enhanced customer experience
- ✓ Improved efficiency and productivity
- ✓ Better decision making with data
- ✓ Increased sales and customer loyalty
- ✓ Reduced operational costs
- ✓ Competitive advantage



EMERGING TRENDS

- 🗣️ Voice Commerce
- 👤 Social Commerce
- 📺 Live Shopping
- 🌱 Sustainable Technology
- 🌐 Edge Computing
- 🤖 AI-Generated Content



THE FUTURE IS SMART

Cutting edge technologies are transforming the way businesses connect, engage and deliver value. Adopting the right technologies today builds the successful e-commerce leaders of tomorrow.



KEY TAKEAWAY

Embracing cutting edge technologies is not just an option, it is the key to innovate, grow and lead in the e-commerce world.





STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND CHALLENGES OF E-COMMERCE

A SWOT Analysis of the Digital Marketplace

E-commerce has transformed the way businesses operate and customers shop. Understanding its internal strengths and weaknesses, along with external opportunities and challenges, is key to long-term success.



S

STRENGTHS



Global Reach

E-commerce breaks geographical barriers and enables businesses to reach a global audience.



24/7 Availability

Online stores are open 24/7, allowing customers to shop anytime, anywhere.



Lower Operating Costs

Reduced costs on rent, utilities, and manpower compared to physical stores.



Convenience for Customers

Easy product search, comparison, and home delivery save time and effort.



Data & Insights

E-commerce generates valuable data that helps in understanding customer behavior and improving decisions.



Wide Product Range

Businesses can offer a vast range of products with less space and inventory constraints.

W

WEAKNESSES



Lack of Personal Interaction

Customers miss the in-person experience and personal assistance.



Dependence on Technology

System downtime, website errors, or cyber issues can disrupt business operations.



Security & Privacy Concerns

Risk of data breaches, identity theft, and online fraud can reduce customer trust.



Product Return & Refund Issues

Returns can be costly and complex, affecting customer satisfaction.



Delivery Dependence

E-commerce relies on third-party logistics for timely and safe delivery.



High Competition

Intense competition makes it hard to stand out and maintain profit margins.

O

OPPORTUNITIES



Growing Internet & Smartphone Use

Increasing internet penetration and mobile users open new markets and customer segments.



Emerging Markets

E-commerce can tap into rural and underserved markets.



Advanced Technologies

AI, AR/VR, chatbots, and analytics can enhance customer experience and efficiency.



Social Media & Digital Marketing

Powerful tools to build brands, engage customers, and drive sales cost-effectively.



Cross-border E-commerce

Global shipping solutions and digital payments make international trade easier.



Niche & Specialized Products

E-commerce allows small businesses to reach targeted audiences with niche offerings.

T

CHALLENGES



Cybersecurity Threats

Hacking, phishing, and malware attacks are constant risks for businesses and customers.



Logistics & Last-mile Delivery

High delivery costs, delays, and poor infrastructure can affect customer satisfaction.



Legal & Regulatory Compliance

Adhering to laws on data protection, taxation, and consumer rights is complex.



Building Trust

Convincing first-time customers to trust online payments and share personal information.



Rising Customer Expectations

Customers expect fast delivery, easy returns, and excellent service every time.



Inventory & Supply Chain Management

Managing stock, demand forecasting, and supplier reliability can be challenging.



KEY TAKEAWAY

E-commerce continues to evolve with great potential. Leveraging strengths, addressing weaknesses, seizing opportunities, and overcoming challenges is the key to sustainable success.





COMPONENTS OF E-BUSINESS

Building Blocks of a Digital Enterprise



E-business integrates people, processes, data and technology to enable and support business activities over electronic networks, creating value for customers and organizations.



1. PEOPLE

- Employees, managers, partners, suppliers and customers.
- Key to decision making, collaboration and relationship management.
- e-Skills, training and change management are essential.



2. BUSINESS PROCESSES

- Collection of activities that create value for customers.
- Includes process design, automation, integration and management.
- Examples: order processing, supply chain management, customer service.



3. INFORMATION (DATA)

- Data is a strategic asset in e-business.
- Includes customer data, product data, transaction data, etc.
- Ensures accuracy, relevance, security and proper analysis for better decision making.



4. TECHNOLOGY INFRASTRUCTURE

- Hardware, software, networks and databases that power e-business.
- Includes internet, intranet, extranet, cloud computing, mobile technologies, IoT, etc.
- Provides the platform for business operations and communication.



5. NETWORKS & TELECOMMUNICATIONS

- Enables connectivity and communication over distances.
- Includes Internet, LAN, WAN, Intranet, Extranet and mobile networks.
- Ensures fast, reliable and secure exchange of information.



6. BUSINESS PARTNERS

- Suppliers, distributors, logistics providers, banks and other partners.
- Collaboration and integration through digital platforms.
- Strengthens the value chain and improves efficiency.



7. CUSTOMERS

- Central focus of e-business.
- Understanding customer needs, personalization and building long-term relationships.
- Tools: CRM, loyalty programs, feedback systems, etc.



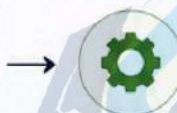
8. SECURITY & TRUST

- Protects data, systems and transactions from threats.
- Includes authentication, encryption, firewalls, anti-virus, privacy policies, and legal compliance.
- Builds trust and confidence among users and partners.

HOW THESE COMPONENTS WORK TOGETHER



People use Technology



to perform Business Processes



and manage Information



through Networks



in collaboration with Business Partners



to deliver value to Customers



with Security and Trust

All components are interdependent and must work in harmony for a successful e-business.

BENEFITS OF INTEGRATED E-BUSINESS COMPONENTS



Operational Efficiency

Streamlined processes reduce costs and improve productivity.



Better Customer Experience

Personalized services and quick response increase satisfaction.



Global Reach

Connect with customers and partners worldwide, anytime, anywhere.



Innovation & Agility

Adapts quickly to market changes and new opportunities.



Competitive Advantage

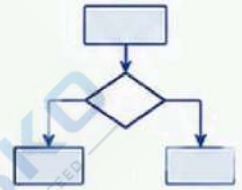
Integrated e-business creates value and sustainable growth.



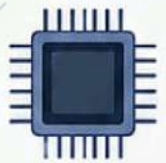
E-Business is not just about technology, it is about integrating all key components to create value, build relationships and grow in the digital world.



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Unit - II





E-COMMERCE BUSINESS MODELS



Different ways in which value is exchanged online

B2B

(Business to Business)



Business



Business

What it is:

Transactions between businesses, such as a manufacturer selling raw materials to a wholesaler.

Examples:

- Alibaba
- IndiaMART
- Grainger

Key Features:

- Large volume transactions
- Long-term relationships
- Negotiated pricing



B2C

(Business to Consumer)



Business



Consumer

What it is:

Businesses sell products or services directly to individual consumers online.

Examples:

- Amazon
- Flipkart
- Nykaa

Key Features:

- Wide customer base
- Online retail stores
- Fast delivery & easy returns



C2B

(Consumer to Business)



Consumer



Business

What it is:

Consumers offer products or services to businesses.

Examples:

- Upwork
- Freelancer
- Shutterstock

Key Features:

- Consumers set the terms
- Businesses benefit from specialized skills or services
- Growing gig economy



C2C

(Consumer to Consumer)



Consumer



Consumer

What it is:

Consumers sell products or services to other consumers through an online platform.

Examples:

- eBay
- OLX
- Facebook Marketplace

Key Features:

- Marketplace acts as an intermediary
- Wide variety of products
- Peer-to-peer transactions



B2G

(Business to Government)



Business



Government

What it is:

Businesses provide goods or services to government agencies online.

Examples:

- Government e-Marketplace (GeM)
- Tender portals
- SAP Ariba

Key Features:

- Involves tenders & contracts
- Large scale & regulated
- Transparency & compliance



C2G

(Consumer to Government)



Consumer



Government

What it is:

Individuals make payments or provide information/services to government agencies online.

Examples:

- Online tax payment
- Utility bill payment
- Passport/visa applications

Key Features:

- Digital payments & services
- Improves convenience
- Strengthens e-governance



These models power the **digital economy** and create value for businesses, consumers and governments.





BROKERAGE

Brokerage is a fee or commission paid to a broker for executing buy or sell orders on behalf of clients.



WHAT IS A BROKER?



A broker is an intermediary who acts as a bridge between buyers and sellers in the financial markets or other transactions.

HOW BROKERAGE WORKS?



TYPES OF BROKERAGE



Flat Fee Brokerage

A fixed amount is charged per trade, regardless of the trade value.



Percentage Brokerage

A certain percentage of the transaction value is charged as brokerage.



Discount Brokerage

Lower brokerage charged by brokers who provide services online.



Full Service Brokerage

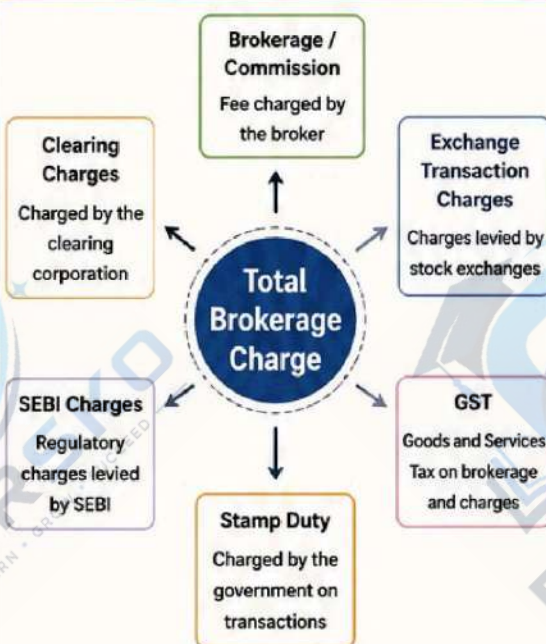
Higher brokerage with additional research and advisory services.



Value-based Brokerage

Based on the value and complexity of the services provided.

COMPONENTS OF BROKERAGE CHARGES



IMPORTANCE OF BROKERAGE



Facilitates Trading

Brokers provide a platform to buy and sell securities easily.



Market Expertise

Brokers offer research, advice and market insights.



Saves Time & Effort

They execute orders quickly and handle formalities.



Liquidity in Market

Brokers increase market liquidity by matching buyers and sellers.



Regulatory Compliance

Brokers ensure trades are done as per rules and regulations.

EXAMPLES OF BROKERAGE

Trade Value	Brokerage Type	Rate / Fee	Brokerage Amount
₹ 1,00,000	Flat Fee	₹ 20 per trade	₹ 20
₹ 1,00,000	Percentage	0.20% of trade value	₹ 200
₹ 2,50,000	Discount Broker	₹ 20 per trade	₹ 20

Tip:

Always compare total costs, not just brokerage. Other charges also impact your final profit.



ADVANTAGES

- ✓ Provides access to stock exchanges.
- ✓ Professional guidance and research support.
- ✓ Helps in executing large orders smoothly.
- ✓ Saves time and reduces hassle.
- ✓ Offers various tools and platforms for trading.



WHO CAN BECOME A BROKER?



Any individual or company can become a broker by registering with SEBI.



Must be a member of a recognized stock exchange.



Needs to fulfill capital, infrastructure and compliance requirements.



Examples: Zerodha, Upstox, Angel One, ICICI Direct, HDFC Securities, etc.

DISADVANTAGES

- ✗ Brokerage and other charges reduce overall returns.
- ✗ High brokerage can affect small investors.
- ✗ Quality of service may vary between brokers.
- ✗ Interest conflict may occur in advisory services.



Brokerage is the cost of professional support that helps investors trade smarter, faster and more efficiently in the financial markets.





MERCHANT

VS

MANUFACTURER (DIRECT)



Two Important E-Commerce Models That Bring Products to Customers

MERCHANT

Buys products from manufacturers or wholesalers and sells to customers for profit.



HOW IT WORKS



1. Manufacturer/Wholesaler Produces the product
2. Merchant Buys products in bulk and stores or lists online
3. Sells to Customer Markets and sells to end customers
4. Customer Buys the product from the merchant

KEY FEATURES

- ✓ Merchant buys ownership of the product.
- ✓ Handles inventory, pricing, marketing and customer service.
- ✓ Earns profit on the difference between buying price and selling price.
- ✓ Takes risk of inventory, storage and unsold stock.

ADVANTAGES

- ✓ Flexibility in pricing
- ✓ Builds own brand
- ✓ Controls customer experience
- ✓ Higher profit margin potential

EXAMPLES

amazon

Amazon (Retail)

Flipkart

Flipkart

meesho

Meesho

Reliance

Reliance Retail

JioMart

JioMart

MANUFACTURER (DIRECT)

Manufacturers sell their own products directly to customers without any middleman.



HOW IT WORKS (DIRECT TO CONSUMER)



1. Manufacturer Designs and produces the product
2. Sells Directly Lists products on own website or marketplaces
3. Ships to Customer Delivers product directly
4. Customer Buys directly from the manufacturer

KEY FEATURES

- ✓ Manufacturer owns the product from production to delivery.
- ✓ No middleman or retailer involved.
- ✓ Higher control over quality, pricing and branding.
- ✓ Better margins by eliminating intermediary costs.

