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**NOTES**

**8th Sem**

**E-Commerce & ERP Code: OEC-IT802A**

**CHAPTER-1**

**OVERVIEW**

**Q: > Definitions, Advantages & Disadvantages of E – Commerce:--**

**Definition:-** Electronic commerce, known as ecommerce, is the buying and selling of goods or services electronically on the internet. It can also refer to other online activities, such as auctions, ticketing and banking.

**Advantages of e-commerce:-**

1. Companies can reach a wider audience.
2. Companies have lower operational costs.
3. Shopping from home is more convenient for the consumer.
4. Consumers can easily comparison shop across different brands.
5. There's a greater selection of goods available.

**Disadvantages of e-commerce:-**

1. Less personalized service since there's no interaction with sales clerks
2. Shipping charges and waiting for a product to arrive
3. Inability to see a product before buying
4. Inconvenience of returning products
5. Security issues of websites may put consumer information at risk

**Features of E-Commerce:**

* Ubiquity

Internet/Web technology is the marketplace is extended beyond traditional available

everywhere: at work, at home, and boundaries and is removed from a temporal and

elsewhere via mobile devices, anytime. Geographic location. ―Marketspace‖ is created;

shopping can take place anywhere. Customer convenience is enhanced and shopping costs

are reduced.

* Global reach

The technology reaches Commerce is enabled across cultural and across national

boundaries, around the earth. National boundaries seamlessly and without modification.

―Market space‖ includes potentially billions of consumers and millions of businesses

worldwide.

* Universal standards

There is one set of technical media standards technology standards, namely Internet across the globe.

* Richness

Video, audio, and text marketing messages are possible. integrated into a single marketing message and consuming experience.

* Interactivity

The technology works Consumers are engaged in a dialog that through interaction with the

user. dynamically adjusts the experience to the individual, and makes the consumer a coparticipant in the process of delivering goods to the market.

* Information density

The technology Information processing, storage, and reduces information costs and raises

quality. communication costs drop dramatically, while currency, accuracy, and timeliness

improve greatly. Information becomes plentiful, cheap, and accurate.

* Personalization/Customization

The Personalization of marketing messages and technology allows personalized messages

to customization of products and services are be delivered to individuals as well as groups.

based on individual characteristics.

**Q: > Threats of E-Commerce:--**

**1. Automated Teller Machine**:- The fraudster will steal our information from this favorite location.

Given below are some of the main methods criminals use to collect our card data:

* **Phishing / Vishing**: Phishing is an intruder’s operation where a user has gathered confidential information such as password, usernames, and card numbers, mostly for malicious reasons etc. Vishing is an operation where an attacker has received sensitive user information through mobile text messages.
* **Skimming:** The method is to connect an ATM card reader with a data skimming tool. The information is copied from the magnetic strip to the computer when the customer swipes his card in the ATM card reader.
* **Online Transaction**: The customer may make an online purchase to shop for payment on the internet. The customer always easily hacks into our network and steals our private information.

**2. The Risk of Fraud:-**

The risk of fraud is huge in an electronic payment system. Electronic devices use a person’s identity to approve a payment. For example, passwords and security issues. Such authentications do not have complete proof of a person’s identity. The program does not know who is on the other side of the password, and the security answers are matched. When anyone has access to our password or answers to our security issue, they will get access to and steal our money from us.

**3. The Risk of Payment Conflicts:-**

An automated computer machine handles payments in electronic payment systems, not by individuals. When it manages large sums of payments regularly with many clients, the program is vulnerable to errors. When each pay period ends, it is important to review our payroll to ensure everything is meaningful regularly. When this is not accomplished, payment disputes may result in technological breakdowns and anomalies.

**4. The Risk of Tax Evasion:-**

Internal Revenue Service legislation requires every corporation to disclose its financial transactions and to provide documents to ensure tax compliance. Electronic systems are troublesome because they don’t offer this paradigm clean. This is quite difficult for the Internal Revenue Service to raise revenue. Payments obtained or made via electronic payment systems are available to the company. The IRS does not know whether or not it tells the truth that tax evasion is easy.

**5. Denial of Service Attacks:-**

A denial of service attack is a security intrusion that prevents attackers from accessing the electronic device by legit (correct) users. It disrupts the infrastructure of a host connecting to the Internet to network tools that are not accessible for its intended users.

**6. Eavesdropping:-**

This is an illegal way to listen to private network contact. It does not interfere with the normal operations of the targeting program so that the sender and the receiver do not know that their communication is being monitored.

**Q: > Managerial Prospective:--**

A managerial perspective is a viewpoint that focuses on the role and responsibilities of managers within an organization. This perspective is concerned with how managers can effectively lead, organize, and coordinate the activities of their teams in order to achieve the goals and objectives of the organization.

From a managerial perspective, managers are seen as individuals who are responsible for ensuring that the organization operates efficiently and effectively. They are expected to plan, organize, lead, and control the resources of the organization to achieve its goals. Managers are also responsible for making decisions that affect the organization's performance, such as setting goals, allocating resources, and developing strategies.

To be effective in their role, managers must have a range of skills, including leadership, communication, problem-solving, and decision-making. They must also have a good understanding of the organization's operations and be able to work collaboratively with other departments and stakeholders.

Overall, a managerial perspective is focused on the effective management of an organization, with an emphasis on the roles and responsibilities of managers. By adopting this perspective, organizations can improve their performance and achieve their goals more effectively.

**Q: > Rules & Regulations For Controlling E – Commerce:--**

E-commerce is a rapidly growing industry, and with its growth comes a need for rules and regulations to ensure that it operates in a fair and ethical manner. Here are some common rules and regulations for controlling e-commerce:

1. Consumer Protection: E-commerce companies must ensure that their customers are protected from fraudulent activities and misrepresentations. This can be done by providing clear and accurate information about products, prices, and shipping policies, as well as by offering secure payment options and clear return policies.
2. Privacy and Data Protection: E-commerce companies must also ensure that they are protecting the personal data of their customers. This includes implementing security measures to prevent data breaches, obtaining customer consent before collecting and using personal data, and complying with relevant data protection laws.
3. Intellectual Property: E-commerce companies must respect intellectual property rights, including trademarks, copyrights, and patents. This means that they must not sell counterfeit goods or infringe on the intellectual property rights of others.
4. Taxation: E-commerce companies must comply with relevant tax laws in the jurisdictions where they operate. This includes collecting and remitting sales taxes and complying with other tax requirements.
5. Fair Competition: E-commerce companies must not engage in anti-competitive practices, such as price-fixing or exclusive dealing agreements. They must also comply with antitrust laws and regulations.
6. Accessibility: E-commerce companies must ensure that their websites and mobile applications are accessible to individuals with disabilities. This includes complying with relevant accessibility standards and providing alternative formats for content.
7. Advertising: E-commerce companies must not engage in false or misleading advertising practices. This includes providing accurate information about products and services, using clear and understandable language, and avoiding deceptive pricing and sales tactics.

Overall, e-commerce companies must comply with a range of rules and regulations to ensure that they operate fairly and ethically. By doing so, they can build trust with their customers and promote the growth and success of the industry as a whole.

**Q: > Cyber Laws:--**

Cyber law, also known as Internet Law, is the part of the overall legal system that is related to legal informatics and supervises the digital circulation of information, e-commerce, and software and information security.

**Why are cyber laws needed?**

There are many security issues with using the Internet and also available different malicious people who try to unauthorized access your computer system to perform potential fraud. Therefore, similarly, any law, cyber law is created to protect online organizations and people on the network from unauthorized access and malicious people. If someone does any illegal activity or breaks the cyber rule, it offers people or organizations to have that persons sentenced to punishment or take action against them

1. Protection from cybercrime: With the increasing use of digital technology, cybercrime has become a major threat. Cyber laws are needed to protect individuals and organizations from hacking, identity theft, cyber bullying, and other types of cybercrime.
2. Privacy protection: Cyber laws are essential to safeguard privacy and protect sensitive data such as personal and financial information. These laws govern the collection, use, and sharing of personal data to ensure that it is not misused or exploited.
3. Cybersecurity: Cyber laws play a vital role in ensuring cybersecurity. They define the responsibilities of companies, organizations, and individuals to protect their networks, systems, and data from cyber threats.

**Advantages:**

1. Protection against cyber threats: Cyber laws provide legal protection against cyber threats such as hacking, cyberbullying, and cyberstalking. These laws help to deter cybercriminals and provide a means of redress for victims.
2. Improved cybersecurity: Cyber laws promote better cybersecurity practices by defining the responsibilities of companies, organizations, and individuals to protect their networks, systems, and data from cyber threats. This helps to reduce the risk of cyberattacks and data breaches.
3. Enhanced privacy protection: Cyber laws promote privacy protection by defining the collection, use, and sharing of personal data. This helps to ensure that personal data is not misused or exploited.

**Disadvantages:**

1. Lack of international consensus: Cyber laws vary from country to country, and there is a lack of international consensus on what constitutes cybercrime. This can make it difficult to enforce cyber laws across borders.
2. Complexity: Cyber laws can be complex and difficult to understand. This can make it challenging for individuals and organizations to comply with the regulations.
3. Enforcement challenges: Cyber laws can be difficult to enforce due to the anonymous and borderless nature of the internet. This can make it challenging to identify and prosecute cybercriminals.

**Importance of Cyber Law**

* When users apply transactions on the Internet, cyber law covers every transaction and protect them.
* It touches every reaction and action in cyberspace.
* It captures all activities on the Internet.

**Areas involving in Cyber Laws**

* Fraud
* Copyrighting issue
* Scam

**CHAPTER -2**

**TECHNOLOGIES**

**Q: > Relationship between E – Commerce & Networking:--**

There is a strong relationship between e-commerce and networking, as networking is essential to the success of e-commerce. Here are some ways in which e-commerce and networking are related:

1. Infrastructure: E-commerce relies heavily on network infrastructure, including servers, routers, and other networking equipment. Without a reliable and secure network, e-commerce websites and applications cannot function properly.
2. Connectivity: E-commerce requires connectivity between various systems and platforms, such as online marketplaces, payment gateways, and shipping providers. This connectivity is facilitated through networking technologies such as APIs, web services, and messaging protocols.
3. Cloud Computing: Many e-commerce businesses rely on cloud-based services for hosting their websites, storing data, and running applications. These services are provided over networks, allowing businesses to access them from anywhere in the world.
4. Social Networking: Social networking platforms such as Facebook, Twitter, and Instagram are increasingly important for e-commerce businesses to reach and engage with customers. These platforms provide a way for businesses to network with customers, share product information, and build brand awareness.
5. Mobile Networking: Mobile devices are becoming an increasingly important platform for e-commerce, as more and more people use their smartphones and tablets to make purchases online. Mobile networking technologies such as 4G and 5G are essential for providing fast and reliable connectivity to mobile devices.

**Q: > Different Types of Networking Commerce:--**

**The different types of ecommerce:-**

* **Business-to-consumer (B2C):** B2C is the most common kind of ecommerce. When shoppers buy something from an online store, they are involved in business-to-consumer ecommerce.
* **Business-to-business (B2B):** B2B is when businesses sell raw goods or parts through e-commerce to other companies that will then use those materials to create their own products.
* **Consumer-to-consumer (C2C):** C2C ecommerce is when consumers sell to other consumers. Sites like eBay and Craigslist are examples of this kind of ecommerce.
* **Consumer-to-business (C2B):** C2B ecommerce is when consumers sell their products or services to businesses.
* **Business-to-administration (B2A):** B2A ecommerce refers to transactions between businesses and public administration, which includes areas such as Social Security, employment and legal.
* **Consumer-to-administration (C2A):** C2A ecommerce refers to transactions between consumers and public administration, where consumers pay for services like taxes and legal document preparation.

**Q: > Internet, Intranet & Extranet:--**

**1. Internet** :

The network formed by the co-operative interconnection of millions of computers, linked together is called Internet. Internet comprises of :

People : People use and develop the network.

Resources : A collection of resources that can be reached from those networks.

A setup for collaboration : It includes the member of the research and educational committees worldwide.

**2. Intranet** :

It is an internal private network built within an organization using Internet and World Wide Web standards and products that allows employees of an organization to gain access to corporate information.

An intranet is a private computer network that is used by an organization or company to share information, resources, and services among its employees, departments, and branches. It is a closed network that is accessible only to authorized personnel within the organization.

An intranet functions like the internet, but it is designed to be used within an organization rather than publicly. It typically consists of web-based applications, documents, and databases that are available only to those within the organization who have the necessary permissions.