ADVANTAGES

- ✓ Higher profit margin
- ✓ Direct customer relationship
- ✓ Better brand control
- ✓ Valuable customer data & feedback

EXAMPLES

Nike

Nike (Nike.com)

boAt

boAt (boat-lifestyle.com)

Apple

Apple (apple.com)

SAMSUNG

Samsung (samsung.com)

D2C

Many D2C Brands

AT A GLANCE COMPARISON

Aspect	Merchant	Manufacturer (Direct)
Ownership of Product	Buys and owns the product	Manufactures and owns the product
Inventory	Buys in bulk and manages inventory	Manages own inventory
Control over Pricing	Moderate	High
Customer Relationship	Through merchant	Direct relationship with customers
Profit Margin	Lower (includes intermediary costs)	Higher (no middleman)
Brand Control	Limited	Full control
Best For	Resellers, Retailers, Marketplaces	Brands, Startups, Established Manufacturers



Both models are important and complement each other in the e-commerce ecosystem.

Merchant sells what others make,
Manufacturer (Direct) sells what they make.





ADVERTISING & INFOMEDIARY



Two important elements of E-Commerce that help businesses reach customers and enable smart decisions.

ADVERTISING



Advertising is any paid form of non-personal presentation and promotion of ideas, goods or services by an identified sponsor.

OBJECTIVES



Create Awareness



Generate Interest



Stimulate Demand



Build Brand Image



Encourage Action

TYPES OF ADVERTISING



Search Engine Advertising (SEM)



Display Advertising



Social Media Advertising



Email Advertising



Video Advertising



Mobile Advertising

BENEFITS

- ✓ Increases visibility and brand awareness
- ✓ Reaches a large and targeted audience
- ✓ Helps in product promotion and sales
- ✓ Measurable results and performance
- ✓ Supports business growth and customer engagement

EXAMPLES



Google Ads



Facebook Ads



Instagram Ads



YouTube Ads



Amazon Ads



LinkedIn Ads

KEY DIFFERENCE



Advertising
Promotes products/ services to create demand.

INFOMEDIARY



An Infomediary is an intermediary that collects, processes and disseminates information between two or more parties, earning revenue from information services.

HOW AN INFOMEDIARY WORKS?



Collects Data from various sources



Processes & Organizes Information



Provides Relevant Information to Users



Earns Revenue (Subscription, Ads, Commission)

TYPES OF INFOMEDIARIES



Search Engines
Google, Bing



Comparison Sites
Price comparison, product reviews



Marketplaces
Amazon, Flipkart, eBay



Review & Rating Platforms
TripAdvisor, Yelp



Data & Analytics Providers
Statistical & market information

BENEFITS

- ✓ Provides valuable and relevant information
- ✓ Helps in better decision making
- ✓ Saves time and effort in information search
- ✓ Enables transparency and trust
- ✓ Creates value for both buyers and sellers

EXAMPLES



Google



Skyscanner



PolicyBazaar



Trivago



Zomato



Coinbase

KEY DIFFERENCE



Infomediary
Provides information to help users make better decisions.



Advertising creates demand.
Infomediary provides information.
Together, they power the digital economy.





AFFILIATE vs COMMUNITY

Two Powerful E-Commerce Models That Build Trust & Drive Growth



AFFILIATE



Affiliate marketing is a performance-based model where individuals (affiliates) promote a company's products or services and earn a commission for every sale, lead or action generated.

HOW IT WORKS



KEY FEATURES

- ✓ Performance based (Pay for results)
- ✓ Low risk & low investment
- ✓ Works on multiple channels
- ✓ Win-Win for both company and affiliate
- ✓ Trackable and measurable with analytics

TYPES OF AFFILIATE MODELS

- Pay Per Sale (PPS)
Earn commission on sales
- Pay Per Lead (PPL)
Earn on leads or sign-ups
- Pay Per Click (PPC)
Earn on link clicks
- Pay Per Action (PPA)
Earn on specific actions (downloads, form fill, etc.)

BENEFITS

For Business

- ✓ Increases sales and reach
- ✓ Cost-effective marketing
- ✓ Only pay for real results
- ✓ Access to a large network of promoters

For Affiliate:

- ✓ Earn passive income
- ✓ Work from anywhere
- ✓ Promote products you love
- ✓ No need to handle product or customer support

EXAMPLES



Bloggers, Influencers, Content Creators, Marketers, Website Owners who want to earn by promoting products.



COMMUNITY

A community model brings people together around a common interest, brand or purpose. It focuses on building relationships, trust and engagement rather than just transactions.



HOW IT WORKS



KEY FEATURES

- ✓ People-centric approach
- ✓ Builds long-term relationships
- ✓ Encourages interaction & collaboration
- ✓ Creates brand advocates
- ✓ Drives loyalty and retention

TYPES OF COMMUNITIES

- Brand Community
Customers connected around a brand
- Interest-Based Community
People with similar interests or goals
- Customer Support Community
Users help each other solve problems
- Professional Community
Professionals share knowledge & grow together

BENEFITS

For Business

- ✓ Stronger customer loyalty
- ✓ Valuable feedback & insights
- ✓ Better retention & advocacy
- ✓ User-generated content & referrals
- ✓ Lower marketing costs

For Members

- ✓ Sense of belonging
- ✓ Learn and share knowledge
- ✓ Get support and solutions
- ✓ Build meaningful connections

EXAMPLES



Brands, Organizations, Creators who want to build lasting relationships, increase engagement and create a loyal customer base.



AT A GLANCE COMPARISON

Aspect	Affiliate	Community
Purpose	Drive sales or leads through promotions	Build relationships and engagement
Focus	Performance & Commission	Connection & Collaboration
Relationship	Transactional	Long-term & Emotional
Engagement	Low to Medium	High
Cost to Start	Low	Low to Medium
Revenue Model	Commission based	Indirect (loyalty, retention, LTV)
Best For	Short-term sales growth	Long-term brand building



Affiliate drives sales. Community builds loyalty.
Together, they create a successful digital ecosystem!





SUBSCRIPTION vs UTILITY



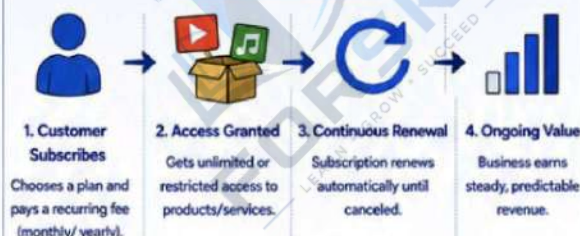
Two Important E-Commerce Models with Different Value, Same Goal:
Deliver Value & Create Long-Term Customers



SUBSCRIPTION

A subscription model charges customers a recurring fee to access products, content, or services for a specific period.

HOW IT WORKS



KEY FEATURES

- ✓ Recurring revenue through regular payments.
- ✓ Access-based – customers pay for access, not ownership.
- ✓ Predictable revenue for businesses.
- ✓ Builds long-term customer relationships.
- ✓ Easy upgrades, renewals, and plan changes.

BENEFITS

For Businesses

- Predictable & stable revenue
- Higher customer retention
- Stronger customer loyalty
- Better cash flow forecasting

For Customers

- Affordable & easy payments
- Continuous access to services
- Cancel or change anytime
- Regular updates & new features

EXAMPLES



UTILITY

A utility model charges customers based on actual usage or consumption of a product or service.

HOW IT WORKS



KEY FEATURES

- ✓ Pay-as-you-go – pay only for what is used.
- ✓ Usage-based pricing and billing.
- ✓ Flexible – scale up or down as needed.
- ✓ Cost-efficient for customers.
- ✓ Encourages efficient and optimized usage.

BENEFITS

For Businesses

- Revenue scales with usage
- Attracts cost-conscious customers
- Efficient resource utilization
- Lower barriers to entry

For Customers

- Pay only for what you use
- High flexibility & control
- Cost savings
- No long-term commitment

EXAMPLES



AT A GLANCE COMPARISON

Aspect	Subscription Model	Utility Model
Pricing	Fixed recurring fee (monthly/yearly)	Variable pricing based on actual usage
Revenue	Predictable & recurring	Variable & usage-dependent
Customer Commitment	Long-term (until canceled)	Short-term (use and pay)
Billing	Regular intervals	Based on consumption
Best For	Content, Software, Memberships	Cloud Services, Utilities, Infrastructure
Customer Control	Access to full/limited features	Full control over usage
Example	Netflix, Spotify, Adobe CC	AWS, Azure, Electricity



Subscription ensures **ACCESS**. Utility ensures **USAGE**.
Different approach, same purpose – Deliver Value to Customers!





E-COMMERCE BUSINESS REVENUE MODEL & TYPES



How E-Commerce Businesses Make Money



WHAT IS A REVENUE MODEL?

A revenue model defines how an e-commerce business generates income from its products, services, users or transactions. It determines the pricing strategy and the way value is delivered to customers.

E-COMMERCE BUSINESS REVENUE MODELS

1 SALES REVENUE (Direct Sales)



The most common model. Revenue is generated by selling products or services to customers.

Example:
Amazon, Flipkart, Apple Store

2 SUBSCRIPTION REVENUE



Customers pay a recurring fee (weekly/monthly/yearly) to access products or services.

Example:
Netflix, Amazon Prime, Spotify

3 COMMISSION REVENUE



The business earns a percentage (commission) on transactions, sales or services facilitated.

Example:
Etsy, Airbnb, Uber

4 ADVERTISING REVENUE



Revenue is earned by showing ads to users, brands or sellers on the platform.

Example:
Google Shopping, Facebook Marketplace

5 FEE-BASED REVENUE



Customers pay a one-time or recurring fee to list, access or use platform features.

Example:
Shopify (Subscription), LinkedIn (Premium)

6 TRANSACTION REVENUE



A fee is charged for each transaction or payment processed on the platform.

Example:
PayPal, Razorpay

7 FREEMIUM REVENUE



Basic services are free; users pay for premium features, products or advanced access.

Example:
Canva, LinkedIn, Dropbox

8 DATA & INSIGHTS REVENUE



Revenue is generated by providing valuable data, insights or analytics to businesses.

Example:
Market Research Platforms, Google Analytics Premium

TYPES OF E-COMMERCE REVENUE (BASED ON HOW MONEY IS EARNED)



1 PRODUCT REVENUE

Income from selling physical or digital products.

Example:
Online stores, Electronics, Fashion, Books



2 SERVICE REVENUE

Income from providing services or solutions to customers.

Example:
Web Design, Digital Marketing, Consultation



3 MEMBERSHIP REVENUE

Income from charging members for exclusive content or benefits.

Example:
Online Communities, Learning Platforms



4 DIGITAL CONTENT REVENUE

Income from selling downloadable or streaming content.

Example:
E-books, Courses, Music, Software



5 PARTNERSHIP REVENUE

Income from strategic partnerships, affiliates or collaborations.

Example:
Affiliate Marketing, Brand Partnerships



6 LICENSING REVENUE

Income from licensing intellectual property, software or technology.

Example:
Software Licenses, Stock Photos



KEY TAKEAWAY

Choosing the right revenue model and type depends on your business goals, customer needs, product/service and long-term growth strategy.



Creates Sustainable Income



Improves Customer Value



Enhances Profit Margins



Supports Long-Term Business Growth





IMPACT OF E-COMMERCE ON BUSINESS



Transforming the Way Businesses Operate, Grow & Succeed



E-commerce has revolutionized the way businesses connect with customers, operate, and compete in the global marketplace.

It brings speed, efficiency, reach and innovation to every aspect of business.

KEY POSITIVE IMPACTS ON BUSINESS

1 GLOBAL REACH



Businesses can reach customers worldwide beyond geographical boundaries.

Opens new markets and increases customer base.

2 INCREASED SALES & REVENUE



Online stores are open 24/7, allowing more sales opportunities and higher conversion.

Leads to higher revenue and business growth.

3 LOWER OPERATING COSTS



Reduces costs on physical stores, utilities, paperwork and manual processes.

Improves profit margins and cost efficiency.

4 BETTER CUSTOMER EXPERIENCE



Customers enjoy convenience, variety, easy comparison, reviews and fast delivery.

Increases customer satisfaction and loyalty.

5 DATA & INSIGHTS



Helps businesses collect and analyze customer data to understand behavior and preferences.

Enables smarter decisions, personalized marketing and better strategies.

6 IMPROVED EFFICIENCY



Automates processes like order management, payments, inventory and customer support.

Saves time, reduces errors and improves productivity.

7 FLEXIBILITY & SCALABILITY



Businesses can quickly scale operations, add new products or enter new markets.

Supports long-term growth and adaptability.

8 STRONGER BRAND PRESENCE



Online presence through websites, social media and marketplaces boosts brand visibility.

Builds brand awareness and credibility.

9 COMPETITIVE ADVANTAGE



E-commerce helps small businesses compete with big brands on a level playing field.

Encourages innovation and business differentiation.

10 ENVIRONMENT FRIENDLY



Reduces paper use, travel and physical infrastructure needs.

Supports sustainable and green business practices.

CHALLENGES / NEGATIVE IMPACTS



SECURITY & PRIVACY RISKS

Risk of data breaches, fraud and cyber attacks can harm business reputation.



INTENSE COMPETITION

High competition leads to price wars and lower profit margins.



RETURN & REFUND MANAGEMENT

Handling returns and refunds can be costly and complex.



DEPENDENCE ON TECHNOLOGY

System failures, website downtime or technical issues can disrupt business.



NEED FOR SKILLS & TRAINING

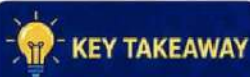
Businesses must invest in digital skills and training to stay competitive.

OVERALL IMPACT



E-commerce empowers businesses to grow faster, serve better and operate smarter.

It is no longer an option, but a necessity for future success!



Wider Reach
More Customers



Higher Sales
More Profits



Better Efficiency
Lower Costs



Happier Customers
Stronger Loyalty



Sustainable Growth
Long-term Success



SUCCESSFUL BUSINESS MODELS IN INDIA



Innovative. Scalable. Impactful. Indian.



India is home to several companies that have built powerful and sustainable business models by solving real problems, leveraging technology and focusing on customer value.

Here are some of the most successful business models in India.

COMPANY & FOUNDED	BUSINESS MODEL	HOW IT MAKES MONEY	KEY SUCCESS FACTORS
Flipkart Founded: 2007 E-commerce	Marketplace model connecting buyers and sellers with a wide product range.	Commissions, listing fees, advertising revenue, logistics services and private labels.	• Strong supply chain • Customer trust • Wide product selection • Data-driven decisions
zomato Founded: 2008 Food Delivery & Restaurant Discovery	Platform model connecting users, restaurants and delivery partners.	Commissions on orders, advertising, subscription (Zomato Pro) and delivery fees.	• Large user base • Strong restaurant network • Efficient delivery • Continuous innovation
paytm Founded: 2010 Digital Payments & Financial Services	Digital payments platform offering financial and related services.	Merchant fees, wallet transactions, financial services, ticketing and advertising.	• Early mover advantage • Wide service ecosystem • Strong brand trust • Technology focus
BYJU'S Founded: 2011 EdTech	Subscription model for online learning with engaging content.	Subscriptions, courses, test prep, partnerships and premium content.	• Quality content • Strong brand • Technology-driven • Scalable model
OYO Founded: 2013 Hospitality	Asset-light model partnering with hotels and offering standardized stays.	Commissions from hotel bookings and additional services.	• Standardization • Tech-enabled operations • Wide network • Cost efficiency
NYKAA Founded: 2012 Beauty & Personal Care E-commerce	Inventory-led e-commerce model with own + partner brands.	Product sales, private labels, advertising and loyalty programs.	• Niche focus • Strong brand building • Customer experience • Omnichannel presence
policybazaar Founded: 2008 Insurance Aggregator	Aggregator model comparing insurance policies from multiple providers.	Commissions from insurance companies for leads and sales.	• Trust & transparency • Wide options • Easy comparison • Strong digital presence
ZERODHA Founded: 2010 Online Stock Broking	Discount broking model offering low-cost trading & investment platform.	Brokerage (flat fee), interest income and value-added services.	• Low-cost structure • Technology first • User trust • Simple & transparent

KEY TAKEAWAYS



Solve real problems



Use technology effectively



Focus on customer experience



Build scalable & sustainable models



Keep innovating and adapting



Indian businesses are proving that the right **model + vision + execution = success!**



SERVER SOFTWARE & WEB AUTHORIZING TOOLS

Building, Managing and Publishing on the Web



SERVER SOFTWARE

Software that runs on web servers and manages requests, processes data and delivers web content.

WHAT IS IT?

Server software enables the server to perform various functions such as handling client requests, managing security, running applications, managing databases and delivering web pages.



HOW IT WORKS



1. Client Request
Browser sends a request to the server.



2. Server Software
Processes the request, executes logic, accesses data.



3. Response
Server software sends the result back to the browser.

TYPES / EXAMPLES



Apache HTTP Server – Handles web requests and delivers web pages. Most widely used open-source web server.



Microsoft IIS – Web server by Microsoft for Windows systems. Supports ASP.NET and other technologies.



Nginx – High performance web server, reverse proxy, load balancer and HTTP cache.



Apache Tomcat – Application server for running Java web applications (Servlets, JSP, etc.).



Eclipse Jetty – Lightweight server and container for Java web applications.

KEY FEATURES

- ✓ Handles multiple client requests concurrently
- ✓ Manages security, authentication and authorization
- ✓ Supports dynamic content (PHP, ASP.NET, JSP, etc.)
- ✓ Connects with databases and backend systems
- ✓ Logs, monitoring and error handling
- ✓ Ensures reliability and high availability

EXAMPLES OF USE



Hosting Websites



E-commerce Applications



Web Applications



Database Driven Sites



Web-based Services



WEB AUTHORIZING TOOLS

Software used to create, design, edit and maintain websites and web pages.

WHAT IS IT?

Web authoring tools help designers and developers build websites without (or with less) coding. They provide a user friendly environment to create content, add multimedia, design layouts and publish websites.



HOW IT WORKS



1. Design
Create layout, add text, images, links and media.



2. Generate Code
Tool generates clean HTML, CSS, JavaScript (and other code).



3. Publish
Upload to server using FTP or built-in publishing options.

POPULAR TOOLS



Adobe Dreamweaver

Professional web design tool. Supports visual design, coding, templates and site management.



Microsoft Expression Web

Design and develop responsive websites with visual tools and code view.



Wix

Cloud-based website builder with drag and drop interface. No coding required.



Weebly

Easy drag and drop website builder. Offers themes, e-commerce and hosting.



Google Web Designer

Create interactive HTML5 ads and web content.

KEY FEATURES

- ✓ Easy to use drag-and-drop interface (in many tools)
- ✓ Supports templates and pre-designed components
- ✓ Preview and test the website before publishing
- ✓ Generates clean and standard code
- ✓ Integrates multimedia (images, audio, video, animations)
- ✓ Publishes directly to web server via FTP or cloud

EXAMPLES OF USE



Business Websites



Blogs & Portfolios



Online Stores (e-commerce)



News & Magazines



Educational Sites

SERVER SOFTWARE vs WEB AUTHORIZING TOOLS

Feature	Server Software	Web Authoring Tools
Purpose	Runs on server, manages requests	Creates and designs websites
Where it Runs	On server	On client/PC
Used By	System Administrators, Developers	Web Designers, Developers, Content Creators
Main Function	Process requests, manage data, deliver content	Design pages, generate code, publish website
Examples	Apache, IIS, Nginx, Tomcat	Dreamweaver, Wix, Weebly, etc.

IN SHORT



Server Software is the engine that runs the website on the server and handles all the behind-the-scenes processing.



Web Authoring Tools are the creative tools that help us build, design and publish the website.



Server Software powers the web. Web Authoring Tools build the web.



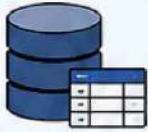


DATABASE SYSTEMS & WORLD WIDE WEB



Two Powerful Foundations of Modern Information & Communication

DATABASE SYSTEMS



A Database System is a collection of data, together with the programs that allow users to create, manage, update and retrieve data efficiently and securely.

COMPONENTS



Data
(Stored Information)



DBMS
(Database Management System)



Users
(End Users, Developers, Administrators)



Applications
(Programs that access data)

HOW IT WORKS



USER
Requests data



APPLICATION
Sends request to DBMS



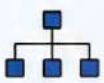
DBMS
Processes request and manages data



DATABASE
Stores and retrieves data

TYPES OF DATABASE SYSTEMS

Hierarchical Database



Data is organized in a tree-like structure.

Network Database



Data is organized in a graph structure.

Relational Database



Data is stored in tables (rows & columns).

Object-Oriented Database



Data is stored as objects with attributes.

POPULAR DBMS SOFTWARE



MySQL



Oracle DB



SQL Server



PostgreSQL



MongoDB

KEY FEATURES

- ✓ Reduces data redundancy
- ✓ Data sharing and consistency
- ✓ Data security and integrity
- ✓ Supports backup and recovery
- ✓ Data independence
- ✓ Efficient data retrieval
- ✓ Concurrent access management
- ✓ Enforces rules and constraints

EXAMPLES OF USE



Banking Systems



University Management



E-commerce Platforms



Hospital Information Systems



Inventory Management

WORLD WIDE WEB

The World Wide Web (WWW) is a system of interlinked hypertext documents and resources, accessed via the Internet using a web browser.



COMPONENTS



Web Browser (Client)



Web Server



Web Pages
(HTML, CSS, JavaScript)



Hyperlinks
(Links between web pages)

HOW IT WORKS



USER
Enters URL or clicks a link



BROWSER
Sends request to web server



WEB SERVER
Processes request and sends page



WEB PAGE
Browser displays the web page

KEY TECHNOLOGIES OF THE WEB



HTML
Structure of web pages



CSS
Styling and layout



JavaScript
Adds interactivity and behavior



HTTP/HTTPS
Protocol for communication



URL
Address of web resources

FEATURES OF THE WWW

- ✓ Global access to information
- ✓ Interlinked hypertext structure
- ✓ Platform independent
- ✓ Multimedia support (text, images, audio, video)
- ✓ Easy to use with browsers
- ✓ Real-time updates
- ✓ Supports e-commerce, education, entertainment & more

EXAMPLES OF USE



Information Websites



Social Media Platforms



Online Shopping



News Portals



Online Learning

DATABASE SYSTEMS vs WORLD WIDE WEB

Feature	Database Systems	World Wide Web
Purpose	Store, manage and retrieve data	Access and share information on the Internet
Type	Data Management System	Information System
Works On	Data (structured, stored)	Web pages (linked documents)
Access	Internal users/applications	Anyone with Internet access
Technology	DBMS, SQL, Tables	HTTP, URL, HTML, Web Browsers
Example	Student database in a college	www.wikipedia.org

IN SHORT



Database Systems manage and organize data efficiently so that users and applications can store, retrieve and manipulate information reliably.



World Wide Web connects the world by providing access to information and services through interlinked web pages on the Internet.



DATABASE SYSTEMS store and manage data. **WORLD WIDE WEB** connects and shares information.



DOMAIN NAME & HARDWARE REQUIREMENTS

Essential Building Blocks of Any Website



DOMAIN NAME

A Domain Name is the unique address of a website on the Internet. It helps users find and access a website easily.

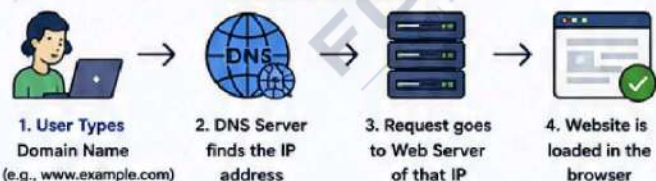


WHAT IS A DOMAIN NAME?

It is a human-friendly name that represents an IP address. Instead of remembering numbers like 192.168.1.1, we use names like www.goec.edu.in



HOW IT WORKS



DOMAIN NAME STRUCTURE



TYPES OF DOMAIN EXTENSIONS (TLDs)



HOW TO GET A DOMAIN NAME?



IMPORTANCE OF DOMAIN NAME

- ✓ Easy to remember and brand identity
- ✓ Helps users find your website easily
- ✓ Increases credibility and trust
- ✓ Essential for email, hosting and online presence
- ✓ Represents your business or organization globally



EXAMPLES OF DOMAIN NAMES

Domain Name	Type	Purpose
google.com	.com	Search Engine
wikipedia.org	.org	Online Encyclopedia
goec.edu.in	.edu.in	Educational Institution (India)
niti.gov.in	.gov.in	Government of India
amazon.co.in	.co.in	Commercial Company (India)

IN SHORT

A Domain Name is your website's unique identity on the Internet.

HARDWARE REQUIREMENTS

Hardware is the physical equipment required to develop, host and run websites and web applications efficiently.



TYPES OF HARDWARE REQUIREMENTS

1. CLIENT SIDE HARDWARE (Used by Users)



Used to access websites through a browser.

2. SERVER SIDE HARDWARE (Used by Website Owners)



Used to store, process and deliver website content.

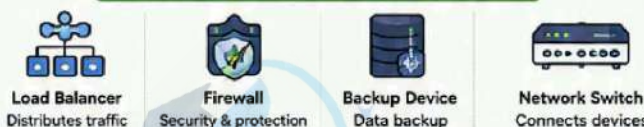
CLIENT SIDE REQUIREMENTS

Hardware	Purpose	Examples / Specification
Computer / Laptop	Access websites, run browsers, view content	Any modern PC / Laptop (Core i3 or above, 4GB RAM or more)
Smartphone / Tablet	Access websites on the go	Android / iOS device with browser
Internet Connection	Connects device to the web	Wi-Fi / Broadband / Mobile Data
Web Browser	Displays web pages and content	Chrome, Firefox, Edge, Safari, Opera

SERVER SIDE REQUIREMENTS

Hardware	Purpose	Examples / Specification
Server (Physical/Virtual)	Hosts and runs the website	High performance server (Multi-core CPU, 16GB+ RAM, SSD Storage)
Storage (HDD/SSD)	Stores website files, databases, logs	SSD Preferred (256GB or more)
Memory (RAM)	Handles multiple requests smoothly	16GB or more (depending on traffic)
Network Connection	Ensures fast and reliable connectivity	High-speed Internet (Uptime 99% or more)
Power Supply & Backup	Keeps server running 24/7	UPS, Generators for power backup

ADDITIONAL HARDWARE (AS PER NEED)



RECOMMENDED CONFIGURATION (FOR WEB SERVER)

Component	Minimum	Recommended
Processor	Quad Core	Intel Xeon / i5 or higher
RAM	8 GB	16 GB or more
Storage	256 GB SSD	512 GB SSD or more
Bandwidth	100 Mbps	1 Gbps or more
Operating System	Linux / Windows Server	Ubuntu / CentOS / Windows Server
Uptime	99%	99.9% or higher

IN SHORT

Good hardware ensures your website is fast, secure, always available and can handle more users.