An intranet can be used for various purposes such as internal communication, collaboration, knowledge sharing, and workflow management. It can also include features like email, instant messaging, file sharing, and project management tools.

Intranets are generally secure and can be accessed only by employees who are authorized to use them. They can be used to store confidential information, and many organizations use them as a means of improving productivity and efficiency by providing employees with easy access to the information and resources they need to perform their jobs.

**3. Extranet** :

It is the type of network that allows users from outside to access the Intranet of an organization.

An extranet is a private computer network that is used to share information and resources with external parties, such as customers, suppliers, vendors, and partners. It is a secure network that enables authorized external parties to access certain parts of an organization's internal network and applications.

An extranet functions like an intranet but extends beyond the boundaries of the organization to include external parties. It typically uses the same technology and infrastructure as the organization's intranet, but with additional security measures in place to protect sensitive information and ensure authorized access.

An extranet can be used for various purposes such as collaboration, communication, and sharing of information and resources with external parties. For example, a company can use an extranet to share product information with suppliers, receive orders from customers, and provide technical support to partners.

Difference between Internet, Intranet and Extranet :

| **Point of difference** | **Internet** | **Intranet** | **Extranet** |
| --- | --- | --- | --- |
| Accessibility of network | Public | Private | Private |
| Availability | Global system. | Specific to an organization. | To share information with suppliers and vendors it makes the use of public network. |
| Coverage | All over the world. | Restricted area upto an organization. | Restricted area upto an organization and some of its stakeholders or so. |
| Accessibility of content | It is accessible to everyone connected. | It is accessible only to the members of organization. | Accessible only to the members of organization and external members with logins. |
| No. of computers connected | It is largest in number of connected devices. | The minimal number of devices are connected. | The connected devices are more comparable with Intranet. |
| Owner | No one. | Single organization. | Single/ Multiple organization. |
| Purpose of the network | It’s purpose is to share information throughout the world. | It’s purpose is to share information throughout the organization. | It’s purpose is to share information between members and external, members. |
| Security | It is dependent on the user of the device connected to network. | It is enforced via firewall. | It is enforced via firewall that separates internet and extranet. |
| Users | General public. | Employees of the organization. | Employees of the organization which are connected. |
| Policies behind setup | There is no hard and fast rule for policies. | Policies of the organization are imposed. | Policies of the organization are imposed. |
| Maintenance | It is maintained by ISP. | It is maintained by CIO. HR or communication department of an organization. | It is maintained by CIO. HR or communication department of an organization. |
| Economical | It is more economical to use. | It is less economical. | It is also less economical. |
| Relation | It is the network of networks. | It is derived from Internet. | It is derived from Intranet. |
| Example | What we are normally using is internet. | WIPRO using internal network for its business operations. | DELL and Intel using network for its business operations. |

**Q: > EDI Systems Wireless Application Protocol : Definition, Hand Held Devices:--**

WAP stands for Wireless Application Protocol. It is a protocol designed for micro-browsers and it enables the access of internet in the mobile devices. It uses the mark-up language WML (Wireless Markup Language and not HTML), WML is defined as XML 1.0 application. It enables creating web applications for mobile devices.

**1. Application Layer**:

This layer contains the Wireless Application Environment (WAE). It contains mobile device specifications and content development programming languages like WML.

**2. Session Layer:**

This layer contains Wireless Session Protocol (WSP). It provides fast connection suspension and reconnection.

**3. Transaction Layer:**

This layer contains Wireless Transaction Protocol (WTP). It runs on top of UDP (User Datagram Protocol) and is a part of TCP/IP and offers transaction support.

**4. Security Layer:**

This layer contains Wireless Transaction Layer Security (WTLS). It offers data integrity, privacy and authentication.

**5. Transport Layer:**

This layer contains Wireless Datagram Protocol. It presents consistent data format to higher layers of WAP protocol stack.

**Q: > Mobility & Commerce:--**

Mobility and commerce are closely related as mobile devices, such as smartphones and tablets, have revolutionized the way people shop and make purchases. Here are some ways in which mobility and commerce intersect:

1. Mobile Shopping: With the rise of mobile devices, more and more people are using their smartphones and tablets to shop online. This has led to the development of mobile shopping apps and mobile-optimized websites, which make it easy for customers to browse and purchase products on the go.
2. Location-Based Services: Mobile devices allow for location-based services, such as geotargeted ads and push notifications, which can help businesses target customers based on their location and provide personalized offers and promotions.
3. Mobile Payments: Mobile devices have also enabled the growth of mobile payment technologies, such as mobile wallets and mobile point-of-sale (mPOS) systems. These technologies allow customers to pay for products and services using their mobile devices, providing a more convenient and secure payment option.
4. Mobile Marketing: Mobile devices have created new opportunities for businesses to market their products and services through mobile advertising, social media, and mobile apps. This allows businesses to reach customers wherever they are, providing targeted and personalized marketing messages.
5. Mobile Analytics: Mobile devices also provide businesses with valuable data and insights into customer behavior, allowing them to track customer interactions, measure engagement, and optimize their mobile commerce strategies.

Overall, mobility has transformed the way people shop and interact with businesses, providing new opportunities for commerce and driving innovation in the digital economy. As such, businesses must adapt to these changes to remain competitive and provide the best possible customer experience.

**Q: > Mobile Computing:--**

Mobile Computing is the technology used for transmitting voice and data through small, portable devices using wireless enabled networks.

**The concept of Mobile Computing can be divided into three parts:**

* Mobile Communication
* Mobile Hardware
* Mobile Software

**Principles of Mobile Computing**

The following factors have been identified as the Principles of Mobile Computing.

**1. Portability**

Devices/nodes connected within the mobile computing system should facilitate mobility. These devices may have limited device capabilities and limited power supply, but should have a sufficient processing capability and physical portability to operate in a movable environment.

**2. Connectivity**

This defines the Quality of Service (QoS) of the network connectivity. In a mobile computing system, the network availability is expected to be maintained at a high level with the minimal amount of lag/downtime without being affected by the mobility of the connected nodes.

**3. Interactivity**

The nodes belonging to a mobile computing system are connected with one another to communicate and collaborate through active transactions of data.

**4. Individuality**

A portable device or a mobile node connected to a mobile network often denotes an individual; a mobile computing system should be able to adopt the technology to cater the individual needs and also to obtain contextual information of each node.

**Applications of Mobile Computing**

* Web or Internet access.
* Global Position System (GPS).
* Emergency services.
* Entertainment services.
* Educational services.

**Q: > Wireless Web:--**

A generic term for untethered access to the Web and other Internet services such as email and chat. Public and private hotspots, Internet access via cellphone and all other fixed or mobile wireless access services make up the wireless Web. See wireless LAN, wireless WAN and Wi-Fi hotspot.

Wireless web refers to the use of wireless technologies to access the internet and other online services without the need for wired connections. The advent of wireless web has revolutionized the way people access and use the internet, allowing for greater mobility and convenience. Here are some key aspects of wireless web:

1. Wireless Networks: Wireless web is made possible by the use of wireless networks, which allow for the transmission of data over radio waves instead of wired connections. These networks include Wi-Fi, cellular data networks, and satellite connections.
2. Mobile Devices: Mobile devices, such as smartphones and tablets, are the primary way that people access the wireless web. These devices are equipped with wireless capabilities, such as Wi-Fi and cellular data, allowing users to access the internet and other online services on the go.
3. Mobile Applications: Mobile applications, or "apps," are designed specifically for use on mobile devices and are a key component of the wireless web. These apps allow users to access online services, such as social media, e-commerce, and entertainment, from their mobile devices.
4. Security: Security is a critical concern when it comes to the wireless web, as wireless networks can be vulnerable to hacking and other security breaches. To protect users' data and privacy, wireless networks must be secured using encryption and other security measures.
5. Innovation: The wireless web has enabled a range of new technologies and services, such as mobile payments, location-based services, and augmented reality. As the wireless web continues to evolve, it is likely to drive further innovation and change in the digital economy.

**Q: > Web Security:--**

Web Security is very important nowadays. Websites are always prone to security threats/risks. Web Security deals with the security of data over the internet/network or web or while it is being transferred to the internet. For e.g. when you are transferring data between client and server and you have to protect that data that security of data is your web security.

Hacking a Website may result in the theft of Important Customer Data, it may be the credit card information or the login details of a customer or it can be the destruction of one’s business and propagation of illegal content to the users while somebody hacks your website they can either steal the important information of the customers or they can even propagate the illegal content to your users through your website so, therefore, security considerations are needed in the context of web security.

**Top Web Security Threats :**

Web security threats are constantly emerging and evolving, but many threats consistently appear at the top of the list of web security threats. These include:

* Cross-site scripting (XSS)
* SQL Injection
* Phishing
* Ransom ware
* Code Injection
* Viruses and worms
* Spyware
* Denial of Service

**Security Consideration:**

* Updated Software:
* Beware of SQL Injection
* Error Messages:
* Data Validation

**Q: > Infrastructure Requirement For E – Commerce:--**

The important infrastructures needed for your e-commerce business include high-quality digital marketing strategies, and an efficient physical base. Digital marketing strategies encompass advertising, social media, and web design, while a physical base involves manufacturing, storage, fulfillment and employees.

**What Is Network Infrastructure For E-Commerce?**

Network infrastructure is the infrastructure that supports a business network. It encompasses servers, data storage solutions and all networking equipment used to connect users to each other and to their computers.

**What Are The Infrastructure Requirements For E-Commerce?**

The infrastructure requirements for e-commerce are actually quite simple. They consist of the infrastructure needed to support employees, infrastructure that will store and manage inventory, as well as infrastructure needed to provide a desired user experience.

Let’s take a look at some critical e-commerce infrastructure for your business.

* **Invest in High-Quality Digital Marketing Plans**
* **Use Online Marketing to Increase Brand Influence**
* **Incorporate SEO Best Practices To Boost Traffic**
* **Use Advertising & Social Media To Generate Leads**
* **Consider Selling on a Marketplace Platform**
* **Use Cloud Computing Services To Analyze Data**
* **Improve Quality with Secure Storage Facilities**
* **Hire Employees & Customer Service**

**CHAPTER -3**

**BUSINESS MODELS OF E – COMMERCE**

**Q: > Model Based On Transaction Type:--**

Here are seven e-commerce business models based on transaction types:

1. Brokerage: In a brokerage model, an e-commerce platform acts as an intermediary between buyers and sellers, facilitating transactions. The platform connects buyers and sellers, often in a specific niche or industry, and earns a commission or fee for each successful transaction.
2. Aggregator: Aggregator models bring together products or services from multiple sellers or sources and present them in a unified way to customers. The aggregator platform collects listings, reviews, and other relevant information to provide customers with a comprehensive view of the available options. Examples include online marketplaces like Amazon and eBay.
3. Infomediary: Infomediary models focus on collecting and analyzing customer data to provide personalized recommendations or targeted advertising. These platforms gather user information, such as preferences and behavior, and leverage it to offer tailored product suggestions or advertisements to users. Social media platforms and personalized recommendation engines often employ this model.
4. Community: Community-based e-commerce models revolve around building online communities where users can interact, share information, and engage in transactions. These platforms foster a sense of belonging and enable users to connect with like-minded individuals. Examples include online forums, social commerce platforms, and peer-to-peer marketplaces.
5. Value Chain: Value chain e-commerce models involve the integration of various stages of a product's supply chain into a single platform. This model aims to streamline the purchasing process by offering end-to-end solutions, from production to distribution. It allows customers to access multiple stages of the value chain in one place, enhancing efficiency and convenience.
6. Subscription: Subscription models involve offering products or services on a recurring basis, typically with a fixed payment schedule. Customers pay a subscription fee to access a range of benefits or receive regular deliveries of products. Examples of this model include subscription boxes, streaming services, and software-as-a-service (SaaS) platforms.
7. Affiliate: Affiliate models focus on driving sales by promoting and recommending products or services on behalf of other businesses. Affiliates earn a commission for each successful referral or sale generated through their promotional efforts. This model is commonly employed by influencers, bloggers, and content creators who partner with brands to promote their products.

These are just a few examples of e-commerce business models based on transaction types. It's important to note that many e-commerce businesses combine multiple models or innovate on existing models to create unique approaches tailored to their specific offerings and target markets.