TOGETHER THEY
MAKE IT POSSIBLE

A Domain Name helps people find your website.
Hardware Requirements ensure your website runs smoothly and is always available.





WIRELESS PAYMENT DEVICE

Make Payments. Anywhere. Anytime.



A Wireless Payment Device is a handheld electronic device that allows businesses to accept payments from customers without the need for a physical connection to a cash register using Wi-Fi, Bluetooth, NFC or mobile network.

WHAT IS IT?



Wireless payment devices enable merchants to accept card payments, digital wallet payments and other contactless transactions without being tied to a counter or wired connection.

KEY TECHNOLOGIES



Wi-Fi

Connects to the internet via wireless networks



Bluetooth

Connects to smartphones or tablets



NFC
(Contactless)

Tap to pay using cards or mobile phones



Cellular
(3G/4G/5G)

Works over mobile networks for remote transactions

HOW IT WORKS



- 1. Payment Initiated**
Customer taps, inserts or swipes card / uses mobile wallet.
- 2. Data Encrypted**
Transaction data is encrypted securely by the device.
- 3. Sent Wirelessly**
Data is sent via Wi-Fi, Bluetooth or mobile network.
- 4. Authorized**
Payment gateway/ bank authorizes the transaction.
- 5. Payment Complete**
Merchant and customer receive confirmation (receipt).

TYPES OF WIRELESS PAYMENT DEVICES

**PIN Pad
(Portable)**



Compact device to accept card payments with PIN entry.

**Mobile POS
(mPOS)**



Connects to smartphone or tablet via Bluetooth.

Smart Terminal



All-in-one device with screen, printer and apps.

**Contactless
Reader**



Accepts tap-to-pay (NFC) payments quickly.

FEATURES

- ✓ Accepts EMV chip cards, magnetic stripe cards and contactless payments
- ✓ Supports digital wallets (Apple Pay, Google Pay, Samsung Pay, etc.)
- ✓ Lightweight, portable and easy to use
- ✓ Secure transactions with end-to-end encryption
- ✓ Fast payment processing and instant receipts
- ✓ Long battery life for all-day use
- ✓ Real-time reporting and inventory integration



BENEFITS

- ✓ **Mobility:** Accept payments anywhere in the store or on the go
- ✓ **Improved Customer Experience:** Fast, convenient and secure payments
- ✓ **Increased Sales:** Shorter checkout times and more payment options
- ✓ **Cost Effective:** Reduces need for bulky POS infrastructure
- ✓ **Real-Time Transactions:** Instant authorization and receipt
- ✓ **Flexible Connectivity:** Works on Wi-Fi, Bluetooth or mobile networks
- ✓ **Enhanced Security:** PCI-DSS compliant with advanced encryption
- ✓ **Business Insights:** Access to reports and analytics

COMMON USE CASES



Retail Stores



Restaurants



Transport Services



Home Delivery



Events & Tickets



Healthcare

SECURITY FEATURES



EMV Chip Technology



End-to-End Encryption



Tokenization



PCI-DSS Compliance



Fraud Detection

EXAMPLES OF WIRELESS PAYMENT DEVICES



Verifone
VX 680



PAX
A920



Ingenico
Move/5000



Square
Reader



PayPal Zettle
Reader

IN SHORT



Wireless Payment Devices empower businesses to accept secure payments anywhere, improve customer satisfaction and streamline operations.

**GO WIRELESS. GO CASHLESS.
GROW YOUR BUSINESS.**



DID YOU KNOW?

The global wireless POS terminal market is growing rapidly as more businesses embrace cashless and contactless payments.



SAFE | FAST | SIMPLE

That's the power of Wireless Payment Devices!



WEB SERVERS & BROWSERS



The Backbone of the World Wide Web

WEB SERVERS

Store, process and deliver web content to clients (browsers).

WHAT IS A WEB SERVER?



A web server is a computer system and software that stores websites (files, images, videos, etc.) and delivers them to users over the Internet using HTTP/HTTPS.

HOW IT WORKS



1. Request
Browser sends a request to the web server.



2. Process
Web server processes the request.



3. Response
Web server sends the requested web page to the browser.

POPULAR WEB SERVERS



Apache
(Open Source)



Nginx
(High Performance)



Microsoft IIS
(Windows Server)



LiteSpeed
(High Speed)

KEY FEATURES

- ✓ Stores website files and data
- ✓ Handles multiple client requests
- ✓ Ensures security and access control
- ✓ Supports dynamic content (PHP, Python, etc.)
- ✓ Works 24/7 and is always online

EXAMPLES OF USE



Hosting Websites



E-commerce Platforms



Web Applications



APIs & Web Services

BROWSERS

Request, receive and display web content to users.

WHAT IS A BROWSER?



A browser is a software application that allows users to access, retrieve and view web pages and interact with content on the World Wide Web.

HOW IT WORKS



1. User Action
User types a URL or clicks a link.



2. Request
Browser sends a request to the web server.



3. Display
Browser receives the response and displays the web page.

POPULAR BROWSERS



Google Chrome



Mozilla Firefox



Microsoft Edge



Apple Safari



Opera Browser

KEY FEATURES

- ✓ Fetches web pages from servers
- ✓ Renders and displays content (text, images, videos)
- ✓ Allows user interaction (links, forms, buttons)
- ✓ Stores cache, cookies and history
- ✓ Supports extensions and add-ons

EXAMPLES OF USE



Surfing Websites



Online Shopping



Streaming Videos



Social Media & More

WEB SERVERS vs BROWSERS

Feature	Web Servers	Browsers
Role	Provide and deliver web content	Request and display web content
Type	Software/Hardware system	User application (software)
Location	On the Internet (Server Side)	On user's device (Client Side)
Example	Apache, Nginx, IIS	Chrome, Firefox, Edge, Safari
Main Function	Responds to requests and serves pages	Requests pages and shows to users

IN SHORT



Web Servers are like libraries that store and send information.



Browsers are like windows that help us see and interact with that information.



Together, Web Servers and Browsers make the Internet work!



BRIEF ON SHOPPING CART & POINT OF SALE (POS)

Essential Tools for Modern Commerce



SHOPPING CART

A Shopping Cart is a feature or software component on an e-commerce website that allows customers to select items, review them and proceed to purchase.



HOW IT WORKS



- 1. Browse Products**
Customer browses and selects items.
- 2. Add to Cart**
Items are added to the cart.
- 3. Review Cart**
Customer reviews items, quantity and price.
- 4. Checkout & Pay**
Customer enters details and makes payment.
- 5. Order Confirmed**
Order is confirmed and sent for fulfillment.

KEY FEATURES

- ✓ Add, update or remove items
- ✓ View item details, price, quantity and total
- ✓ Apply coupon codes and discounts
- ✓ Save for later or wish list
- ✓ Secure checkout with multiple payment options
- ✓ Order tracking and order history



BENEFITS

- 🕒 **Convenience:** Allows customers to shop anytime, anywhere.
- ★ **Better User Experience:** Easy selection and review of items.
- 👁️ **Transparency:** Clear view of pricing, taxes and shipping.
- 📈 **Increased Sales:** Upsells, cross-sells and offers.
- ⚙️ **Efficiency:** Saves time for both customers and business.

EXAMPLES



Amazon



Flipkart



Myntra



Meesho



Ajio

IN SHORT



A Shopping Cart is a virtual cart that helps customers collect items and complete purchases on an online store in a secure and organized way.

POINT OF SALE (POS)

A Point of Sale (POS) is a combination of hardware and software used in physical stores to process sales transactions at the checkout counter.



HOW IT WORKS



- 1. Scan Items**
Cashier scans item barcode or selects product.
- 2. Add to POS**
Items and price are added to the POS system.
- 3. Payment**
Customer makes payment (cash, card, UPI, etc.).
- 4. Receipt**
System generates receipt for the transaction.
- 5. Record Update**
Inventory and sales records are updated.

KEY FEATURES

- ✓ Barcode scanning
- ✓ Product and inventory management
- ✓ Multiple payment options (cash, card, UPI, wallet, etc.)
- ✓ Automatic receipt generation
- ✓ Return and refund handling
- ✓ Sales reports and analytics



BENEFITS

- ⚡ **Speed:** Faster billing and shorter queues.
- 🎯 **Accuracy:** Reduces human errors.
- 📦 **Inventory Control:** Real-time stock updates.
- 👤 **Better Customer Service:** Smooth and reliable checkout.
- 📊 **Business Insights:** Reports help in better decision making.

EXAMPLES



Lightspeed Retail



Square POS



Shopify POS



Toast POS



Epos Now

IN SHORT



A Point of Sale (POS) system helps physical stores manage sales, accept payments and track inventory efficiently at the checkout counter.

SHOPPING CART vs POINT OF SALE (POS)

Feature	Shopping Cart	Point of Sale (POS)
Where Used	Online Stores / Websites	Physical Stores / Retail Outlets
Type	Software (Web Application)	Hardware + Software System
Purpose	Helps customers select & buy online	Processes in-store sales
Payment	Online (Card, UPI, Wallets, Net Banking, etc.)	Cash, Card, UPI, Wallets, etc.
Interaction	Customer Self-Service	Cashier Assisted
Example	Amazon Cart, Flipkart Cart	Retail Store Billing Counter

TOGETHER THEY WORK!



Shopping Cart drives online orders.



POS manages in-store transactions.

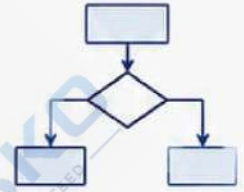


Both improve customer experience and grow business!

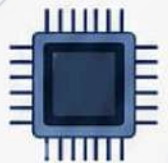


SHOPPING CART BUILDS THE ORDER ONLINE, POS COMPLETES THE SALE OFFLINE.

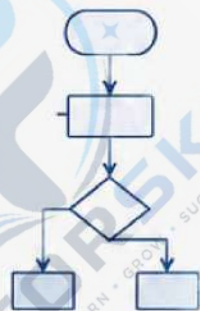
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Unit - III





EDI: ELECTRONIC DATA INTERCHANGE

Exchange Information. Streamline Business. Grow Together.



AT A GLANCE



EDI (Electronic Data Interchange) enables businesses to exchange standard business documents electronically from one computer system to another in a structured and secure format—without the need for paper.

- ✓ Faster communication
- ✓ Higher accuracy
- ✓ Lower costs
- ✓ Better efficiency
- ✓ Stronger business relationships

MEANING OF EDI

“

EDI (Electronic Data Interchange) is the **computer-to-computer exchange of standard business documents** between trading partners in a **structured electronic format** through telecommunication networks.

”



DEFINITION OF EDI

EDI is the exchange of business information in a **standard electronic format** between organizations by electronic means.

It allows data to be transmitted directly from one organization's computer system to another's without manual re-entry, ensuring **accuracy, speed and efficiency** in business transactions.



KEY POINTS ABOUT EDI



Uses standard formats and protocols.



Enables direct computer-to-computer communication.



Works over secure telecommunication networks.



Eliminates paper, fax and manual processes.



Improves data accuracy and security.



Reduces costs and improves overall productivity.

EXAMPLE OF EDI IN ACTION



1. Purchase Order created by Buyer



2. EDI system converts the order into standard EDI format



3. Order is transmitted electronically to Supplier



4. Supplier's system receives and processes the order



5. Order confirmation, invoice and other documents may be sent back via EDI



IN SHORT

EDI is a technology that enables organizations to exchange business documents electronically in a standard, secure and efficient way, strengthening operations and driving business success.





HISTORY & EVOLUTION

The Journey of Commerce in the Digital Age



From traditional trade to digital marketplaces, commerce has continuously adapted to technology and changing human needs.

JOURNEY THROUGH TIME



KEY MILESTONES



EVOLUTION AT A GLANCE

Stage	Focus	Key Drivers	Outcome
Ancient Trade	Local Exchange	Human Needs, Barter	Basic Trade Communities
Industrial Era	Expansion & Production	Machines, Transport	Wider Markets, More Goods
Electronic Era	Automation & Data	Computers, EDI, Barcodes	Efficient Business Operations
Internet Era	Connectivity & Information	Internet, Web, Email	Global Information Access
E-Commerce Era	Online Buying & Selling	Websites, Payments	24/7 Shopping, Marketplaces
Digital Commerce Era	Smart, Personalized Experience	Mobile, AI, Big Data, Cloud	Seamless, Smart & Connected Commerce

FROM PAST TO FUTURE

E-commerce will continue to evolve with emerging technologies and human innovation.



The future of commerce is intelligent, inclusive and customer-centric.



Commerce has come a long way — from local markets to global digital platforms. Its evolution continues, bringing new opportunities and a better tomorrow!





EDI (Electronic Data Interchange) HISTORY & EVOLUTION



The Journey of Paper to Digital: Building the Backbone of Modern Business



EDI (Electronic Data Interchange) is the computer-to-computer exchange of standard business documents in a structured electronic format between organizations. EDI has evolved over decades, transforming the way businesses communicate and operate.