**Q: > Model Based On Transaction Party - B2B, B2C, C2B, C2C:--**

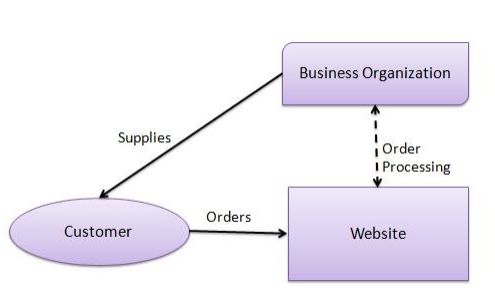
There are six major ecommerce business models:

* Business to Consumer (B2C)
* Business to Business (B2B)
* Consumer to Consumer (C2C)
* Consumer to Business (C2B)

**1. Business to Consumer (B2C):**

As the name implies, business to consumer (B2C) is when a company markets its products or services directly to end users. It is the most widely known form of commerce. B2C ecommerce is fairly straightforward.

You complete a B2C transaction every time you purchase food from a grocery store, eat dinner at a restaurant, watch a movie at a theater, and get a haircut. You are the end user of the products and services these companies sell.



In e-Commerce, there are five different B2C business models: direct sellers, online intermediaries, advertising-based, community-based, and fee-based:-

1. Direct selling is the most common model. It is when consumers buy products from online retailers.
2. Online intermediaries are online businesses that bring sellers and consumers together and take a cut of each transaction made.
3. In the advertising-based model, information is given away for free and money is made from advertising on the site.
4. Facebook is an example of a community-based site that makes money from targeting ads to users based on their demographics and location.
5. Finally, the fee-based model involves companies that sell information or entertainment to consumers for a fee, like Netflix or subscription-based newspapers.

**2.Business to Business (B2B)**

As the name implies, business to business (B2B) is when a company markets its products or services directly to other businesses. [**B2B ecommerce**](https://www.elasticpath.com/b2b-ecommerce) can be broken down into two methodologies, vertical and horizontal.

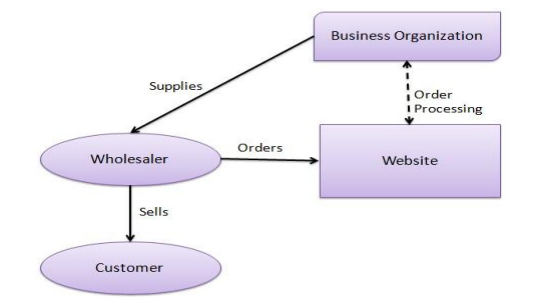
Vertically oriented businesses sell to customers within a specific industry. With a horizontal approach, you are selling to customers across a myriad of industries. Each approach has their own pros and cons, such as industry expertise and market depth (vertical) versus wide-spread market coverage and diversification (horizontal).

In a Business-to-Business E-commerce environment, companies sell their online goods to other

companies without being engaged in sales to consumers. In most B2B E-commerce

environments entering the web shop will require a log in. B2B web shop usually contains

customer-specific pricing, customer-specific assortments and customer-specific discounts



**3. Business to Business to Consumer (B2B2C)**

In B2B2C ecommerce, a company sells products to another company which are then sold to consumers. An example of a B2B2C arrangement is when a wholesale distributor sells merchandise to retail stores that then sell the merchandise to end users. The B2B2C model is comprised of three parts: the first business (the business of product origin), an intermediary, and the end user.

There are several different ways the B2B2C model can be used in eCommerce applications. For example, a company could partner with another company to promote its products and services, giving the partner a commission for each sale.

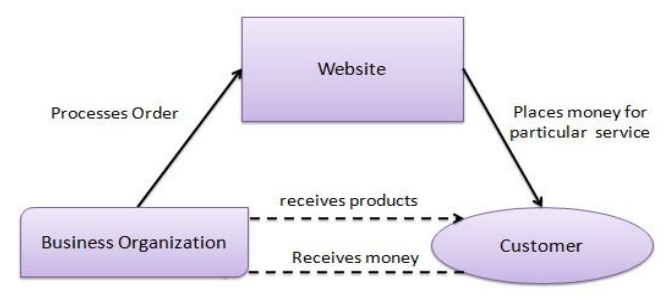
The primary advantage of the B2B2C business model for eCommerce companies is the acquisition of new customers. This is an important consideration for new eCommerce companies that need a way to rapidly grow their customer base.

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

Typically, when we think of commerce strategies, we tend to think of them from the starting point of the business. However, consumer-oriented models, like Consumer to business, are growing in popularity.

In a Consumer-to-Business E-commerce environment, consumers usually post their products or services online on which companies can post their bids. A consumer reviews the bids and selects the company that meets his price expectations.

In the C2B ecommerce business model, individuals sell goods and services directly to companies. We see this most commonly in websites that allow individuals (contractors or freelancers) to share work or services they’re skilled in. Often, businesses will put in a request or a bid for that person’s time and will pay the person through that platform.

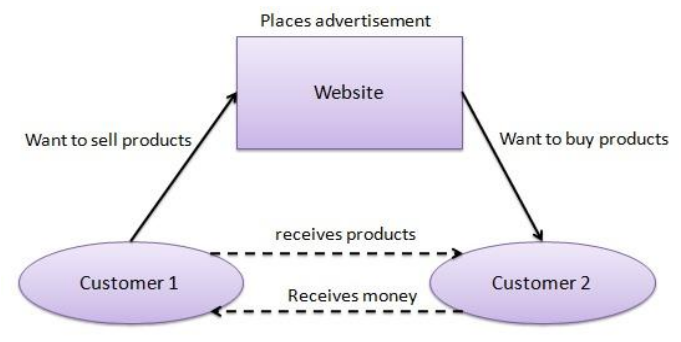


One of the most recognizable examples of a C2B business is Upwork, a freelancing platform that connects organizations directly with talent. It’s marketed is a ‘marketplace for work’ and gives businesses the ability to find and source project support, ranging for anything from software development and content creation to UX design and even financial needs for things like bookkeeping or filing tax returns.

**5.Consumer to Consumer (C2C)**

In a Consumer-to-Consumer E-commerce environment consumers sell their online goods to

other consumers. A well-known example is eBay.



Another model most people don’t typically think of is the consumer to consumer business model. The rise of the digital landscape has really enabled the concept to take off, with companies like eBay, Craigslist, and Esty leading the way.

In C2C ecommerce, consumers sell goods or services directly to other consumers. This is most often made possible by third-party websites (such as the examples we previously mentioned) or marketplaces, that facilitate transactions on behalf of the buyers and sellers.

These ecommerce marketplaces allow smaller businesses, or even hobbyists, to sell their products at their own pricing without having to maintain their own online storefront.

**Q: > E-Governance :--**

E-governance is the application of information and communication technology (ICT) for

delivering government services, exchange of information communication transactions,

integration of various stand-alone systems and services between government-to-customer (G2C),

government-to-business (G2B), government-to-government (G2G) as well as back office

processes and interactions within the entire government framework.

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

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



Business to government (B2G) is when a company markets its products and services directly to a government agency. This agency could be a local, county, state, or federal agency.

An example of a B2G relationship is when an ammunition manufacturer sells ammunition to the US Army. And an example of a local B2G relationship is when a private engineering company sells its engineering services to a county government to develop a new water and sewer system for the community. In B2G, companies typically bid on projects when governments announce Requests for Proposals (RFPs).

Interacting with government agencies is very different from working with other businesses or consumers. Due to having to deal with bureaucracies, business deals tend to move at a much slower pace than in other sectors. Ecommerce companies can definitely bid on government contracts, the same as other companies. Unlike many B2C transactions, however, many government agencies will not go directly to an eCommerce website and place an order.

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

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

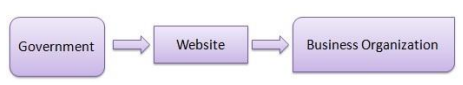
The Government-to-Business (G2B) business model involves the provision of government services and information directly to businesses through digital technologies. This model is based on the premise that businesses should have easy access to government services and information, and that digital technologies can facilitate this access.

In the G2B business model, government agencies develop online portals and mobile applications to provide a range of services and information to businesses. These services may include business registration, licensing and permits, procurement opportunities, tax payments and filing, and more.

The G2B business model can be revenue-generating, with government agencies charging fees for certain services or collecting taxes through online portals. For example, a government agency may charge a fee for processing a business license application online or for submitting a bid on a government procurement opportunity.

The G2B business model also enables governments to collect and analyze data on business behavior and preferences, which can inform policy-making and improve the delivery of government services. For example, governments can use data from online portals to identify trends in business registrations and adjust regulations accordingly.

Overall, the G2B business model is an effective way for governments to provide services and information to businesses in a convenient and efficient manner. Digital technologies have made it easier for governments to implement this model and for businesses to access government services and information, resulting in more streamlined and effective interactions.



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

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

The Government-to-Citizen (G2C) business model involves the provision of government services and information directly to citizens through digital technologies. This model is based on the premise that citizens should have easy access to government services and information, and that digital technologies can facilitate this access.

In the G2C business model, government agencies develop online portals and mobile applications to provide a range of services and information to citizens. These services may include tax payments, renewing licenses and permits, applying for social security benefits, accessing healthcare services, and more.

The G2C business model can be revenue-generating, with government agencies charging fees for certain services or collecting taxes through online portals. For example, a government agency may charge a fee for renewing a driver's license online or for accessing certain healthcare services through an online portal.

The G2C business model also enables governments to collect and analyze data on citizen behavior and preferences, which can inform policy-making and improve the delivery of government services. For example, governments can use data from online portals to identify trends in tax payments and adjust tax policies accordingly.

Overall, the G2C business model is an effective way for governments to provide services and information to citizens in a convenient and efficient manner. Digital technologies have made it easier for governments to implement this model and for citizens to access government services and information, resulting in more streamlined and effective interactions.



**CHAPTER -4**

**E – STRATEGY**

**Q: > Overview:--**

**e-Strategy** or **e-Business Strategy** is the business use of the Internet. The “use” results in a “business benefit” such as higher revenues, reduced costs, or reaching an underserved market. “Internet” includes all technologies and applications enabled by the Internet. e-Strategy is an iterative process to create and/or modify an organization's business model for eBusiness:

* It is a process not a point-in-time event
* It is iterative - success comes after multiple - do and learn – cycles
* The key is the creation/modification of the business model not designing websites to address business requirements
  + The former focuses on the business
  + The latter focuses on integrating emerging technology; that is the purview of IT Strategy (Information Technology Strategy)
* e-Strategy sets the direction for the entire organization
  + It is one and the same as the "business" strategy. If one must, then eStrategy is a subset of business strategy
  + It is not an "IT Strategy" for the internet. Much like business strategy drives strategic planning for information technology, eStrategy drives the IT Strategic Plan
  + e-Business affects the entire organization so the focus of eStrategy is on the entire business not on creating a new distribution channel or creating a customer portal or targeting a new internet-based market segment
  + e-Strategy focuses on creating maximum value not on creating revenues or reducing costs through the internet

e-Strategy helps create shareholder value. In other words, it helps identify the "new" business model to compete in the "new" world that now includes the internet-based ecosystem.

**Q: > Strategic Methods for developing E – commerce:--**

**What is an ecommerce strategy?**

An ecommerce strategy is the organized series of tactics to promote your product and grow your sales.  A proper strategy considers the full lifecycle of the *product,*the *customer,*and the *corporation.*

**1) Product strategy:-**

* **Research & development**. How are your current products, and potential future products, developed? For example, do you develop them yourself or contract a third party, and how often?
* **Product positioning.**How will your product(s) fit into the market, and ideally fulfil a need that current products aren’t filling? This helps inform your product pages ‘product descriptions. A [2x2 matrix](https://www.lucidmeetings.com/glossary/2x2-matrix) can be helpful when planning this.
* **Product supply chain.** How does your product reach your customer? What partners do you select for manufacturing and delivery? These affect your product quality, delivery times, and gross margin.
* **Product line depth & breadth.**How many products would you like to carry, both for launch and over time? Will your product have multiple variants, such as colors or flavors? After your first product, will your additional ones be a new product line (think: introducing a t-shirt to complement your jeans) or an extension (think: introducing more lightweight jeans to complement your current line of jeans)?
* **Product lifetime.**Will your products be evergreen, or will you be doing limited-edition or seasonal product drops?

**2) Customer Strategy :-**

* **Target audience.** Who is your target market? A common way to capture information about your target market is in a [buyer persona](https://www.shopify.com/encyclopedia/buyer-persona)document.
* **Branding.**What values does your brand represent, and how will customers understand this? How do you want your customers to feel?
* **Customer acquisition.**Where and how will you reach your target audience? This could be anything from [social media](https://www.shopify.com/blog/social-media-small-businesses) to email marketing.
* **Customer experience.**What are your customer service standards? For example, will you subsidize shipping costs and/or returns, and will you provide a guarantee? Will there be an option to subscribe?
* **Customer retention.**How often do you want your existing customers to reorder—once a month, once a year, never? How will you ensure they come back to do so?