TIMELINE: KEY MILESTONES IN EDI HISTORY

1960s THE BEGINNING



Early computers used proprietary systems to exchange data in batch mode. No standard formats.

1970s THE CONCEPT TAKES SHAPE



Businesses began exploring electronic data exchange to replace paper documents like invoices and orders.

1970-1980s STANDARDS EMERGE



Development of EDI standards. ANSI X12 (USA) and EDIFACT (International) established.

1980s EDI ADOPTION GROWS



EDI networks and Value Added Networks (VANs) emerge, enabling secure exchange between partners.

1990s EXPANSION & INTERNET ERA



EDI integrates with the Internet and ERP systems. More industries and global companies adopt EDI.

2000s WEB EDI & AUTOMATION



Web EDI solutions reduce cost and complexity. Automation improves speed, accuracy and visibility.

2010s - PRESENT SMART, GLOBAL & INTEGRATED



EDI integrates with APIs, cloud, IoT, AI and blockchain. Enables real-time, intelligent and seamless global supply chains.

DRIVERS BEHIND EDI EVOLUTION



Need for faster & error-free business communication



Reduce costs associated with paper, printing and manual work



Improve accuracy, compliance & data security



Strengthen business partnerships



Globalization of trade & supply chains



Advancements in technology & connectivity

EVOLUTION AT A GLANCE

Phase	Focus	Key Features	Outcome
 Early Stage (1960s)	Data Exchange Experiment	Proprietary formats, batch processing, limited connectivity	Laid the foundation for electronic communication
 Development Stage (1970s-1980s)	Standardization & Network Formation	ANSI X12, EDIFACT standards, VANs established	Structured & secure exchange between businesses
 Growth Stage (1990s)	Wider Adoption & Integration	Internet connectivity, ERP integration, global reach	EDI becomes a core business process enabler
 Modern Stage (2000s)	Automation & Web Enablement	Web EDI, SaaS, real-time visibility, lower costs	More accessible, efficient and scalable EDI
 Future Stage (2010s+)	Intelligence & Digital Transformation	Cloud, APIs, AI, IoT, Blockchain, real-time data	Smart, predictive & connected global ecosystem

FROM PAPER TO DIGITAL: THE TRANSITION

THEN (Paper-Based)



- ✗ Paper documents
- ✗ Manual processing
- ✗ Slow delivery
- ✗ High errors
- ✗ High cost
- ✗ Hard to track

NOW (EDI-Based)



- ✓ Electronic documents
- ✓ Automated processing
- ✓ Fast & real-time
- ✓ High accuracy
- ✓ Lower cost
- ✓ Easy tracking & visibility

THE IMPACT OF EDI



Faster business transactions



Higher accuracy & reliability



Lower operational costs



Better collaboration with partners



Stronger compliance & security



Supports global business growth



“ EDI has come a long way from a concept to a critical business infrastructure. Its evolution continues, driving efficiency, connectivity and value in the digital economy. ”



EDI (Electronic Data Interchange) USES & STANDARDS



EDI enables organizations to exchange business documents electronically in a standard format, improving speed, accuracy and efficiency.

EDI USES

EDI is used for the electronic exchange of routine business documents between trading partners.

ORDER MANAGEMENT



Exchange of purchase orders, order confirmations, back orders, and change orders.

INVENTORY MANAGEMENT



Share inventory levels, stock availability and inventory reports in real time.

SHIPMENT MANAGEMENT



Exchange advance ship notices (ASN), scheduling, shipment status and tracking information.

INVOICING & PAYMENTS



Send invoices, debit/credit memos and payment information electronically.

PROCUREMENT



Automate procurement processes, from requisitions to purchase orders and supplier responses.

CUSTOMER SERVICE



Improve customer service with faster responses, accurate information and issue resolution.

SUPPLY CHAIN MANAGEMENT



Enhance collaboration with suppliers, distributors and partners across the supply chain.

Industries That Benefit from EDI



Retail & Wholesale



Manufacturing



Automotive



Healthcare



Transportation & Logistics



Banking & Finance



Insurance



Government

BENEFITS OF EDI



Faster transactions



Higher accuracy



Lower costs



Reduced paperwork



Better visibility



Stronger business relationships



Compliance & security

EDI STANDARDS

EDI standards define the structure, format and rules for electronic business documents. They ensure that different systems can understand and process the data correctly.

WHAT ARE EDI STANDARDS?

EDI standards specify how data should be formatted, structured and transmitted between trading partners so that it can be interpreted automatically by computers without manual intervention.



Sender System



Standard Format



Communication Network



Standard Format



Receiver System

TYPES OF EDI STANDARDS



COMMUNICATION STANDARDS

Define how data is transmitted between systems (e.g., AS2, FTP, VAN, SFTP).



DATA FORMAT STANDARDS

Define the structure and syntax of data (e.g., ANSI X12, EDIFACT, XML, JSON).



DOCUMENT STANDARDS

Define the types of business documents and their data elements (e.g., 850 – Purchase Order, 810 – Invoice).

MAJOR EDI STANDARDS

Standard	Full Form	Developed By	Description / Use
ANSI X12	American National Standards Institute X12	ANSI (USA)	Widely used in North America for retail, manufacturing, healthcare, transportation and many industries.
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport	UN/CEFACT	International standard used in Europe and globally across multiple industries and countries.
TRADACOMS	Trade Data Communications Standards	EAN International (now GS1)	Used for retail and supply chain communications; includes messages like ORDERS, DESADV, INVOIC.
RosettaNet	RosettaNet Implementation Framework	RosettaNet Consortium	Used in electronics, high-tech and semiconductor industries for B2B process automation.
OAGi (ODX)	Open Applications Group (Open Document Exchange)	OAGi	Open, XML-based standards for modern EDI and e-business integration.

KEY CHARACTERISTICS OF GOOD EDI STANDARDS



Interoperability
(works across different systems)



Extensibility
(adaptable to business needs)



Security
(ensures safe exchange)



Global Acceptance



Efficiency and Ease of Implementation



In Short:

EDI uses help businesses automate and streamline information exchange, while EDI standards ensure that the exchange is accurate, consistent, secure and universal.



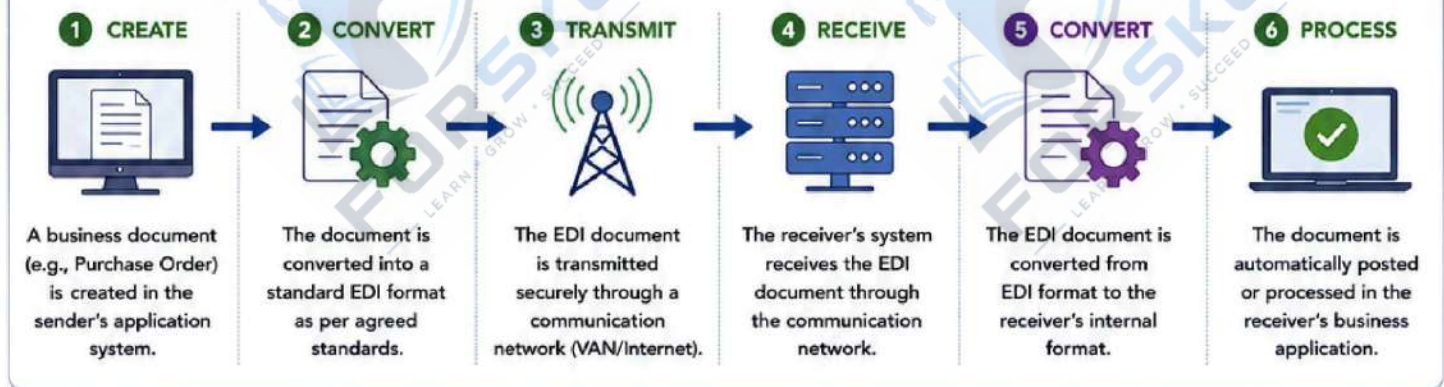


EDI (Electronic Data Interchange) WORKING CONCEPT



EDI is the computer-to-computer exchange of standard business documents between trading partners in a structured electronic format through communication networks.

HOW EDI WORKS – THE BASIC FLOW



EDI COMMUNICATION MODEL

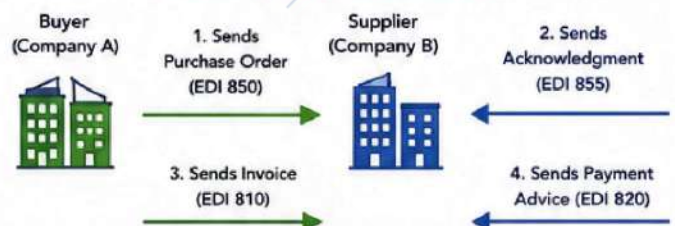


KEY POINTS

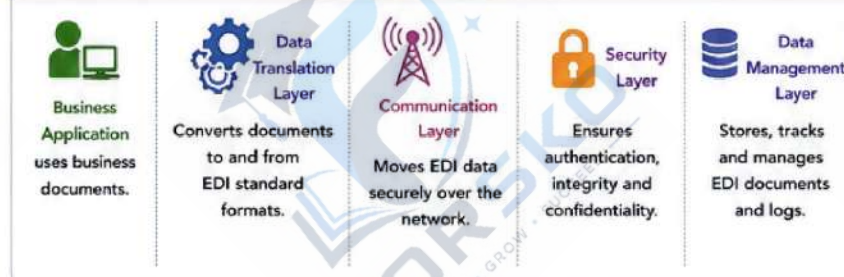
- No human re-entry – data flows directly from one system to another.
- Standard formats ensure documents are understood by both systems.
- Faster processing, fewer errors and reduced paper work.
- Works across industries and geographical boundaries.

EXAMPLE

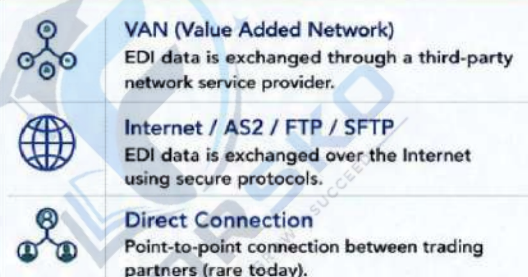
Purchase Order Process via EDI



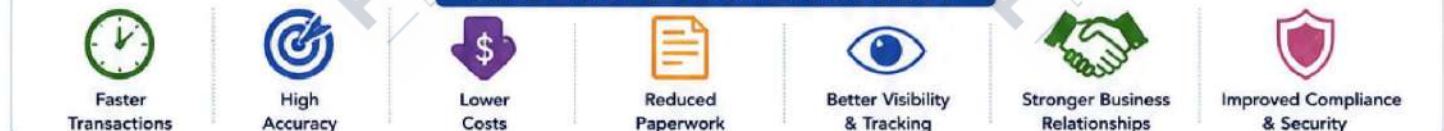
EDI PROCESS LAYERS



TYPES OF EDI CONNECTION



BENEFITS OF EDI WORKING CONCEPT



In Simple Words:

EDI allows business documents to be created, converted, transmitted, received, converted back and processed – automatically between computer systems.





IMPLEMENTATION DIFFICULTIES OF EDI (Electronic Data Interchange)



EDI brings great benefits, but implementing it is not always easy. Organizations face several technical, organizational and business challenges.

MAJOR IMPLEMENTATION DIFFICULTIES

1. HIGH COST OF IMPLEMENTATION



- Cost of EDI software, hardware, network setup and VAN (Value Added Network) fees.
- Investment in training and skilled resources.

2. COMPLEXITY OF TECHNOLOGY



- EDI requires special software, mapping tools and translators.
- Integration with existing systems (ERP, legacy systems) is complex.

3. LACK OF INTERNAL EXPERTISE



- Shortage of skilled EDI professionals.
- Difficult to understand standards, formats and communication protocols.

4. TRADING PARTNER READINESS



- Partners may use different systems or standards.
- Smaller partners may lack resources or technical capability.

5. STANDARDIZATION CHALLENGES



- Multiple EDI standards (ANSI X12, EDIFACT, TRADACOMS).
- Choosing the right standard and maintaining compliance is difficult.

6. DATA MAPPING DIFFICULTIES



- Converting internal data into EDI format requires complex mapping.
- Changes in business data cause mapping issues.

7. TESTING AND ONBOARDING



- EDI requires extensive testing with partners.
- Onboarding new partners takes time and effort.

8. MAINTENANCE AND ONGOING SUPPORT



- EDI systems need continuous monitoring, updates and error handling.
- Ongoing maintenance adds to time and cost.

9. SECURITY AND RISK CONCERNS



- Protecting sensitive business data during transmission.
- Ensuring security, privacy and compliance.

10. RESISTANCE TO CHANGE



- Employees may resist new technology and processes.
- Change in business processes requires adjustment and training.

OTHER COMMON ISSUES



Unclear ROI in the short term.



Dependence on third-party VAN providers.



Network connectivity problems or downtime.



Version upgrades and backward compatibility issues.



Handling exceptions and errors effectively.

IMPACT OF IMPLEMENTATION DIFFICULTIES



Delayed project timelines



Increased costs



Low partner adoption



Disruption of business operations



Reduced expected benefits from EDI

HOW TO OVERCOME THESE DIFFICULTIES



PLAN CAREFULLY

Define clear objectives, scope and expected benefits. Plan implementation in phases.