**3) Corporate strategy:-**

Many ecommerce website owners start their business because they’re passionate about their customer or their product.

* **Number of shareholders.**Who do you want to own the business?Owning 100% of your business yourself can be attractive—you get to make all the decisions. But for some people it can mean missing out on business partners that could provide valuable skills or investors who (in addition to their financing) are often well-connected, experienced, and eager to help. At the same time, shareholders eventually want a payout for their time or money, so if you take on shareholders or investors, you’ll need a plan for them to get their money back.
* **Financing strategy.**Although [starting an ecommerce business](https://www.shopify.com/blog/ecommerce-business-blueprint) is easier than ever, it typically still requires some cash. Where will you get that cash? That can take the form of loans, investment, your savings, pre-sales to customers, or crowdfunding. However, businesses that are already operating need a financing strategy too. They may need to place big orders of supplies, or fulfill seasonal demand, and these things require a plan to have enough cash at the right times.
* **HR strategy.**If you’re just starting your ecommerce business, this one may not seem that important yet. But veteran store owners will tell you it can get very important. Who will your first hires be? For example, it could be a digital marketing hire, a customer experience hire, or a product development hire. Then, once you start hiring, how will your [organizational structure](https://www.shopify.com/encyclopedia/organizational-structure) fit it all together? How will your employees grow over time? This all makes a big difference in the future of the business.

**CHAPTER -5**

**Four C’s : ( Convergence, Collaborative Computing, Content Management & Call Canter )**

**Q: > Convergence: Technological Advances in Convergence – Types, Convergence and its implications, Convergence & Electronic Commerce:--**

Technological convergence is a term that describes bringing previously unrelated technologies together, often in a single device. Smartphones might be the best possible example of such a convergence.

Some of these devices included telephones, wrist watches, digital cameras and global positioning system (GPS) navigators.

**Why is technological convergence important?**

From a consumer perspective, technological convergence is often synonymous with innovation. Technologies rarely converge in their current form. Improvements are often introduced as a part of the convergence. Consider the popularity of video cameras a generation ago. Today, consumer-grade video cameras are almost nonexistent. Most people record videos on their mobile devices. Although they can eliminate the need to carry a separate device -- a video camera, in this case -- they also deliver superior video quality as compared to what was once available. Video cameras from the early 2000s, usually, had a maximum resolution of 480i (720 x 480) and, often, experienced poor battery life. In contrast, a modern mobile device can record in 4K resolution. Additionally, their batteries can sometimes last for days, depending on how the device is being used.

For businesses, technological convergence means companies are more easily able to connect to their customers and to learn more about customer's buying habits. In some cases, technological convergence even makes it possible for a business to influence a customer's purchases. Some retailers track customer's smartphone locations. If a customer is standing in a particular area of the store for a certain amount of time, the retailer might send the customer a coupon via text message or pop-up notification for the item they're looking at, thus, further enticing the customer to make a purchase.

**Types of technological convergence**

A good way to evaluate the importance of technological convergence is to consider innovations from previous generations. Items such as CD players, cassette decks, console TVs or corded telephones served only one function, whereas a single modern handheld computing device can meld several of those functions, with hardly any user intervention required.

Using a smartphone to make calls and take digital photos and using your digital TV to perform computing tasks, such as surfing the web while watching a movie, are two more examples of technological convergence.

Additional examples include:

* The [internet of things](https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT) (IoT)
* Converged Bluetooth-connected devices
* High-bandwidth Wi-Fi data networks to power intelligent sensors embedded in:
  + Household appliances
  + Automobiles
  + Thermostats

**Advantage of Technology Convergence:**

There are several important advantages to technological convergence.

* It can spur innovation, while also reducing the need for single-use devices. Part of this innovation has to do with component miniaturization, as manufacturers must make electronic components smaller and smaller if they are to build evermore capable devices.
* Technological convergence also helps consumers use devices in the way that best meets their needs. At one time, making a telephone call was the only option for speaking with someone far away.
* Technological convergence can also help reduce costs. Purchasing internet, television and telephone service as a bundle is likely to be cheaper than subscribing to these services separately. Similarly, buying a smartphone costs less than purchasing a collection of single-purpose devices.

**Disadvantage of Technology Convergence:**

Despite its advantages, technological convergence comes with notable drawbacks.

* Due to the complexity of delivering internet, video and voice services, network providers must make necessary expensive investments in computing, networks, security and continuous software development. These costs are generally absorbed by consumers in the form of higher rates or service fees.
* Converging services such as voice, video and internet can increase the severity of an outage. When these services were all separate, a telephone outage would only affect voice service.
* although they compete in a regulated industry, telecom service providers own the existing network infrastructure and might be reluctant to share it with rivals. This provides a barrier to entry for new companies to bring innovations to market.
* From a user perspective, form factor plays a role in the efficiency of the converged technologies. Although you can open a browser on a smartphone, a mobile device might not be equipped to provide the same functionality as a desktop or PC due to the device's relatively small screen size. A physical device's form factor inevitably makes that device better suited to some use cases over others.
* Other security issues can also stem from digital convergence. Consumer-oriented IoT devices have long had a reputation for weak security. If an attacker were to successfully hack such a device, the attacker could potentially use the compromised device as a platform for attacking other devices that are connected to the same network. This can include data rich devices such as personal computers, tablets and smartphones.

**Q: > Collaborative Computing : Collaborative product development contract as per CAD, Simultaneous Collaboration, Security:--**

Collaborative computing is described as a phenomenon where modern technology tools facilitate and enhance group work that exists through distributed technology – where individuals collaborate from remote locations.

Many different types of modern tools and technologies constitute collaborative programming resources. Some of the earliest systems focused on how to allow groups in distributed locations to view files, share information and chat amongst themselves in order to complete projects.

**How to build a collaborative product design team in 6 steps**

Based on our experience, we share the best practices for setting up and managing your collaborative development projects. Let’s explore what areas you should focus on.

**1. Start with a cooperation framework**

Both your company and your partnering organizations have their own priorities and interests. So, it’s vital to establish the agendas and objectives of teamwork for all parties involved. By doing so, you will develop a common understanding and ensure all participants realize their responsibilities are facets of project planning.

We recommend you make a clear and easily available document that defines every aspect of the collaborative development flow, including goals and expectations for each party. That way, any project member can freely access it during the process. This will help you alleviate the uncertainties, minimize confusion between you and your partner, and estimate the efficiency of cooperation.

**2. Get all your stakeholders in the same room**

Engaging stakeholders at each project development stage will help you get fresh insights and diverse viewpoints on the solution. They can provide valuable input by sharing their knowledge and expertise. Miscellaneous backgrounds will result in different ways of evaluating a solution and help you identify success features.

Additionally, this step will help you reduce revision cycles by communicating the product needs from the onset while minimizing the risk of project failure. So, you will save resources and time by involving stakeholders in developing a collaboration product and getting their buy-in early.

**3. Communicate the goal and vision clearly**

A shocking number of collaborations fail because only a few people understand the actual reasons and final objectives of their projects. Currently, business executives think a lack of clear goals is responsible for[**37 percent**](https://www.pmi.org/-/media/pmi/documents/public/pdf/learning/thought-leadership/pulse/pulse-of-the-profession-2017.pdf) of failures.

So, when you start designing your product collaboration roadmap, dedicate enough time to communicate the project context and expectations. You should explain the business purpose in detail and ensure everyone understands the “why” standing behind their work. By doing so, you will make people more committed and motivated to work towards your common goals.

**4. Establish timely and open communication**

Large engagements like collaborative product development with another company require frequent communication, mutual trust, and regular status updates. Only in this way will your teams make the partnership efficient and fruitful. So, establish regular sync-up calls for everyone to see how the project is going. For example, most of our engineering teams follow Agile Scrum methodology that includes planning meetings to define the scope of work and ways to achieve it. Additionally, they have recurring retrospectives to discuss what went well during the previous sprint and what can be improved.

**5. Provide tools facilitating remote cooperation**

Today, the importance of team collaboration software can hardly be overestimated. Especially when you work closely with a team outside of your company. These tools help you establish timely communication and ensure information is shared transparently.

At the bare minimum, you will need communication and video chat software, a task or project management application, and a file-sharing platform. There are many[**cloud computing**](https://www.teaminternational.com/automation-in-cloud-computing/) solutions out there, so it comes down to what your collaborative product team agrees on. However, we recommend you select tools from one vendor to facilitate collaboration and boost information security. For instance, TEAM International is a certified Microsoft partner, so we run our operations on their products and offer high quality[**Microsoft services**](https://www.teaminternational.com/services/microsoft-services/) to all our customers.

**6. Ensure high integration all the way**

Although different team members take the lead during different project phases, engaging them at all stages can help you take a broader perspective. Instead of back-and-forth feedback that takes time, you will have real-time responses and suggestions about collaborative products that can be used immediately.

As everyone gets more information, it will help decide what is viable, feasible, and valuable, as well as deal with possible bottlenecks effectively. By organizing your collaboration development process this way, you will keep everybody on the same page, solve problems faster, and prevent costly revisions.

**Q: > Content Management: Definition of content, Authoring Tools & Content Management, Content –partnership, repositories, convergence, providers, Web Traffic & Traffic Management ; Content Marketing.**

**Q: > Call Center : Definition, Need, Tasks Handled, Mode of Operation, Equipment ,Strength & Weaknesses of Call Center, Customer Premises Equipment (CPE) :--**

**CHAPTER -7**

**SUPPLY CHAIN MANAGEMENT**

**Q: > E – logistics:--**

E-Logistics refers to the process of utilizing information and technology infrastructure in the traditional supply chain process to simplify knowledge sharing, data transfer, etc. It essentially means carrying out most of the traditional logistics processes in the supply chain through an online platform. For example, website and marketplace selling, courier management, returns processing, etc.

The increased competition in the e-Commerce sector has forced companies to form new management strategies like e-logistics. The term e-logistics is about the concept of managing logistics using the internet, IoT, to conduct the business electronically.

**Q: > Supply Chain Portal:--**

The supply chain is what keeps your business running competently. A proper supply chain management ensures an efficient movement of raw materials and optimized finished goods inventory. It offers an oversight from the point of production to getting goods in the hands of the consumer.

Simply put, supply chain management refers to a spectrum of activities that are required to plan, control, and execute procurement, manufacturing, and distribution of the goods to the end consumer.

**Supply chain management (SCM)** refers to strategies that optimize the flow of materials or services to make available the product or service from inception to the end consumer.

It aims to perform this task in an integrated and cost-effective manner (Reis et al, 2014). Supply chain today is a part of every leading industry. The broad categories underlying the standard supply chain management for any industry include demand planning, sourcing, production, inventory management or storage, and logistics. The figure below represents these tasks.



**What are the Benefits of E-commerce Supply Chain Management?**

* **Visibility across the entire network**

Supply chain management brings transparency in the network and helps oversee the status of all the activities happening across supply, production, warehousing, and distribution. This ensures a more comprehensive tracking and management of all processes from procuring to shipping of finished goods to the end consumer.

* **Enhanced Customer Relationships**

Effective supply chain management ensures on-time deliveries, which makes a direct impact on strengthening customer relationships. Furthermore, SCM aids the brands to keep an eye on customer requirements. It makes sure that the business is attuned to the changes in the demands of the products and services. An e-Commerce integrated supply chain helps businesses get feedback and requirements about their products directly from the consumers.

* **Cost reduction**

One of the principal reasons due to which the customers invest their time and money in e-Commerce is reduced costs. Probably, there are a lot of areas where business invests more than required. Some of such areas could definitely be streamlined. It’s worth taking a look at your supply chain to recognize areas where the costs could be cut down.

* **Minimized Delivery Delays**

Delayed shipment from vendors, holdups during production, and logistic errors in distribution channels massively impact brand reputation in the market. With an effective SCM, all activities can be coordinated and executed from top to bottom. Minimizing delivery delays can prevent losing out on business and streamline your image and relationships with the customer.

**Q: > Supply Chain Planning Tools (SCP Tools)**

It is part of supply chain management (SCM).

The definition of supply chains planning can be summed up as ensuring a business has the right amount of goods and services to meet the market demand. It involves forecasting future demand and then organizing production and inventory accordingly. There are various types of SCP, each with its own set of processes.

**Types of SCP**

There are three types of supply chain planning:

**1. Short term planning**

This type is used to plan and manage production for weeks or months. It involves forecasting demand, organizing production, and managing inventory.

**2. Long term planning**

This type is used to plan and manage production for the next few years.

**3. Integrated supply chain management**

This type is a comprehensive approach that integrates short- and long-term planning into a single process.

**Supply chain planning process:**

**Demand planning:**

It is part of the demand management process. The demand planning process involves predicting future demand for goods and services. This forecasting is done by analyzing past sales data and trends in market demand. The output of this process is a demand plan.

**Capacity planning:**

Capacity planning determines how much supply a company has to meet forecasted demand. It includes organizing production, setting up suppliers, and managing inventory.

**Production planning:**

Production planning determines what products will be made and when they will be made. This includes setting up schedules, ordering materials, and preparing production lines.

**Sales and operations planning (S&OP)**

Sales and operations planning (S&OP) brings sales and operations together to make decisions affecting both departments. The goal of S&OP is to ensure that the two departments are working together to meet consumer demand. Therefore, sales and operations planning should be done regularly, preferably monthly.

The process of sales and operations planning usually involves the following steps:

* Collecting data
* Analyzing data
* Developing plans
* Communicating plans
* Tracking results

**Inventory management:**

This process manages the stock level to ensure enough supply to meet consumer needs. It includes setting reorder points, ordering stock, and tracking inventory levels.

**SCM Tools:-**

**1. Shipping status**

**2. Order processing**

**3. Lean inventory**

**4. Warehouse Management**

**5. Specialized Freight Handling**

**6. Big and spend**

**7. Supplier management**

**8. Demand Forecasting**

**9. Analytics and Reports**

**10. Collaboration portals**

<https://www.selecthub.com/supply-chain-management/13-essential-supply-chain-management-tools/>

**1. Shipping Status**

An increasingly popular shipping tool, real-time alerts provide timely information on all shipping activities. Fishbowl Inventory, Oracle WMS and QuickBooks Commerce are some shipping software most preferred by small and large businesses. Typically, large companies have high-volume supply chains with many different types of cargo shipped to customers around the country or around the world.

**2. Order Processing**

Order processing is massively important to any supply chain. [Order fulfillment processes](https://www.selecthub.com/warehouse-management/5-strategies-streamlining-order-fulfillment/) provide the tools needed to make this task easier and more efficient. These tools support all functions across order processing like sales order processing, order management, order fulfillment, billing and order to cash.

**3. Lean Inventory**

The idea is to only create what’s needed at the moment, determined by current and projected customer demand. Before lean production, manufacturers would create and house large surpluses of goods. This technique resulted in massive inefficiencies, wasting time and effort.

The overall goal of this practice is to optimize your production planning by cutting down on warehousing space, inventory costs and the different procedures for storing excess inventory. Lean inventory tools can provide a lot of return on investment for a business, decreasing the need for warehouse space and streamlining their labor force.

**4. Warehouse Management**

Depending on the tools you select, they can help manage the day-to-day operations within your warehouses. These solutions provide a wide array of warehouse management capabilities as broad or specific as your company requires. Some solutions provide advanced supply chain planning tools, allowing users to handle complex logistics related to receiving, product tracking, cycle counting, route planning and more.

**5. Specialized Freight Handling**

In addition to various shipping features, tools can also incorporate different types of industry-specific freight-handling functionality. For example, the evolution of [cold chain logistics](https://www.altexsoft.com/blog/cold-chain-logistics/) and new regulations concerning perishable goods has changed compliance standards. In such cases, some platforms provide integrated technology to verify these goods, ensuring the temperature is right up to the last mile of delivery.

**Q: > Supply Chain Execution (SCE):--**

**What is a supply chain execution system?**

* A supply chain execution system is a network of stakeholders, assets, tools, and processes required to execute efficient order fulfillment. The person in charge of a SCE system is a supply chain manager. They can be either in-house staff or come from a 4PL service that can take care of the entire supply chain for you.

**Supply Chain Execution Applications:-**

* **Order Management**

An [order management system](https://www.netsuite.com/portal/products/erp/order-management.shtml) receives and organizes orders from multiple sales channels, managing processes including order creation, order prioritization, approval workflows and returns management. This software can also track vendor performance.

* **Transportation Management Systems**

A transportation warehouse system helps businesses optimize their use of carriers for land, air and sea transportation. This solution also tracks shipments while in transit and may handle compliance requirements for global trade, such as international tariffs. While multinational enterprises were the primary users of transportation management systems in the past, cloud-based solutions have made these benefits more accessible to smaller companies.

* **Warehouse Management Systems**

A [warehouse management system](https://www.netsuite.com/portal/products/erp/warehouse-fulfillment/wms.shtml) helps a company optimize its use of warehouse space, schedule labor, manage inventory and fulfill orders. It can direct associates through the process of picking, packing and attaching shipping labels based on the [order picking method](https://www.apsfulfillment.com/warehousing-solutions/what-are-different-types-order-picking-methods-warehouse/) that’s most efficient for the organization.

* **Warehouse Control Systems**

Interfacing with a warehouse management system, a warehouse control system regulates equipment such as conveyor belts, sorters and scanners that can make inventory handling more efficient. A warehouse control system can monitor the status and performance of this equipment, as well.

* **Slotting**

Slotting software helps companies place items in the optimal location within a warehouse, so that workers can retrieve them with the greatest accuracy in the least amount of time. That could mean, for instance, putting popular items in a spot where they can be reached quickly or placing similar products in different locations to minimize errors.

* **Yard Management Systems**

A yard management system, paired with tracking technologies such as GPS and RFID, coordinates the movement of trucks, trailers and sometimes pallets of goods in the yards of manufacturing facilities, warehouses and distribution centers. These systems aid in optimizing the loading and unloading of goods—for instance, directing a truck to a specific warehouse door when its assigned shipment has been moved to a nearby staging area and is ready to go.

* **Labor Management Systems**

A labor management system helps companies schedule warehouse or manufacturing employees based on expected workloads to manage those resources efficiently. The system can track employee activity and productivity levels to control and monitor labor costs.

**Q: > SCE – Framework:--**

**Types of eCommerce Framework:-**

eCommerce frameworks come in three major variants to fit a specific business’s needs –

**1. Open-Source eCommerce Framework**

Open-source eCommerce frameworks allow users to access and modify the source code of their own software instance. This framework provides a high level of customization options to businesses.

The open-source framework is, hence, considered a good option for enterprise businesses having respective in-house teams of designers, developers, and website managers. Though there is no cost involved with the open-source eCommerce frameworks; they don’t include technical support as well.

Pros(advantage) of Open-Source eCommerce:-

* Limitless customization
* Active community for designers and developers

Cons(disadvantage) of Open-Source eCommerce:-

* You are solely responsible for the software and security patch update installations
* Reliability on developers for customization
* Hidden costs involved
* Softwares are usually complex

**2. SaaS eCommerce Framework**

Software as a Service platform or SaaS eCommerce platform is based on a subscription model. In this framework, the user prefers to subscribe to the software that is hosted, managed, and improved by the vendor, himself rather than buying the software.

This framework is recommended for fast-scaling businesses and the recurring pricing model also scales with the growing business. The benefit of working with SaaS frameworks is that it includes technical support too in your subscription plan. Thus reducing the need of hiring an in-house team of designers and developers.

Pros of SaaS eCommerce:-

* Real-time feature upgrades
* TCO (total cost of ownership) is less than open-source or headless frameworks
* Quick access to marketplaces
* Hosting, security, and maintenance costs are included

Cons of SaaS eCommerce:-

* Limited access to customization features and options

**3. Headless eCommerce Framework**

The headless commerce framework follows the composable architecture approach. This framework leverages a custom front-end with a dedicated eCommerce backend.

The drawback of working with this framework is that it is often complicated to develop and maintain websites. Yet, it is a recommended framework for businesses with very specific needs.

The best thing about the headless eCommerce framework is that it can be combined with either of the two frameworks – SaaS or open-source.

Pros of Headless eCommerce:-

* Flexibility to choose front-end from DXP (digital experience platforms) to PWAs, etc.
* Robust back-end to power multisite experience for multiple front-ends
* The decoupled architecture allows undergoing development without impacting the front-end

Cons of Headless eCommerce:-

* TCO is expectedly higher than SaaS and Open-source frameworks
* Need developer expertise due to complex architecture.

**Q: > Internet’s effect on Supply Chain Power:--**

E‐commerce is such a new phenomenon that little research has addressed the effects it has on relationships in supply chains. A qualitative study was conducted with eight e‐commerce companies in order to construct theoretical relationships with which to develop a grounded theory of the impact of e‐commerce on managing supply chain relationships.

The internet has had a significant effect on the power dynamics of supply chains in e-commerce. Here are some ways in which the internet has changed the game:

1. Increased transparency: With the internet, customers now have access to a wealth of information about products, prices, and suppliers. This increased transparency has led to a more level playing field in the supply chain, as buyers are now better able to compare and evaluate different suppliers and products.
2. Disintermediation: The internet has eliminated many of the middlemen that used to be necessary in the supply chain, such as wholesalers and distributors. This has given more power to manufacturers and retailers, who can now sell directly to consumers and have more control over the entire supply chain.
3. Real-time communication: The internet has made it much easier for suppliers to communicate with each other in real-time. This has led to faster and more efficient supply chain processes, as suppliers can quickly share information about inventory levels, shipping schedules, and other important data.
4. Increased competition: The internet has made it easier for new suppliers to enter the market and compete with established players. This has increased competition in the supply chain, forcing suppliers to be more efficient and competitive in order to survive.
5. Data-driven decision-making: The internet has made it easier for suppliers to gather and analyze data about their operations and customers. This has led to more informed decision-making in the supply chain, as suppliers can use data to optimize their processes, reduce costs, and improve customer satisfaction.

**CHAPTER -8**

**E – PAYMENT MECHANISM**

**Q: > Payment through card system, E – Cheque, E – Cash, E – Payment Threats & Protections:--**

**What is an eCheck?**

eChecks, also called electronic checks, are an **alternative to paper checks**, designed to **process payments digitally**. eChecks use the same information you’d find on a traditional paper check, like your bank account number and your bank’s routing number, to send funds. Electronic checks are sometimes called ACH payments, ACH transfers, or direct debit.

**What Advantages eChecks Offers:-**

* Increase in sales thanks to expanded payment options
* An eco-friendly way transfer and receive funds
* Cost effectiveness as compared to credit cards and physical checks
* Reduced processing costs by over 60%
* Faster payment processing as compared to traditional paper checks
* Fewer errors thanks to the electronic automated process
* Greater reliability provided by the ACH processor for managing direct deposits in bank accounts
* Reduced fraud
* Authentication
* Duplicate detection
* Encryption

**The drawbacks of eChecks:-**

* Slower processing time

As we covered earlier in this post, it usually takes between 3 and 6 business days for eChecks to process in full. Other payment types, like debit and credit card payments, are typically posted much faster, between 1 and 3 days.

* Unfamiliar to some customers

Most customers are familiar with debit and credit card transactions that use ACH, but fewer are familiar with eChecks. Depending on your customer base, it may be challenging to transition to eChecks, but more options also expand your possibilities for doing business, which is never a bad thing.

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**Defining eCash:-**

In its simplest form, eCash can be defined as electronic cash. It’s a way of paying for goods and services that isn’t in physical cash. There are two forms of eCash, an online form and an offline form.

**Online eCash**

The term eCash was originally used by a company called DigiCash, founded by David Chaum. DigiCash went bankrupt in 1998. The idea of eCash, however, lived on. It was the idea that started online transactions, as well as cryptocurrency. It worked for all types of transactions.

With online eCash, information regarding currency is downloaded to a hard drive. It stays there until it is transferred to another person or business online. This is the basis of cryptocurrency, in a very simple way.

**Offline eCash**

The idea behind offline eCash has its roots in credit cards and debit cards. Offline eCash would function similarly to a debit card. Funds from a hard drive would be linked to a digitally encoded card. This card would replace paper money (like a debit card). However, the main difference here is that physical money no longer exists to begin with. With a debit card, physical money is still present, in a way.

**What Are the Benefits of Using eCash?**

**Globalization**

The world is more connected than ever. As such, we have the ability to purchase services and goods from around the globe. This isn’t always the easiest thing to do online. Currently, you have to seek out a way to make online transactions in countries different from your own. Not all payment methods are accepted. The use of eCash could solve that.

**Sensible Transaction Fees**

When you make a purchase online using a credit card, it’s likely that the merchant is absorbing fees. To process credit cards and debit cards, most businesses have to pay monthly fees for the service. If eCash were to be made more widely available, these processing fees could be avoided altogether. This would allow cheaper items to be sold online. It would also mean that more money is being saved by consumers and businesses alike.