INVOLVE PARTNERS EARLY

Work closely with trading partners to ensure readiness and agree on standards and processes.



CHOOSE THE RIGHT TECHNOLOGY

Select scalable, flexible EDI solutions that integrate well with existing systems.



INVEST IN TRAINING AND EXPERTISE

Develop internal skills or take help from experienced EDI service providers.



ENSURE STRONG SECURITY

Implement secure communication protocols and follow compliance policies.



MONITOR, TEST AND IMPROVE CONTINUOUSLY

Regularly monitor transactions, handle exceptions and improve processes.



Key Takeaway:

EDI implementation can be challenging, but with proper planning, partner collaboration, the right technology and skilled resources, organizations can overcome the difficulties and achieve long-term efficiency, accuracy and competitive advantage.





EDI SERVICES

(Electronic Data Interchange)



EDI Services are professional solutions that enable businesses to exchange documents electronically in a standard format between trading partners accurately, securely and efficiently.

WHAT ARE EDI SERVICES?



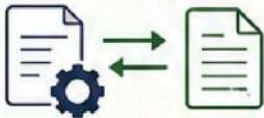
EDI Services include a set of solutions and support that help organizations create, translate, transmit, receive and manage electronic business documents using EDI standards.

THEY HELP BUSINESSES:

- ✓ Exchange business documents electronically
- ✓ Reduce paperwork and manual errors
- ✓ Improve speed, accuracy and efficiency
- ✓ Enhance collaboration with trading partners

KEY EDI SERVICES

1 EDI TRANSLATION SERVICES



Converts business documents from one format to another as per EDI standards (e.g., ANSI X12, EDIFACT, TRADACOMS).

2 EDI COMMUNICATION SERVICES



Securely sends and receives EDI documents via VAN, Internet, AS2, SFTP or other communication protocols.

3 EDI VAN SERVICES (VALUE ADDED NETWORK)



Provides a secure, reliable network for EDI document exchange between trading partners.

4 EDI MESSAGE MANAGEMENT



Monitors, tracks and manages EDI documents throughout their lifecycle with acknowledgments, alerts and reporting.

5 EDI INTEGRATION SERVICES



Integrates EDI with internal systems such as ERP, WMS, TMS or accounting systems for seamless data flow.

6 EDI MAPPING SERVICES



Maps business data from internal format to EDI standard format and vice versa.

7 EDI TESTING & CERTIFICATION



Tests EDI transactions with trading partners and ensures compliance with required standards.

8 EDI SUPPORT & MANAGED SERVICES



Provides ongoing monitoring, issue resolution, partner support and system maintenance for smooth EDI operations.

BENEFITS OF EDI SERVICES

- Faster transaction processing
- Higher accuracy and fewer errors
- Lower operating costs
- Reduced paperwork
- Stronger business relationships
- Secure and reliable data exchange
- Better visibility and control

COMMON EDI DOCUMENTS HANDLED THROUGH EDI SERVICES



Purchase Order
(EDI 850)



Invoice
(EDI 810)



Advance Ship Notice
(EDI 856)



Purchase Order Acknowledgment
(EDI 855)



Payment Order / Remittance Advice
(EDI 820 / 835)



Product Return
(EDI 864)

HOW EDI SERVICES WORK



Create Document



Translate
(Map to EDI Standard)



Transmit Securely
via VAN / Internet
/ AS2 / SFTP



Receive &
Validate



Process in
Business
System



Monitor &
Manage

WHO USES EDI SERVICES?



Retail &
E-commerce



Manufacturing



Healthcare



Logistics &
Transportation



Banking &
Finance



Government

IN SHORT



EDI Services provide the tools, connectivity, standards and support businesses need to exchange documents electronically – saving time, reducing costs and improving efficiency across the supply chain.



INTRODUCTION TO E-COMMERCE



E-Commerce (Electronic Commerce) is the buying and selling of goods and services over the Internet and other electronic networks using digital technology.

1. MEANING

E-Commerce refers to the conduct of business activities such as advertising, buying, selling, payment, delivery of products or services and customer support through electronic means, primarily over the Internet.



Business



Customer

2. KEY FEATURES

- ✓ **Global reach** – Operates beyond geographical boundaries.
- ✓ **Availability** – 24/7 availability for businesses and customers.
- ✓ **Convenience** – Easy access from anywhere, anytime.
- ✓ **Interactivity** – Two-way communication between businesses and customers.
- ✓ **Cost effective** – Reduces operating and transaction costs.
- ✓ **Speed** – Fast processing of transactions and information.
- ✓ **Paperless** – Digital documents and records replace paper.

3. TYPES OF E-COMMERCE



B2C (Business to Consumer)
Businesses sell products or services directly to individual customers.



B2B (Business to Business)
Transactions between businesses, e.g., wholesaler and retailer.



C2C (Consumer to Consumer)
Individuals sell products or services to other individuals.



C2B (Consumer to Business)
Individuals offer products or services to businesses.



B2G / G2B (Business to Government)
Business and government transactions electronically.

4. COMPONENTS OF E-COMMERCE

People



Buyers, sellers, intermediaries and service providers involved in e-commerce.

Process



Business processes and steps involved in online transactions and operations.

Technology



Internet, websites, mobile apps, databases, security systems and other technologies.

Products/Services



Tangible goods or intangible services offered and delivered through online platforms.

Payment



Electronic payment methods such as cards, net banking, e-wallets, UPI, etc.

Delivery



Physical or digital delivery of products or services to the customers.

Security



Ensures safe transactions and protection of data and privacy.

5. BENEFITS OF E-COMMERCE

- ✓ Wider market reach and global presence
- ✓ Lower operational and marketing costs
- ✓ Convenience for customers – shop from anywhere
- ✓ More choices and better price comparison
- ✓ Improved customer service and relationship
- ✓ Business growth and increased sales

6. EXAMPLES OF E-COMMERCE



Amazon
(B2C)



Flipkart
(B2C)



Alibaba
(B2B)



OLX
(C2C)



Fiverr
(C2B)



GeM
(B2G)

7. EXAMPLES OF E-COMMERCE ACTIVITIES



Online Shopping



Online Ticket
Booking



Online Banking



Online Education



Online Customer
Support



Digital Downloads

8. HOW E-COMMERCE WORKS (BASIC PROCESS)



1. User Access
Customer accesses the e-commerce website or app.



2. Search & Select
User searches for products/services and adds to cart.



3. Order Placement
User places the order by providing details and shipping address.



4. Payment
User makes payment through secure online payment gateway.



5. Order Processing
Business confirms the order and processes it.



6. Delivery
Product/service is dispatched or delivered to the customer.



7. After Sales Service
Customer support, feedback and return (if applicable).



IN SHORT

E-Commerce uses the power of the Internet and digital technology to conduct business efficiently, connecting people, process and technology for value creation.





E-COMMERCE

DEFINITION & HISTORY OF ECOMMERCE



DEFINITION

E-Commerce (Electronic Commerce) is the buying and selling of goods and services, or the transmission of funds or data, over an electronic network, primarily the Internet.



KEY POINTS

- ✓ Enables online transactions between businesses, consumers, and governments.
- ✓ Includes a wide range of activities: online shopping, online banking, digital payments, online ticketing, etc.
- ✓ Improves convenience, saves time and cost, and expands market reach.
- ✓ Operates 24/7 and is not limited by geographical boundaries.



TYPES OF E-COMMERCE

-  **B2C** Business to Consumer
(Example: Amazon, Flipkart)
-  **B2B** Business to Business
(Example: Alibaba)
-  **C2C** Consumer to Consumer
(Example: OLX, eBay)
-  **C2G** Consumer to Government
(Example: e-filing income tax)
-  **G2C** Government to Consumer
(Example: Online passport service)



HISTORY OF ECOMMERCE



1970s – Early Beginnings

Electronic Data Interchange (EDI) is introduced to allow businesses to exchange documents electronically.



1980s – The Foundation

Online services like Minitel (France) and CompuServe (USA) allow users to access information and services.



1990–1994 – The Birth of E-Commerce

The Internet becomes widely available. In 1991, the world's first online purchase of a CD is made. In 1994, Amazon and eBay are founded.



Mid 1990s – Security & Growth

SSL (Secure Sockets Layer) technology introduces secure online transactions. Businesses start building websites for online presence.



2000s – Expansion & Innovation

Online payment gateways (PayPal), e-commerce platforms, and digital marketing fuel rapid growth. E-commerce goes global.



2010s – Mobile & Social Era

Smartphones, mobile apps, and social media transform the way people shop and interact with brands.



2020s – Future & Beyond

AI, machine learning, voice commerce, AR/VR shopping, and seamless digital experiences shape the future of e-commerce.



IN SHORT

E-commerce has evolved from simple electronic transactions to a global digital ecosystem that connects people, businesses, and opportunities 24/7.





E-COMMERCE ONLINE EXTENSION OF A BAM MODEL



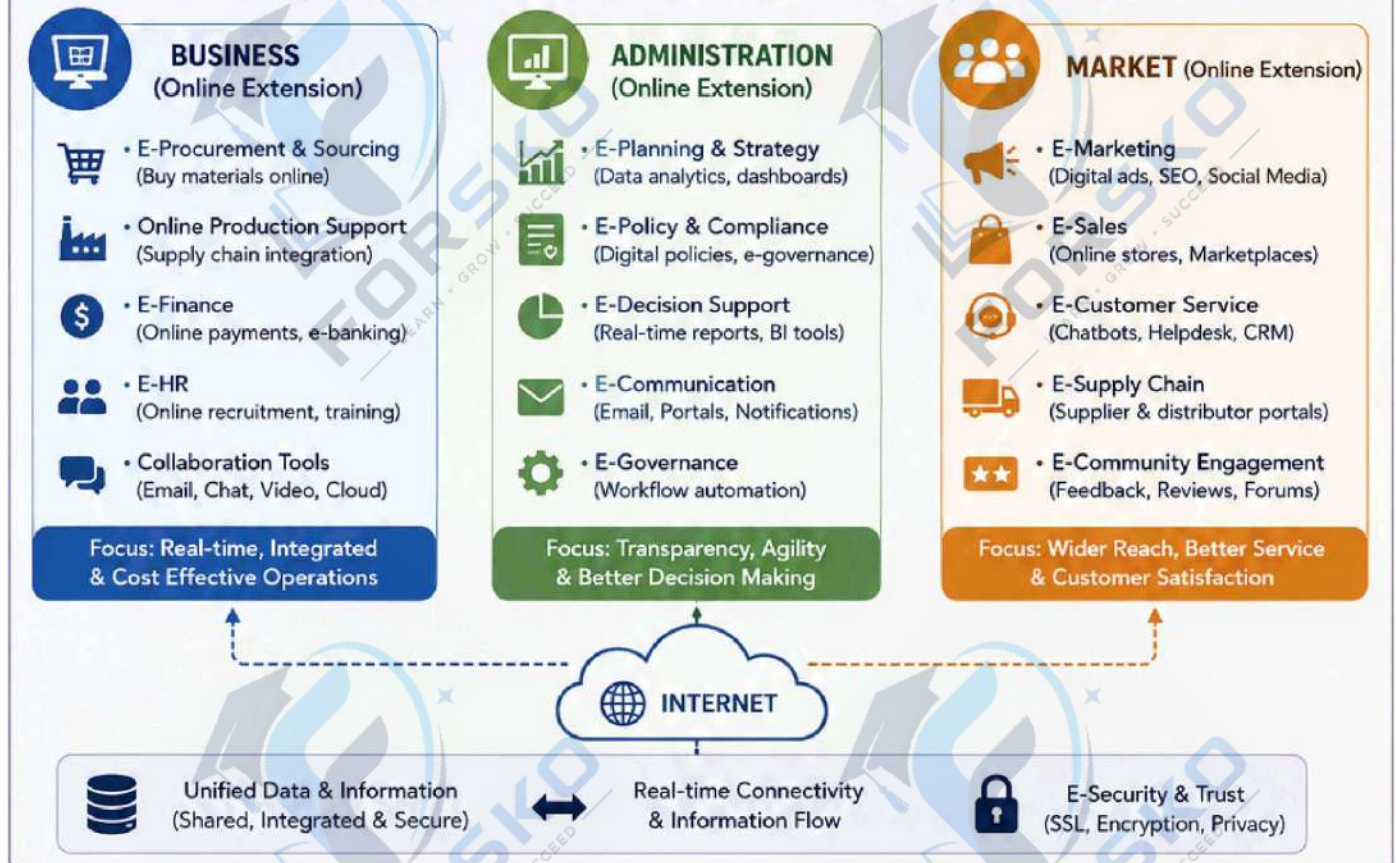
E-commerce extends the traditional BAM model (Business – Administration – Market) by using the Internet and digital technologies to connect and integrate all activities online.

BAM MODEL (Traditional)



E-COMMERCE: ONLINE EXTENSION OF A BAM MODEL

E-commerce extends each component of BAM beyond organizational boundaries using the Internet.



KEY BENEFITS OF ONLINE EXTENSION



Global Reach & Market Expansion



Lower Costs & Higher Efficiency



Real-time Operations & Faster Decisions



Better Customer Experience



Competitive Advantage & Business Growth



IN SHORT

E-commerce transforms the BAM model from a closed, internal system to an open, connected, and digital ecosystem operating 24/7 across the globe.