**Smart Card Utilization**

Smart cards are a hot topic when discussing eCash. These forms of payment would house all of the currency on them, like a wallet holds physical cash. Then, when payments are made, the data can be updated or transferred. When you go home, you then upload the electronic cash back to your hard drive until it’s ready to be used again. Smart cards would eliminate the need to carry different currencies when traveling internationally. Different forms of electronic currency could be loaded to them.

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**What is Electronic Payment and Its Types?**

E-payments are an electronic or digital way of transferring funds. Essentially, you can utilise electronic payment methods to transfer funds as an alternative to cash payments. In India, you can access various types of electronic payment methods based on your requirements.

The various types of e-payment include credit and [debit cards](https://www.dbs.com/digibank/in/cards/debit-cards/digibank-debit-card), mobile wallets, UPI, internet and mobile banking, and many more. You simply require a bank account and an internet-enabled device to leverage e-payment solutions and pay for various products and services.

Advantages of e-Payment?

* Time-Saving

E-payments enable you to make purchases with a simple tap or swipe. Transactions are processed and completed within a couple of minutes.

* Efficient

With electronic payment systems, you do not have to wait in long queues at ATMs or bank branches to withdraw cash. The lines at checkout counters are also shorter, with each transaction taking less time.

* Cashless Economy

Another advantage of e-payments is that it helps build a cashless economy, especially in the urban areas of the country, by reducing the reliance on cash.

* Security

Cash transactions bring their own set of risks, such as robbery, misplacement, or other similar incidents. However, electronic payment systems come equipped with security protocols that ensure the safety of your funds. Banks use highly secure practices like two-factor authentication, PIN (Personal Identification Numbers) and OTPs (One Time Passwords) to protect your funds from thefts or fraudulent activities.

* Certainty

The payments made using e-payment methods reflect in your bank statement or digital wallets. You also receive instant e-mails and SMS alerts after every transaction.

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**Important Threats and Protection:-**

**1. Financial frauds**

Ever since the first online businesses entered the world of the internet, financial fraudsters have been giving businesses a headache. There are various kinds of financial frauds prevalent in the e-commerce industry, but we are going to discuss the two most common of them.

* Credit Card Fraud
* Fake Return & Refund Fraud

**2. Phishing**

Several e-commerce shops have received reports of their customers receiving messages or emails from hackers masquerading to be the legitimate store owners. Such fraudsters present fake copies of your website pages or another reputable website to trick the users into believing them. For example, see this image below.

**3. Spamming**

Some bad players can send infected links via email or social media inboxes. They can also leave these links in their comments or messages on blog posts and contact forms. Once you click on such links, they will direct you to their spam websites, where you may end up being a victim.

**4. DoS & DDoS Attacks**

Many e-commerce websites have incurred losses due to disruptions in their website and overall sales because of [DDoS (Distributed Denial of Service)](https://www.getastra.com/blog/knowledge-base/ddos-attack/" \t "_blank) attacks. What happens is that your servers receive a deluge of requests from many untraceable IP addresses causing it to crash and making unavailable to your store visitors.

**5. Malware**

Hackers may design a malicious software and install on your IT and computer systems without your knowledge. These malicious programs include spyware, viruses, trojan, and ransomware.

**6. Bots**

Some attackers develop special bots that can scrape your website to get information about inventory and prices. Such hackers, usually your competitors, can then use the data to lower or modify the prices in their websites in an attempt to lower your sales and revenue.

**CHAPTER-9**

**E – MARKETING**

**Q: > Home –shopping, E-Marketing, Tele-marketing :--**

**What Is E-Marketing?**

E-marketing is the marketing of goods and services through the internet.

It makes it easy for businesses to reach a wide range of potential customers due to the large number of people using the internet today.

**Types of E-Marketing**

E-marketing can be broken down into eight main categories:

* Search engine optimization (SEO)
* Pay-per-click (PPC)
* Social media marketing
* Content marketing
* Email marketing
* Mobile marketing
* Affiliate marketing
* Influencer marketing

**1. Search Engine Optimization (SEO)**

SEO helps you achieve organic (non-paid) traffic from search engines like Google. Organic results appear underneath paid results on the search results page:

The goal of an SEO strategy is to rank as highly on the search results page as possible. That way, potential customers will see your page first.

**2. Pay-Per-Click (PPC)**

Pay-per-click advertising is a digital method where an advertiser pays a publisher every time the ad is clicked. What differentiates pay-per-click from SEO is that you have to pay for the results.

When planned strategically, PPC advertising can increase traffic to a specific page or site.

The cost of running an ad or promoting your search results will vary depending on how competitive your keywords are. A keyword with high competition will likely cost more, while a low-competition keyword will likely cost less.

**3. Social Media Marketing**

Social media marketing includes everything a business does through its social media channels to promote its products or services.

A successful social media marketing strategy requires engaging posts, interaction with the audience, and consistency.

**4. Content Marketing**

[Content marketing](https://www.semrush.com/blog/content-marketing-strategy-guide/) is a type of e-marketing that focuses on creating, publishing, and distributing content for an online targeted audience.

The purpose of content marketing is to increase brand awareness through storytelling and information sharing and to get the reader to take action toward becoming a customer, like requesting more information or joining an email list.

**5. Email Marketing**

In email marketing, businesses send out emails to contacts informing them about products, services, sales, content, etc. Its high return on investment (ROI) is a vital part of most businesses’ inbound strategy.

Sending out mass emails that “fit all” to your contacts is easy but no longer effective. Modern email marketing focuses on consent, segmentation, and personalization. You can build a community around your brand through a well-designed email marketing strategy.

**6. Mobile Marketing**

In mobile marketing, websites, e-mail, SMS, MMS, social media, and apps are used to reach a target audience through smartphones, tablets, and other mobile devices.

Some examples include:

* Promotions sent through text messages (SMS marketing)
* Promotions sent through instant messaging or chat platforms
* Promotions sent through push notifications
* In-app advertisements
* Mobile banner ads

**What Is Telemarketing?**

Telemarketing is the [direct marketing](https://www.investopedia.com/terms/d/direct-marketing.asp) of goods or services to potential customers over the telephone, internet, or fax. Telemarketing may either be carried out by telemarketers or increasingly by automated telephone calls or "robocalls."

KEY TAKEAWAYS

* Telemarketing is the direct marketing of goods or services to potential customers over the telephone or the internet.
* Four common kinds of telemarketing include outbound calls, inbound calls, lead generation, and sales calls.
* Due to the intrusive nature of telemarketing, including spam calls, many customers are against it.
* Countries such as the U.S. and Canada have federal "Do Not Call" lists where individuals can register their phone numbers to avoid telemarketing calls.

**Types of telemarketing**

Below is a list of some common types of telemarketing strategies:

* **Inbound telemarketing:**This approach involves responding to incoming telephone calls or customer messages about goods or services. These customers are often familiar with the company, have shown interest in its products and have seen its advertisements.
* **Outbound telemarketing:**Outbound telemarketing focuses on contacting potential customers to generate leads and close sales. Sales agents may call prospects whether they've previously expressed interest in the brand.
* **Lead generation:**This occurs when a sales representative gathers data about a group of potential customers, such as their interests or demographics. This can help the sales associate determine the most profitable [customer segments](https://www.indeed.com/career-advice/career-development/multiple-segment-specialization) and customize their approach when contacting prospects.
* **Sales:**Sales is contacting a potential customer to sell them a product by persuading them and collecting payment information.

**CHAPTER-10**

**ELECTRONIC DATA INTERCHANGE (EDI)**

**Q: >EDI Meaning, Benefits, Concepts, Application:--**

Electronic Data Interchange (EDI) is a computer-to-computer exchange of business documents in a standard electronic format between two or more trading partners. It enables companies to exchange information electronically in a structured format, eliminating the need for manual data entry and reducing the cost and time associated with paper-based transactions.

Electronic Data Exchange is the direct exchange of data and important business documents through the Internet and in a very professional manner. Two different companies sitting at the extreme corners of the world can very easily interchange information or documents (like sales orders, shipping notices, invoices, etc) with the help of EDI.

**Uses of EDI :**

EDI is widely used in various industries for exchanging business documents electronically. Some of the common uses of EDI are:

* **Order Processing:**EDI allows companies to exchange purchase orders and sales orders electronically, eliminating the need for manual data entry and reducing errors.
* **Invoicing:**EDI can be used to exchange invoices electronically, reducing the time and cost associated with paper-based invoicing.
* **Shipping and Receiving:** EDI can be used to exchange shipping notices and receiving documents, enabling companies to track the movement of goods in real-time.
* **Inventory Management:**EDI can be used to exchange inventory information, enabling companies to manage their inventory levels more effectively.
* **Supply Chain Management:**EDI is used extensively in the supply chain management process, enabling companies to exchange information with their suppliers, distributors, and customers.
* **Healthcare:**EDI is used in the healthcare industry to exchange patient data, claims, and other healthcare-related information between healthcare providers, insurance companies, and government agencies.
* **Financial Transactions:** EDI can be used to exchange financial transactions such as payment advice and remittance advice, reducing the time and cost associated with manual payment processing.

**Advantages of EDI:**

There are several advantages to Electronic Data Interchange:

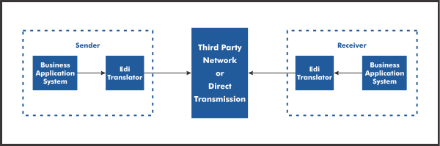
* **The paper usage reduced:**The expense of storing, printing, recycling, reduces up to the maximum amount due to the EDI.
* **Improved quality of Data:**The data entry errors are reduced due to EDI.
* **Speed Increases:**The best advantage is the increase in the speed of the data interchange. With everything going online, the speed of the information transfer increases exponentially.
* **Security:**By following the Protocols and the standard rules, the security of all the important documents is always secure and safe.
* **Information accuracy:**Since the information exchanged is based on standards agreed by the sender and receiver both, the correct information is always transferred regardless of where they belong to.
* **Less Cost:**With very less errors, fast response time, every thing becoming automated, and no use of paper, the cost automatically reduces.

**Disadvantages of EDI:**

* The initial setup of the EDI is very Time-consuming.
* EDI standards keep on changing after some amount of time.
* A very systematic and proper back up is required as the entire data relies on EDI.
* The setup and maintenance of the EDI is very Expensive.

**Q: > EDI Model:--**

The basic process of EDI-based transactions is the same as their manual. The only difference that EDI makes is that its transactions are done electronically, and data packets are formatted according to the standards of EDI. The following figure describes the basic process of the EDI model:



* In EDI model, firstly the sender must generate the application file using its business application system. This file contains the processed documents. The document sent by the sender has to be translated into an agreed EDI standard format. The process of translating EDI documents into EDI standard format is called mapping.
* The translation software uses this mapping to translate the transaction of EDI so that it can easily understand by the receiving organization.
* The document file is sent electronically either through a value-added network using EDI software, a web-based EDI tool, or outsourcing with an EDI service provider.
* The trading partner receives the file. The receiver translates the file from the EDI standard format to a file usable by their Business Application Software.
* An acknowledgement document is generated to the originating organization.

**EDI Documents:**

The most common documents exchanged via EDI model are:

* Invoices
* Purchase Orders
* Financial Information letters
* Transaction Bills
* Shipping requests and notifications
* Acknowledgement and Feedback
* Transcripts
* Claims
* Business Correspondence letters

**EDI Users:**

* Central and state government agencies
* Industry
* Banking
* Retailing
* Manufacturing
* Insurance
* Healthcare
* Automotive
* Electronics
* Grocery
* Transportation

**Q: > Protocols (UN EDI FACT / GTDI, ANSI X – 12):--**

**UN EDI FACT:-**

UN/EDIFACT (the United Nations rules for Elec­tronic Data Interchange for Administration, Commerce and Transport) comprise a set of internationally agreed standards, directo­ries, and guidelines for the electronic interchange of structured data, between independent computerized information systems.

**The EDIFACT standard provides:**

* a set of syntax rules to structure data
* an interactive exchange protocol (I-EDI)
* standard messages which allow multi-country and multi-industry exchange

UN/EDIFACT is a global standard for electronic data interchange (EDI) that defines a set of rules and guidelines for the exchange of electronic business documents between organizations. Here are some of the key rules of the UN/EDIFACT protocol:

1. Syntax rules: UN/EDIFACT has a specific syntax for structuring electronic documents, which consists of segments, data elements, and composites. Each segment has a specific identifier, and the data elements within a segment have a defined position and format.
2. Message types: UN/EDIFACT defines a number of standard message types for different types of business documents, such as purchase orders, invoices, and shipping notices.
3. Data elements: UN/EDIFACT specifies a set of standard data elements for each message type, which must be used when exchanging electronic documents. Each data element has a unique code and a specific format.
4. Interchange control structure: UN/EDIFACT requires the use of an interchange control structure to manage the exchange of electronic documents between organizations. This structure includes a header and a trailer segment, which provide information about the sender and recipient of the message, as well as the type and version of the message.
5. Code lists: UN/EDIFACT uses standardized code lists to ensure consistency and accuracy in the exchange of data. These code lists define a set of codes that can be used for specific data elements, such as currency codes or country codes.
6. Security: UN/EDIFACT provides a number of security features to protect the confidentiality, integrity, and availability of electronic documents during transmission. These features include encryption, digital signatures, and authentication.
7. Implementation guidelines: UN/EDIFACT provides implementation guidelines that provide detailed instructions on how to implement the protocol for specific business processes and industries. These guidelines help to ensure that electronic documents are exchanged correctly and efficiently.

**GTDI, ANSI X – 12:-**

GTDI (Global Trade Item Number Data Structure) and ANSI X12 (American National Standards Institute - Electronic Data Interchange for Administration, Commerce, and Transport) are two separate standards used for electronic data interchange (EDI) in business transactions. Here are some key points about each standard:

**GTDI:**

* GTDI is a data structure used to identify and describe trade items, such as products or services, in a standardized way.
* It is a component of the GS1 System, which is a global standard for supply chain management.
* GTDI provides a unique identification number, known as a Global Trade Item Number (GTIN), for each trade item, which is used in electronic transactions between businesses.
* GTDI also includes other data elements that describe the trade item, such as its brand name, manufacturer, and packaging.

**ANSI X12:**

* ANSI X12 is a set of standards for electronic data interchange (EDI) developed by the American National Standards Institute (ANSI).
* It defines a standardized format for exchanging business documents electronically between organizations, such as purchase orders, invoices, and shipping notices.
* ANSI X12 includes a set of transaction sets, each of which represents a specific business document or process.
* Each transaction set consists of a series of segments, which contain data elements that describe the contents of the document or process.
* ANSI X12 also includes rules for syntax, control, and security to ensure the accuracy and reliability of electronic transactions.

In summary, GTDI and ANSI X12 are two separate standards used in electronic data interchange, with GTDI focused on identifying and describing trade items, and ANSI X12 focused on defining a standardized format for exchanging business documents between organizations.

**Top of Form**

**Q: > Data Encryption (DES / RSA):--**

Data Encryption is the process of transforming plain text or data into a coded form (cipher text) to secure it from unauthorized access. Two commonly used encryption algorithms are DES (Data Encryption Standard) and RSA (Rivest-Shamir-Adleman).

DES is a symmetric key encryption algorithm that uses a single key for both encryption and decryption. It was widely used in the 1980s and 1990s but has since been replaced by more advanced encryption algorithms. DES uses a 56-bit key to encrypt data in blocks of 64 bits. The algorithm performs a series of substitutions and permutations on the plain text to produce the cipher text.

RSA is an asymmetric key encryption algorithm that uses two keys, a public key and a private key. The public key is used to encrypt data, and the private key is used to decrypt it. RSA is based on the mathematical problem of factoring large numbers, which is believed to be computationally infeasible for large enough numbers. RSA uses keys that are typically 1024, 2048, or 4096 bits long.

The main difference between DES and RSA is that DES uses a symmetric key, meaning the same key is used for both encryption and decryption, while RSA uses an asymmetric key, meaning a different key is used for encryption and decryption. Another difference is the key length, with RSA using longer keys for stronger encryption.

**DES (Data Encryption Standard)**

Advantages:

* DES is a widely used and well-established encryption standard, which means that it is supported by many hardware and software implementations.
* DES is a fast and efficient encryption algorithm, which makes it well-suited for applications that require high-speed encryption and decryption.
* DES has a relatively small key size, which means that it requires less storage space than other encryption algorithms.

Disadvantages:

* The small key size of DES makes it vulnerable to brute-force attacks, where an attacker tries every possible key to decrypt the cipher text.
* DES has been largely replaced by newer encryption standards, such as AES (Advanced Encryption Standard), which offer stronger security and larger key sizes.
* DES is a symmetric key encryption algorithm, which means that the same key is used for both encryption and decryption. This can make key management more challenging in certain applications.

**RSA (Rivest-Shamir-Adleman)**

Advantages:

* RSA is an asymmetric key encryption algorithm, which means that it offers stronger security than symmetric key encryption algorithms like DES.
* RSA can be used for both encryption and digital signatures, which makes it a versatile encryption standard for a wide range of applications.
* RSA is based on the mathematical problem of factoring large numbers, which is believed to be computationally infeasible for large enough numbers. This means that RSA offers strong protection against brute-force attacks.

Disadvantages:

* RSA is generally slower and less efficient than symmetric key encryption algorithms like DES, which can make it less suitable for applications that require high-speed encryption and decryption.
* RSA requires larger key sizes than symmetric key encryption algorithms to provide strong security, which can make key management more challenging and require more storage space.
* RSA is vulnerable to certain types of attacks, such as side-channel attacks, which can leak information about the key through physical means like power consumption or electromagnetic emissions.

**CHAPTER-11**

**RISK OF E – COMMERCE**

**Q: > Overview:--**

E-commerce has become a popular way for businesses to sell products and services to customers. However, there are several risks associated with e-commerce that businesses should be aware of:

1. Security risks: E-commerce transactions involve the exchange of sensitive information such as credit card details, personal information, and login credentials. There is a risk of this information being intercepted by hackers or cybercriminals, which can result in financial losses and damage to the business's reputation.
2. Fraudulent activities: E-commerce platforms are susceptible to fraudulent activities such as chargebacks, identity theft, and fake orders. This can result in financial losses, legal liabilities, and damage to the business's reputation.
3. Delivery issues: E-commerce transactions involve the shipment of goods to customers. There is a risk of goods being lost, damaged, or delayed during transit. This can result in customer dissatisfaction and negative reviews.
4. Technical issues: E-commerce platforms can face technical issues such as website downtime, slow loading speeds, and payment gateway errors. These issues can result in lost sales, customer frustration, and damage to the business's reputation.
5. Regulatory compliance: E-commerce businesses must comply with various laws and regulations such as data protection laws, consumer protection laws, and tax laws. Failure to comply with these regulations can result in legal liabilities, fines, and damage to the business's reputation.

**Q: > Security for E – Commerce:--**

**What is eCommerce or electronic commerce security?**

* Privacy
* Integrity
* Authentication
* Non-repudiation

**1. Privacy**

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

**2. Integrity**

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

**3. Authentication**

The principle of authentication in eCommerce security requires that both the seller and the buyer should be real. They should be who they say they are. The business should prove that it is real, deals with genuine items or services, and delivers what it promises. The clients should also give their proof of identity to make the seller feel secure about the online transactions.

**4. Non-repudiation**

Repudiation means denial. Therefore, non-repudiation is a legal principle that instructs players not to deny their actions in a transaction. The business and the buyer should follow through on the transaction part that they initiated. eCommerce can feel less safe since it occurs in cyberspace with no live video. Non-repudiation gives eCommerce security another layer.

**Q: > Security Standards, Firewall, Cryptography, Key Management, Password Systems, Digital certificates, Digital signatures:--**

**Security Standards:-**

Security standards are guidelines and best practices that organizations follow to secure their systems and data. Some of the popular security standards are ISO/IEC 27001, NIST SP 800-53, and PCI-DSS. These standards help organizations to identify and manage their security risks, and to implement controls to protect their systems and data from various threats.

**Firewall:-**

A firewall is a network security device that monitors and controls incoming and outgoing traffic based on a set of rules. It acts as a barrier between an internal network and the internet or other external networks. Firewalls can prevent unauthorized access to a network, block malware, and filter out unwanted traffic.

**Cryptography:-**

Cryptography is the science of securing information using mathematical algorithms. It involves techniques such as encryption, decryption, hashing, and digital signatures. Cryptography is used to protect sensitive information during transmission and storage.

**Key Management:-**

Key management is the process of generating, storing, distributing, and revoking cryptographic keys. It involves managing the entire lifecycle of a cryptographic key, including key generation, distribution, and destruction. Key management is critical to the security of cryptographic systems.

**Password Systems:-**

Password systems are used to authenticate users and control access to computer systems and networks. They typically involve users providing a username and password to gain access. Passwords should be strong, unique, and kept confidential. Organizations should also implement policies to enforce password complexity and change frequency.

**Digital certificates:-**

Digital certificates are electronic documents that are used to verify the identity of a person, organization, or device. They contain information such as the name of the entity, the public key, and the certificate issuer. Digital certificates are commonly used in SSL/TLS encryption to secure online transactions.

**Digital signatures:-**

A digital signature is a cryptographic technique used to verify the authenticity and integrity of a digital document or message. It involves the use of a private key to sign a document or message, and a public key to verify the signature. Digital signatures are commonly used in electronic transactions to provide a level of trust and security.

**CHAPTER -12**

**ENTERPRISE RESOURCE PLANNING (ERP)**

**Q: > Features, capabilities and Overview of Commercial Software;--**

Commercial software refers to software that is developed and sold by a company for profit. This type of software can be used by individuals, businesses, and organizations for various purposes. Here are some features, capabilities, and an overview of commercial software:

**Features:**

* Commercial software is usually developed by a team of professional developers and goes through rigorous testing before being released to the market.
* It often comes with technical support and regular updates to fix bugs, add new features, and improve performance.
* Commercial software is typically licensed for use by a specific number of users or on a specific number of devices.
* It may have more features and capabilities compared to open-source or freeware software, as the company has invested time and resources in its development.

**Capabilities:**

* Commercial software can be used for a wide range of tasks, including word processing, data analysis, accounting, project management, and graphic design.
* It may offer features such as cloud storage, collaboration tools, and mobile compatibility.
* Some commercial software may have advanced features, such as machine learning algorithms or data encryption capabilities.
* Commercial software can be customized to suit the specific needs of the user or organization.

**Overview:**

* Commercial software is often sold through retail stores, online marketplaces, or directly from the software company's website.
* It is usually priced based on the number of users, the number of devices, or the level of functionality.
* Commercial software can be used by individuals, small businesses, and large organizations.
* It is typically supported by a dedicated technical support team, who can provide assistance with installation, configuration, and troubleshooting.
* Many commercial software vendors offer free trial periods to allow users to test the software before purchasing it.

**Q: > Re-engineering work processes for IT applications, Business Process Redesign, Knowledge engineering and data warehouse:--**

**Re-engineering work processes for IT applications:-**

Re-engineering work processes involves analyzing and redesigning existing processes to improve efficiency, reduce costs, and increase productivity. This process can involve the implementation of new IT applications or the re-engineering of existing IT applications. The goal is to streamline business processes and improve the overall performance of the organization.

**Business Process Redesign:-**

Business Process Redesign (BPR) is the analysis and redesign of business processes to improve efficiency, reduce costs, and increase customer satisfaction. BPR typically involves the use of IT applications to automate and streamline business processes. BPR may also involve a complete overhaul of the organization's business model to better align with its goals and objectives.

**Advantages of BPR :** Following are the advantages of BPR :

1. BPR offers tight integration among different modules.
2. It offers same views for the business i.e. same database, consistent reporting and analysis.
3. It offers process orientation facility i.e. streamline processes.
4. It offers rich functionality like templates and reference models.
5. It is flexible.
6. It is scalable.
7. It is expandable.

**Disadvantages of BPR :** Following are the Disadvantages of BPR :

1. It depends on various factors like size and availability of resources. So, it will not fit for every business.
2. It is not capable of providing an immediate resolution.
3. While Business Process Re-engineering (BPR) can have many potential benefits, there are also several disadvantages that organizations should consider before embarking on a BPR initiative. Some of the key disadvantages of BPR include:
4. High costs: Implementing BPR can be a costly and time-consuming process, requiring significant investment in resources, including technology, training, and consulting fees. This can be a significant barrier for small or cash-strapped organizations.
5. Resistance to change: Implementing BPR can be a difficult and complex process that requires significant changes to an organization’s culture, processes, and people. Employees may resist the changes, especially if they feel their job security is at risk, leading to decreased morale and increased turnover.
6. Risk of failure: BPR is a high-risk strategy that can fail if not implemented properly. The failure to gain employee support, lack of a clear strategy, or poor planning can all lead to a BPR initiative’s failure.
7. Disruption to operations: Implementing BPR can disrupt the day-to-day operations of the organization, leading to decreased productivity, customer dissatisfaction, and revenue loss.