TRANSITION TO E-COMMERCE IN INDIA



India's journey to e-commerce is a story of technology adoption, policy support, digital inclusion and changing consumer behavior.

JOURNEY OVER THE YEARS

1990s Early Beginnings



- Internet introduced in India in 1995.
- Limited connectivity and high costs.

2000-2005 Foundation Phase



- Growth of Internet users and cyber cafés.
- Early online portals for information, news, travel & jobs.

2006-2010 Emergence of E-Commerce



- 3G services introduced.
- Online marketplaces like Flipkart (2007), Snapdeal (2010) begin.
- Online travel, recharge and ticketing grow.

2011-2016 Growth & Adoption



- 4G revolution and smartphone boom.
- Digital payments gain momentum.
- More players enter: Amazon (2013), Paytm (2010), etc.

2017-2020 Mainstream Expansion



- UPI & digital India accelerate transactions.
- Affordable data, social media and logistics boost growth.
- Tier 2 & Tier 3 cities come online.

2021 & Beyond Maturity & Transformation



- Post-pandemic surge in online shopping.
- D2C brands, quick commerce, ONDC initiative.
- Focus on innovation, AI, personalization and sustainability.

KEY ENABLERS



Internet Penetration

From limited users in early 2000s to 800+ million users today.



Smartphone Revolution

Affordable smartphones made internet accessible to the masses.



Digital Payments

UPI, wallets and secure gateways made online transactions easy and safe.



Government Initiatives

Digital India, Startup India, Make in India and supportive policies boosted growth.



Logistics & Infrastructure

Improved delivery networks and last-mile connectivity expanded reach.

IMPACT OF E-COMMERCE IN INDIA



Consumer Empowerment

Wider choice, better prices, convenience and 24/7 access.



Economic Growth

Boost to GDP, employment generation and support to MSMEs.



Business Transformation

Traditional businesses went online; new digital-first brands emerged.



Regional Inclusion

E-commerce reached smaller towns and rural India.



Global Opportunities

Indian products and brands reaching customers worldwide.

E-COMMERCE IN INDIA – KEY STATS



800+

Million Internet Users (2024)



\$120+ Billion

E-commerce Market (GMV, 2024)



20%+

Annual Growth (last few years)



70%+

Orders from Mobile Devices



Tier 2 & 3 Cities

Contribute 50%+ of New Online Shoppers

CHALLENGES AHEAD



Cybersecurity & data privacy



Logistics & last-mile delivery in remote areas



High customer acquisition costs



Building trust & quality assurance



Sustainability and responsible e-commerce

THE WAY AHEAD

- ✓ Expansion of digital infrastructure (5G, fiber, cloud)
- ✓ Strengthening logistics and supply chain
- ✓ Innovation in payments, AI, AR/VR and customer experience
- ✓ Promoting ONDC for open and inclusive digital commerce
- ✓ Skilling and digital literacy for inclusive growth



E-commerce in India has come a long way and is not just the future, it is transforming the present.

Building a Digital Bharat, Powering a Viksit India.





E-COMMERCE

v/s

TRADITIONAL COMMERCE



ASPECT	E-COMMERCE	TRADITIONAL COMMERCE
Meaning	Buying and selling of goods/services through electronic means over the Internet.	Buying and selling of goods/services through physical stores and face-to-face interactions.
Operating Hours	24x7, anywhere, anytime.	Limited to store hours.
Market Reach	Global reach; can serve customers worldwide.	Limited to local or regional areas.
Setup Cost	Relatively low; requires website/platform and digital infrastructure.	High; requires physical space, inventory, utilities, staff, etc.
Operating Cost	Lower operational cost.	Higher operational cost.
Customer Interaction	Virtual interaction – chat, email, social media, reviews.	Face-to-face interaction in person.
Product Display	Digital catalogs, images, videos, detailed information.	Physical display of limited products.
Payment Methods	Digital payments, cards, UPI, wallets, net banking, COD, etc.	Cash, cards, cheques, limited digital options.
Delivery	Home delivery / courier / pick-up points.	Customer buys and carries or takes delivery.
Scalability	High scalability; easy to expand business online.	Limited scalability; requires physical expansion.
Data & Analytics	Easily collect & analyze customer data for better decisions.	Data collection is manual and limited.
Convenience	More convenient for customers and businesses.	Less convenient; customers must visit the store.
Environmental Impact	Paperless processes, less resource consumption.	Higher paper use and resource consumption.



E-COMMERCE v/s E-BUSINESS



E-COMMERCE	BASIS	E-BUSINESS
Focuses on buying and selling of goods and services online.	Focus	Focuses on running the entire business processes using digital technology.
Narrow scope – covers only the online transaction part.	Scope	Wide scope – covers all aspects of business (operations, management, supply chain, CRM, HR, finance, etc.)
External facing – deals with customers and suppliers.	Nature	Both internal and external – improves internal processes and external relationships.
Online shopping on Amazon, Flipkart.	Example	Use of ERP, CRM, digital supply chain management, online collaboration tools.
Generate revenue through online sales.	Objective	Improve efficiency, productivity, collaboration and overall business value.
Uses Internet and web technologies for transactions.	Technology Use	Uses a wide range of digital technologies (Internet, Intranet, Extranet, ERP, SCM, AI, Cloud, etc.)
Mostly customers and businesses.	Participants	Includes customers, suppliers, employees, partners and all stakeholders.
Online buying, selling, payment, order tracking.	Example Activities	Procurement, manufacturing, HR management, accounting, supply chain management, customer service, analytics, etc.



IN SHORT



E-COMMERCE is a part of **E-BUSINESS**. It is about doing business **ONLINE**.



E-BUSINESS is about doing business **BETTER** using digital technologies.

COMPONENTS OF E-BUSINESS



E-business refers to using electronic technologies and the Internet to conduct and manage business processes, improve performance, create value and provide better services to customers.



SUPPORTING INFRASTRUCTURE



KEY TAKEAWAYS





BUSINESS. ELECTRONIC COMMERCE - CUTTING EDGE TECHNOLOGIES

Emerging technologies are transforming e-commerce by enhancing customer experience, improving efficiency, ensuring security and creating new business models.



1. ARTIFICIAL INTELLIGENCE (AI)



AI powers product recommendations, chatbots, demand forecasting, dynamic pricing and fraud detection.

Example: Amazon recommendations, AI chatbots for customer support.

2. MACHINE LEARNING (ML)



ML analyzes data to predict customer behavior, optimize inventory, personalize marketing and improve search results.

Example: Predicting customer churn, smart product suggestions.

3. BIG DATA ANALYTICS



Big Data helps businesses analyze large volumes of structured and unstructured data for better decision making.

Example: Real-time analytics, customer segmentation, market trend analysis.

4. CLOUD COMPUTING



Cloud provides scalable infrastructure, flexibility, cost savings and high availability for e-commerce platforms.

Example: Hosting on AWS, Microsoft Azure, Google Cloud.

5. INTERNET OF THINGS (IoT)



IoT connects devices to improve inventory tracking, supply chain visibility and smart shopping experiences.

Example: Smart shelves, connected warehouses, IoT-enabled beacons.

6. BLOCKCHAIN TECHNOLOGY



Blockchain ensures secure transactions, transparency in supply chains and prevents fraud.

Example: Secure payments, product provenance tracking, smart contracts.

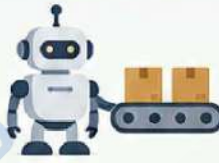
7. AUGMENTED REALITY (AR) & VIRTUAL REALITY (VR)



AR/VR enhances customer experience by allowing virtual try-ons, product visualization and immersive shopping.

Example: Virtual try-on for clothes, 3D product view in real world.

8. ROBOTICS & AUTOMATION



Robotics and automation improve order processing, warehouse operations and delivery efficiency.

Example: Automated warehouses, robotic pick-and-place systems.

9. DIGITAL PAYMENT TECHNOLOGIES



Secure and fast digital payments, wallets, BNPL (Buy Now Pay Later) and UPI boost online transactions.

Example: UPI, e-wallets, crypto payments, contactless payments.

10. 5G TECHNOLOGY

5G

5G enables faster speed, lower latency and seamless mobile shopping, AR/VR and real-time engagement.

Example: Live shopping, AR try-on, instant high-quality streaming.

STRENGTHS, WEAKNESSES, OPPORTUNITIES & CHALLENGES OF E-COMMERCE



STRENGTHS

- ✓ Global reach and 24x7 availability.
- ✓ Lower operating and transaction costs.
- ✓ Wider choice and convenience for customers.
- ✓ Personalization and better customer experience.
- ✓ Easy scalability and business expansion.
- ✓ Real-time data collection and analytics.



WEAKNESSES

- ✗ High initial investment in technology and security.
- ✗ Dependence on internet and technology.
- ✗ Security and privacy concerns.
- ✗ Lack of personal touch and relationship.
- ✗ Complex logistics and last-mile delivery issues.
- ✗ Returns and refund management can be costly.



OPPORTUNITIES

- ✓ Growing internet and smartphone penetration.
- ✓ Rising digital payments and fintech adoption.
- ✓ Expansion in rural and untapped markets.
- ✓ Emerging technologies creating new business models.
- ✓ Cross-border e-commerce growth.
- ✓ Sustainability and green commerce initiatives.



CHALLENGES

- ⚠ Intense competition and price wars.
- ⚠ Cybersecurity threats and online frauds.
- ⚠ Regulatory compliance and data protection laws.
- ⚠ Logistics, delivery delays and infrastructure gaps.
- ⚠ Digital divide and low digital literacy.
- ⚠ Changing customer expectations and quick innovation cycle.



E-COMMERCE IS THE FUTURE OF BUSINESS

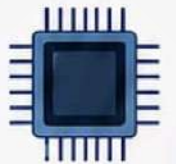
Cutting edge technologies and strategic planning help businesses leverage strengths, overcome weaknesses, seize opportunities and tackle challenges for sustainable e-commerce success.



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Unit - IV



HARDWARE AND SOFTWARE FOR E BUSINESS:

WEB SERVERS – BROWSERS

E-business (Electronic Business) relies on the seamless interaction between **Web Servers** and **Browsers**.

1. WEB SERVERS

Web servers are powerful computers or software that store, process and deliver web pages, applications and data to clients (browsers).



HARDWARE COMPONENTS

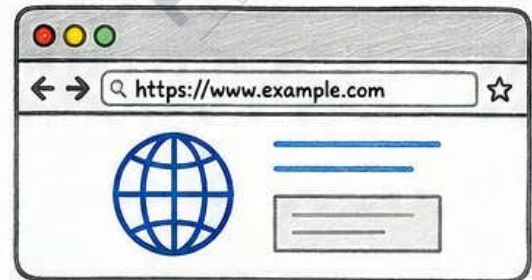
- High-performance Server Machines
- Large Storage (HDD/SSD)
- RAM (Memory)
- High-speed Network Interface
- Reliable Power Supply & Cooling System

SOFTWARE COMPONENTS

- Web Server Software (Apache, Nginx, Microsoft IIS)
- Operating System (Linux, Windows Server)
- Database Software (MySQL, PostgreSQL)
- Security Software (Firewall, SSL/TLS)
- Scripting/Programming Languages (PHP, Python, Java, ASP.NET)

2. BROWSERS

Browsers are client-side software that request, receive, interpret and display web pages and multimedia content from web servers.



HARDWARE REQUIREMENTS

- Any device with Internet access (PC, Laptop, Tablet, Smartphone)
- Adequate RAM and Processing Power
- Display Screen

SOFTWARE COMPONENTS

- Web Browsers (Google Chrome, Mozilla Firefox, Microsoft Edge, Safari, Opera)
- HTML, CSS, JavaScript Support
- Plug-ins/Extensions
- Security Features (Sandboxing, Pop-up Blocking, TLS Support)



HOW THEY WORK TOGETHER

1. REQUEST



The user enters a URL in the browser and requests a web page.

2. SEND REQUEST



The browser sends the request to the web server via the Internet.

3. PROCESS REQUEST



The web server processes the request, retrieves necessary data and prepares the response.

4. SEND RESPONSE



The server sends back the web page (HTML, CSS, JS, images, etc.) to the browser.

5. DISPLAY



The browser interprets the content and displays it to the user.

IMPORTANCE

- ✓ Web servers ensure secure storage, processing and availability of business information.
- ✓ Browsers provide a user-friendly interface to access e-business services anytime, anywhere.
- ✓ Together, they enable online transactions, communication, collaboration and information sharing.



Web Servers + Browsers = The Foundation of E-Business

⇒ HARDWARE AND SOFTWARE FOR E-BUSINESS ⇒

SERVER SOFTWARE – WEB AUTHORIZING TOOLS – DATABASE SYSTEM

1. SERVER SOFTWARE

Server software runs on web servers and manages web resources, handles requests, ensures security, and delivers content to clients.

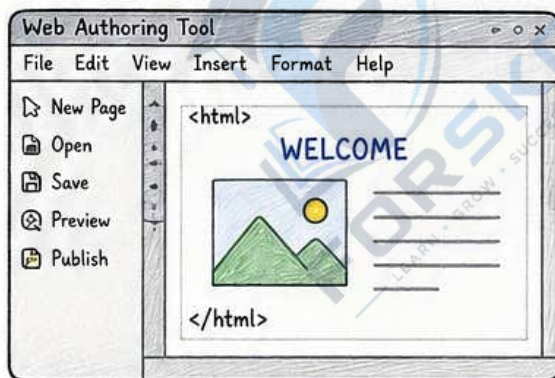


Examples of Server Software

- Web Server Software (Apache HTTP Server, Microsoft IIS, Nginx)
- Application Server Software (Tomcat, JBoss, WebLogic, WebSphere)
- Operating System (Linux, Windows Server, UNIX)
- Security Software (Firewall, SSL/TLS, Antivirus)
- Other Utilities (FTP Server, Mail Server, DNS Server)

2. WEB AUTHORIZING TOOLS

Web authoring tools help in designing, developing, editing and managing websites without or with less coding.



Features

- WYSIWYG (What You See Is What You Get) Editing
- Drag-and-Drop Interface
- Template and Theme Support
- Code Editing (HTML, CSS, JavaScript)
- Preview and Publishing
- SEO and Responsive Design Support
- Integration with Multimedia and Databases

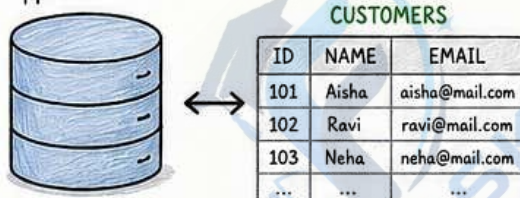
Examples

- Adobe Dreamweaver
- Microsoft Expression Web
- WordPress (Block Editor)
- Wix
- Google Web Designer



3. DATABASE SYSTEM

A database system stores, organizes, manages and retrieves data efficiently to support e-business applications.



Components

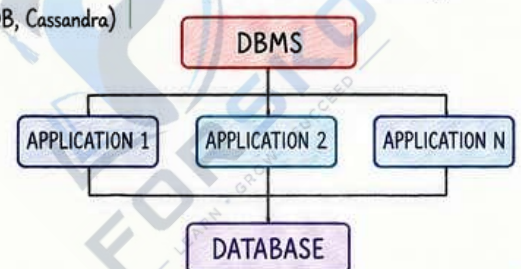
- DBMS (Database Management System)
- Database
- Database Users
- Applications/Interfaces

Types of Database Systems

- Relational Database (RDBMS) (MySQL, Oracle, PostgreSQL, SQL Server)
- Object-Oriented Database
- Distributed Database
- NoSQL Database (MongoDB, Cassandra)

Benefits

- Centralized Data Management
- Data Integrity and Security
- Data Sharing and Consistency
- Backup and Recovery
- Improved Decision Making



In E-Business

- ✓ Server software ensures websites and applications are always available and secure.
- ✓ Web authoring tools help create attractive and user-friendly websites quickly.
- ✓ Database systems store and manage business data for transactions, customers, products, and more.



Together, these software components power efficient, secure and scalable e-business solutions.

WORLD WIDE WEB (WWW)

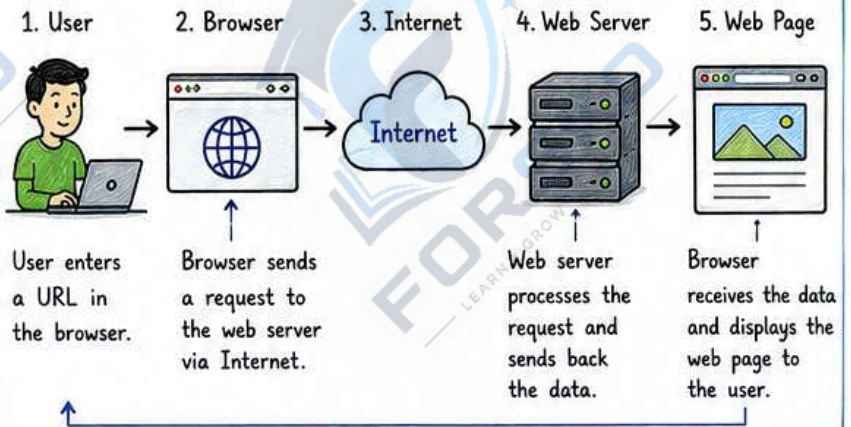
The World Wide Web (WWW) is a system of **interlinked hypertext documents** and **multimedia resources**, accessed via the **Internet** using a **web browser**.

1. WHAT IS WWW?

- The WWW is not the same as the Internet. It is a service that runs on the Internet.
- It allows users to access web pages, images, videos and other resources from anywhere in the world.
- Information is stored on **web servers** and delivered to users through **web browsers**.



2. HOW WWW WORKS



3. KEY COMPONENTS OF WWW

1. URL (Uniform Resource Locator)	2. HTTP/HTTPS (HyperText Transfer Protocol)	3. HTML (HyperText Markup Language)	4. Web Browser	5. Web Server	6. Hyperlink
The address of a web resource. Example: https://www.example.com	Protocol used to transfer web pages between browser and server. HTTPS is the secure version of HTTP.	The standard language used to create and structure web pages.	Software used to access and display web pages. Examples: Chrome, Firefox, Edge, Safari	Computer that stores web pages and resources and delivers them to the browser.	A link in a web page that connects to another web page or resource.

4. FEATURES OF WWW

- ✓ Global access to information and resources.
- ✓ Hypertext links connect related information.
- ✓ Supports multimedia - text, images, audio, video, animations.
- ✓ Interactive and dynamic web applications.
- ✓ Easy to use and user-friendly interface.
- ✓ Continuously evolving with new technologies.



5. EXAMPLES OF WWW SERVICES

- Websites (e.g., news sites, company sites)
- Web applications (e.g., Gmail, Google Docs)
- Online shopping and banking
- Social networking (e.g., Facebook, Twitter)
- Online education and e-learning
- Entertainment (videos, music, games)

6. WWW vs INTERNET

	INTERNET	WORLD WIDE WEB (WWW)
Definition	A global network of interconnected computers.	A service that runs on the Internet.
Nature	Infrastructure (network).	Information system (service).
Scope	Very wide - includes many services.	Subset of Internet - only web resources.
Examples	Email, FTP, VoIP, WWW, etc.	Websites, web pages, web applications.
Accessed by	Using network devices and protocols.	Using web browsers.

7. BENEFITS OF WWW

- ★ Instant access to vast information.
- ★ Enables communication and collaboration.
- ★ Supports e-business and online services.
- ★ Improves learning and knowledge sharing.
- ★ Connects people and resources globally.



The World Wide Web has transformed the way we access, share and use information. It is the foundation of modern **digital life** and **e-business**.

<http://>



≡ HARDWARE REQUIREMENTS ≡

Hardware is the physical equipment required to develop, host and access e-business and applications.

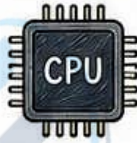
1. CLIENT SIDE (USER END)

1. COMPUTER / DEVICE



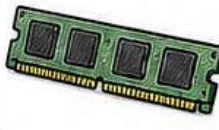
- Desktop / Laptop / Tablet / Smartphone with sufficient processing power.

2. PROCESSOR (CPU)



- Multi-core processor recommended (e.g., Intel i3/i5/i7 or equivalent).

3. MEMORY (RAM)



- Minimum 4 GB RAM (8 GB or more recommended) for smooth performance.

4. STORAGE



- Minimum 256 GB HDD/SSD (SSD preferred for faster access).

5. DISPLAY



- Minimum 1366 x 768 resolution (Full HD or higher recommended).

6. NETWORK CONNECTION



- Reliable Internet connection (broadband recommended) for accessing web resources and online services.

7. PERIPHERAL DEVICES



- Keyboard, Mouse for input
- Printer / Scanner (if required)
- Webcam, Microphone (for communication)

8. OTHER REQUIREMENTS



- Speakers / Headphones
- UPS / Power backup
- Optional: Graphics card for multimedia applications

2. SERVER SIDE (BUSINESS / HOSTING END)



- High-performance server with powerful multi-core CPU
- Large memory (16 GB RAM or more)
- Large storage (RAID configuration for reliability)
- High-speed, reliable Internet connection
- Backup power supply (UPS, Generator)
- Network hardware (Firewalls, Switches, Load Balancers)
- Cooling system and physical security
- Redundant hardware for high availability and disaster recovery

≡ BRIEF ON SHOPPING CART ≡



A shopping cart is an essential feature of an e-business (online store) that allows customers to select products, review their choices and purchase them in a single transaction.

1. WHAT IS A SHOPPING CART?



It is a software component of an e-commerce website that acts like a virtual cart. Customers can add products to it, modify quantities, remove items and proceed to checkout.

2. KEY FEATURES

- Add products to cart
- Update quantity
- Remove items
- View subtotal / total
- Apply discount coupons
- Save cart for later
- Secure checkout
- Multiple payment options
- Order summary and confirmation



3. HOW IT WORKS



- 1. Browse Products**
Customer browses the website and selects products.



- 2. Add to Cart**
Selected items are added to the shopping cart.



- 3. Review Cart**
Customer reviews items, quantities and total amount.



- 4. Checkout**
Customer provides shipping details and makes payment.



- 5. Order Confirmation**
Order is placed and confirmation is sent to the customer.

4. BENEFITS

- Improves customer convenience
- Saves time and effort
- Encourages more purchases
- Supports secure and smooth transactions
- Increases sales and customer satisfaction



5. EXAMPLE



Customer visits online store



Adds products to cart



Reviews and proceeds to checkout



Makes payment online



Receives order at home

In Short

The shopping cart is the heart of any online store, making the buying process easy, organized and efficient.





POINT OF SALE (POS)



A Point of Sale (POS) is the place and system where a retail transaction is completed.

1. WHAT IS POS?

- POS is the combination of hardware and software used to process sales transactions at a store or business.
- It captures payment, updates inventory, and provides a receipt to the customer.



2. COMPONENTS OF POS SYSTEM



1. POS Terminal (Touchscreen or Computer)



2. Barcode Scanner



3. Receipt Printer



4. Cash Drawer



5. Payment Terminal

3. HOW POS WORKS



Item Entry

Items are scanned or entered in the POS system.



Total Calculation

The system calculates the total amount payable.



Payment

Customer makes payment (cash, card or digital).



Receipt

The system generates a receipt for the customer.



Data Update

Sales data and inventory are updated in the system.

4. FUNCTIONS / BENEFITS

- ✓ Fast and accurate billing
- ✓ Reduces human errors
- ✓ Tracks sales and inventory in real-time
- ✓ Generates reports for better decision making
- ✓ Improves customer satisfaction
- ✓ Supports multiple payment methods

5. TYPES OF POS SYSTEMS

- Traditional POS – Installed on a local server at the store.
- Cloud-Based POS – Data is stored in the cloud, accessible from anywhere.
- Mobile POS (mPOS) – Works on mobile devices or tablets.

6. APPLICATIONS

- Retail Stores
- Supermarkets
- Restaurants and Cafés
- Hotels
- Service Businesses
- E-commerce order pickup points



POS systems make the sales process efficient, secure and customer-friendly.



WIRELESS PAYMENT DEVICE



A Wireless Payment Device is a portable electronic device that allows businesses to accept payments from customers *anywhere* using wireless technology.

1. WHAT IS IT?

- A wireless payment device (also called mPOS – mobile Point of Sale) accepts card payments through debit/credit cards, mobile wallets or contactless methods without the need for a physical connection to a fixed system.



2. KEY FEATURES

- ✓ Wireless connectivity (Wi-Fi, Bluetooth, GPRS, 4G/LTE)
- ✓ Accepts Chip, Swipe, Tap (NFC) payments
- ✓ Supports debit/credit cards & mobile wallets (UPI, Paytm, PhonePe, etc.)
- ✓ Digital receipt via SMS/Email
- ✓ Portable, compact & battery operated
- ✓ Real-time transaction processing
- ✓ Secure and encrypted transactions

3. HOW IT WORKS



4. TYPES OF WIRELESS PAYMENT DEVICES

- Bluetooth mPOS – Connects to smartphone/tablet via Bluetooth.
- Wi-Fi mPOS – Connects to the Internet via Wi-Fi.
- GPRS/4G mPOS – Uses SIM card and mobile data.
- SoftPOS – Uses NFC-enabled smartphone as a payment device.



NFC Tap (SoftPOS)

5. BENEFITS

- ✓ Accept payments anywhere, anytime
- ✓ No fixed setup or cables required
- ✓ Faster transaction & settlement
- ✓ Improves customer convenience
- ✓ Boosts sales and business efficiency
- ✓ Ideal for on-the-go businesses

6. IDEAL FOR



Retailers



Restaurants



Delivery Services



Events & Exhibitions



Field Sales Executives



Taxi & Transport

7. SECURITY FEATURES



- EMV chip & PIN security
- Data encryption
- Tokenization
- PCI-DSS compliant
- OTP authentication (if required)
- Fraud risk monitoring

8. EXAMPLE DEVICES (BRANDS)



Pine Labs mPOS



Ingenico Move/2500



Paytm Soundbox



Razorpay mPOS



Ezetap mPOS



IN SHORT

Wireless Payment Devices help businesses collect payments securely and conveniently without being bound to a fixed location.