**Knowledge engineering:-**

Knowledge engineering involves capturing, organizing, and codifying knowledge in a way that makes it accessible to a computer system. This process involves the use of AI and machine learning algorithms to extract knowledge from unstructured data sources such as text documents, social media feeds, and web pages. The goal is to create a knowledge base that can be used to improve decision-making processes and automate routine tasks.

**Data warehouse:-**

A data warehouse is a centralized repository of data that is used for reporting, data analysis, and business intelligence. Data is extracted from multiple sources, transformed into a common format, and stored in the data warehouse. Data warehouses are designed to support complex queries and analytical processing, and they can provide a unified view of the organization's data. Data warehouses can help organizations to identify trends, gain insights, and make informed decisions based on data-driven analysis.

**Q: > Business Modules: Finance, Manufacturing (Production), Human Resources, Plant Maintenance, Materials Management,**

**Quality Management, Sales & Distribution ERP Package:--**

**Q: > ERP Market: ERP Market Place, SAP AG, PeopleSoft, BAAN, JD Edwards:--**

The ERP (Enterprise Resource Planning) market is a highly competitive and constantly evolving industry with various players in the market, including ERP marketplaces and software vendors such as SAP AG, Oracle, Microsoft Dynamics, Infor, and many more. Some of the well-known ERP market players are:

1. ERP Marketplaces: ERP marketplaces are online platforms that enable businesses to discover, evaluate, and purchase ERP software from various vendors. Some popular ERP marketplaces include Capterra, Gartner, SoftwareAdvice, and GetApp.
2. SAP AG: SAP AG is one of the leading ERP software vendors in the market, providing a wide range of ERP solutions to businesses of all sizes. SAP's ERP software suite includes modules for finance, human resources, supply chain management, and many other functions.
3. PeopleSoft: PeopleSoft is an ERP software suite developed by Oracle Corporation that provides various applications for human resources, financial management, supply chain management, and customer relationship management.
4. BAAN: BAAN is an ERP software vendor that provides various solutions for manufacturing, logistics, financial management, and supply chain management. It was acquired by Infor in 2003.
5. JD Edwards: JD Edwards is an ERP software suite that provides solutions for financial management, supply chain management, manufacturing, and human resources. It was acquired by Oracle Corporation in 2005.

The ERP market is driven by factors such as the need for real-time data access, increased automation, and the growing demand for cloud-based ERP solutions. As businesses continue to embrace digital transformation, the ERP market is expected to continue to grow and evolve with new players and innovations.

**Q: > Oracle Corporation ERP-Present and Future: Enterprise Application Integration (EAI):--**

**What is EAI?**

Enterprise application integration (EAI) is the task of uniting the [databases](https://www.techtarget.com/searchdatamanagement/definition/database) and [workflows](https://www.techtarget.com/searchcio/definition/workflow) associated with [business applications](https://www.techtarget.com/searchsoftwarequality/definition/application) to ensure that the business uses the information consistently and that changes to core business data made by one application are correctly reflected in others.

**Types of enterprise application integration**

An EAI implementation depends on the underlying project tools and goals, but several common design paradigms have emerged.

**Point-to-point integration.**This is the simplest form of EAI. In it, data is taken from one source, perhaps reformatted, and then ingested by the next application. These are often simple to implement for small workflows and a few tools. They can quickly grow large and difficult to manage as more applications and integrations are added, however, and can become slow as a backlog or slowdown in one system affects others in the line.

**Hub-and-spoke integration.** This approach uses a central program to facilitate the data and steps between the participation applications. The program can handle the data reformatting and keep workflows moving in the event of an application slowdown. Hub-and-spoke is therefore faster and more reliable than point-to-point but requires development time and effort to set up and maintain.

**Bus integration.**This is an evolution of hub-and-spoke design EAI. It is also called an enterprise service bus ([ESB](https://www.techtarget.com/searchapparchitecture/definition/Enterprise-Service-Bus-ESB)). In a common bus design, all participating applications use a set of standards to send and receive data or workflows. This allows for quick and easy integration but requires work during the planning and product selection phase.

**Middleware integration**. This involves an intermediary program that sits between the end user and the underlying application. Middleware supports interface integration and may have an underlying hub-and-spoke or bus design.

**Microservices.**These are small, single-purpose tools that support EAI initiatives. These can be serverless functions or dedicated apps designed to integrate easily or quickly connect programs. Microservices can often be easily offloaded as cloud workloads.

**Q: > ERP and E-Commerce:--**

E-Commerce is a business model that allows to buy and sell goods and services over the internet. It is also known as Electronic Commerce and Internet Commerce. Also, the Transaction of money, funds are also considered as part of E-Commerce.

**Types of E-Commerce:**

There are basically [4 main types of e-commerce models](https://www.geeksforgeeks.org/e-commerce-and-security-threats-to-e-commerce/) that can describe almost every transaction that takes place between consumers and businesses.

* Business to Consumer(B2C): When a good or service is sold to an individual consumer by a business, e.g., we buy a pair of shoes from an online retailer.
* Business to Business(B2B): When a good or service is sold by a business to another business, e.g., a software-as-a-service is sold by a business for other businesses to use.
* Consumer to Business(C2B): When a consumer’s own products or services is sold to a business or organization, e.g., an authority offers exposure to their online audience in exchange for a fee or a photographer licenses their photo for a business to use.
* Consumer to Consumer(C2C): When a good or service is sold by a consumer to another consumer, e.g., we sell our old furniture on eBay to another consumer.

**Types of ERP:**

An ERP system is a modular application that contains various tools for different business processes. Let’s see the most important ERP system modules:

* **On-Premise ERP:**On-premise ERP solutions are installed locally on your computer’s hardware and servers and then managed by your IT Staff.
* **Cloud ERP:**It is also called SaaS, or Software-as-a-Service- is provided as a service. In this type of deployment, a company’s software and its associated data are managed centrally by the ERP vendor and are accessed by customers using a web browser.

| **ERP** | **E-Commerce** |
| --- | --- |
| ERP Stands for Enterprise Resource Planning. | E-commerce Stands for Electronic-Commerce. |
| ERP comprises the selling of ERP systems to various organizations and companies. | E-commerce comprises with selling and buying of goods and services over the internet. |
| ERP system is created by vendors that are ordered by some organization. After purchase, the organization can use it. | E-Commerce is available free to use. It only cost that things that are bought online. |
| Less user-friendly on the mobile system. | More user-friendly on the mobile system. |
| One particular ERP system is limited to just an Organization, company, etc. | Everyone can access E-commerce. |
| Example: SAP, Oracle, PeopleSoft, etc. | Example: Flipkart, Amazon, Paytm, etc. |
| Types of ERP:   * Cloud-Based ERP * Server Based ERP | Types of E-Commerce:   * Business to Consumer(B2C) * Business to Business(B2B) * Consumer to Business(C2B) * Consumer to Consumer(C2C) |
| It basically deals with Business to Business where One Business will sell their product (i.e. ERP) to other businesses. | It deals with all i.e. B2B, B2C, C2B, C2C. |
| Data in ERP is more Secure as it is limited to only a particular organization. | Data is available like Price, Rating, products, etc. freely due to this everyone can copy from it which decrease its security level. |
| Many ERP systems provide Business intelligence features due to this data analysis become easy. | E-Commerce doesn’t provide Business intelligence Services to the Customers. |
| Many ERP platforms offer built-in reports such as cash flow and income, so they can be generated without any IT assistance. | E-Commerce Platform only has reporting capabilities on Marketing and Sales. In order to require more facilities, IT assistance is required. |
| Automation occurs in ERP. For Example: If an employee wants to print some important documents, but he is far away from the printer, so he can automate this task easily. | Automation cannot occur in E-Commerce. |
| If a can of any fault in ERP, the organization gives feedback to the ERP vendor, and they will surely correct that fault in the ERP System. | If users can face any fault then they will provide feedback for their problems, but it is not sure that those who provide an E-Commerce facility will solve the issue. |
| ERP System ties together with various business functions. | E-Commerce Focuses only on the User or Customer’s |
| When an organization wants to update its ERP, ERP Vendor will cost charges to the organization. | E-Commerce System is Updated freely for the Users. |
| All the Data of an Organization in ERP systems is Analyzed by them. | All Data of User are analyzed by Producer of E-Commerce System and on the basis of this Product Recommendation and other stuff is shown to the user according to their past data. |
| ERP System supports credit limits or net terms. | E-Commerce Platforms don’t support credit limits or net terms. |

**Q: > ERP and Internet:--**

**1.**[**ERP System**](https://www.geeksforgeeks.org/introduction-to-erp/)**:**  
ERP System is a kind of Software tool which is used to manage data of an Enterprise or an Organization. ERP System is a single System which manages Human Resource, Product Management, Inventory management , Material Management, Order Processing etc.

**2.**[**Internet**](https://www.geeksforgeeks.org/the-internet-and-the-web/)**:**  
An Internet is a global wide area network that connect computer system across the world. It is a system of Interconnected computer network that uses Internet Protocol suite (TCP/IP) to communicate between devices.

**Integration of ERP and Internet :**  
Integration of ERP and Internet provide the best benefit to the organizations. It makes it easier to share information and communicate across the entire organization and to the other organization.

**Benefits of ERP Integration :**

* With the help of Internet , Paper based system is replaced with shared resource’s computer system.
* Data is Captured only at Once.
* A Single Copy of Data is stored in such a way that all authorized user’s can be accessed it easily.
* Allow Selection and Manipulation of Data in a variety of Ways to suit the need of different groups in an organization.

**Disadvantage of Internet on ERP :**

* User get more choices due to this some ERP Marketplace will suffer.
* Competition among various marketplace become more harder.

**Q: > Future Directions in ERP:--**

**Enterprise Resource Planning(ERP)** is the practice of consolidating an Enterprise’s planning, manufacturing, sales, and marketing efforts into one management system. It combines all databases across the department into a single database that can be accessed by employees of the organization.

**Future of ERP:**

**1. Increased Demand of ERP as Now:**

* As the time fleet, the new generation wants to focus more on starting the startup as compared to working as an Employee due to this the demand for ERP systems will rise.
* At the same point, the pressure of ERP vendors will increases because they have to meet the requirements of users and provide a user-friendly ERP system.
* As more user-friendly ERP is manufactured by vendor’s it results in using new and advantage technology which will satisfy both users and vendors**.**

**2. Implementation of IoT in ERP:**

* As new technology arises, every ERP vendor will try to use new technology in order to become top in the market as well as meets the user requirement. So In future use of IoT in ERP exist where an employee can automate, link, and sync the various things and handle through their ERP modules provided to them.
* For example -In a University, if a teacher wants to send Marks detail and feedback to both Parents and Teachers instead of sending through mail one by one. The teacher can mail it to the student, parents and print it at the same time with one click.

**3. Shifting to Cloud-Based ERP:**

* As in today’s world most of the ERP marketplace using a Server for the ERP database. The future of ERP will be Shifted to Cloud because as the demand for ERP increases it becomes more difficult to store data in Servers because a large amount of data is less secured in the server due to fear of any disaster.
* Most of the ERP will be shifted to the cloud which not only Secures the database of ERP Marketplace but also explores more features of it to enhance their performance.

**4. Mobile Based ERP:**

* As we know people feel more resistance to switching from Mobiles to Desktop, PC. Also, currently, ERP is usable in mobile but it is less user-friendly in Mobiles as compared to accessing ERP on Computers and Laptops.
* The Future of ERP will be available on Mobile phones as People love more to do work by touching the screen as compared to typing on the keyboard or clicking on the mouse.

**5. Improved Business Intelligence:**

* Currently, Business intelligence gained decent popularity with various Artificial Intelligence Tools.
* In Future the Business Intelligence will gain more popularity by developing tools that solve complex problems in easy ways.

**6. Establishment of New Marketplace:**

* As the time fleet, the popularity of ERP Marketplace is at the high because all businesses even small or large will set up themselves online through ERP and this results in more establishment of ERP Marketplace with new features. This will not only make ERP cheap but also increase Competition among various ERP marketplace.
* Future trends of ERP will play a special role in the growth of market requirements and trends. As time passes the more complex problems can be solved in simple user-friendly which not only helps to make growth in the business sector but also encourage Youngsters to go for Starting a Startup.

**7. Careers in ERP in the Future:**

* In today’s world getting a job in ERP is touch as compared to others because it requires lots of skill sets and also chances of getting a job is a little bit difficult as compared to others but in future, as the more advanced technologies are coming which are not only easy to learn but also solve complex problems.
* Also in the future the startup, business is running all over these demands more ERP vendors and ERP Creator’s which results in more openings for Jobs in that particular field. Hence, the chances of getting Job in the ERP sector are easy.