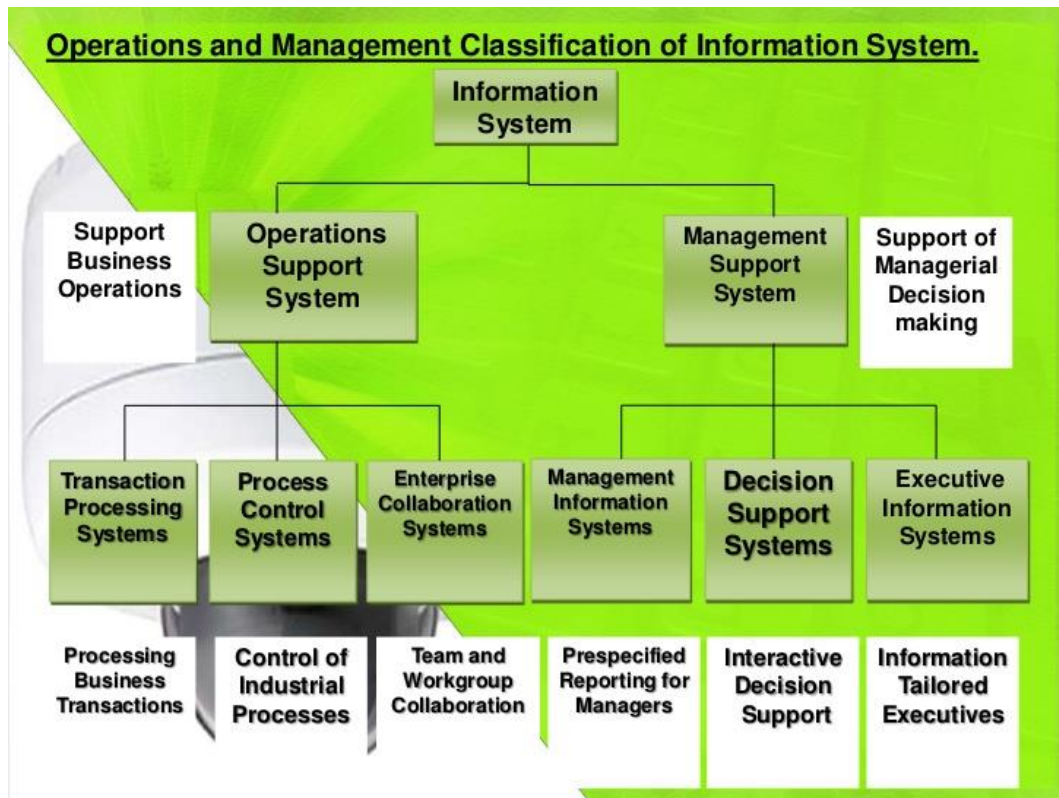# INFORMATION SYSTEM& E-COMMERCE

Unit-1:
Information system

Information system can be defined as set of people, procedure and resources that collects, transforms & disseminates information in an organistion. It is a system that accepts data resources as input & processes them into information products as outputs this supports an organistaion's business strategies, business processes & organizational structures & culture to increase the business value of the enterprise in a dynamic business environment,

Information systems can be described by four of their key components which are:

1. Decisions
2. Transactions and processing
3. Information and its flow
4. Individuals or functions involved.

Operations and Management Classification of Information System.

INFORMATION SYSTEM& E-COMMERCE

OPERATIONAL SUPPORT SYSTEM (OSS)

An operational support system (OSS) is a set of programs that help a communications service provider monitor, control, analyze and manage a telephone or computer network. As the traditional voice telephone systems converges with packet-oriented Internet traffic (including VoIP), broadband   applications such as teleconferencing and DSL, more sophisticated systems like OSS are needed activities like ordering and tracking network components (including IP addresses), usage and traffic patterns, billing and reporting.

An operation support system (OSS) is a software component that enables a service provider to monitor, control, analyze, and manage the services on its network. These types of software applications, along with a business support system (BSS), support most customer-facing activities, including ordering, billing, and support.

The development and implementation of OSS systems often involve information technology (IT) expertise as well as the help of integrators that can ensure the software works with network infrastructure to pass on important information about the fulfillment and delivery of services.

Operations support system (OSS)

1. Transaction processing system (TPS)   2. Enterprise collaboration system (ECS) or Office Automation System (OAS)
3. Process Control System (PCS)

Transaction Processing System (TPS) are used primarily for structured operational, & to a lesser degree, management control applications.

Enterprise collaboration system or Office Automation System enhance team and workgroup communication and productivity.

Process Control System monitor & control physical processes, e.g., electronic sensors linked to computers in a petroleum refinery.

INFORMATION SYSTEM& E-COMMERCE

MANAGEMENT SUPPORT SYSTEM
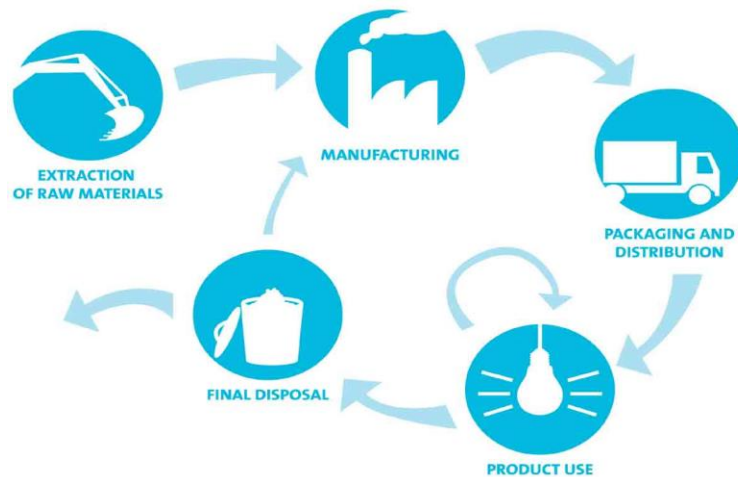
Management support systems focus on managerial uses of information resources. These systems provide information to manage for planning and decision making. The information provided by these systems is based on both the internal and external data using various data analysis tools.

They also offer a choice to the user to select out of these tools for the purpose of data analysis. These systems serve the information needs of managers at middle and top levels in the managerial hierarchy.

Management Support System (MSS)

      1.Management Information System (MIS)
      2.Decision Support System (DSS)
      3. Executive Support system (ESS) or Executive Information System

Management information Systems are used primarily for semi-structured, management control application. It also overlaps into the operational and strategic planning realms as well

Decision Support Systems are used primarily for unstructured decision-making whether that occurs at the operational, management & strategic planning levels.

Executive Support Systems are used primarily for structured management and strategic planning application

INFORMATION SYSTEM& E-COMMERCE

EXPERT SYSTEM

An Expert System is defined as an interactive and reliable computer-based decision-making system which uses both facts and heuristics to solve complex decision-making problems. It is considered at the highest level of human intelligence and expertise. It is a computer application which solves the most complex issues in a specific domain.

The expert system can resolve many issues which generally would require a human expert. It is based on knowledge acquired from an expert. It is also capable of expressing and reasoning about some domain of knowledge. Expert systems were the predecessor of the current day artificial intelligence, deep learning and machine learning systems. Examples of Expert Systems

Examples of Expert Systems

- **MYCIN:** It was based on backward chaining and could identify various bacteria that could cause acute infections. It could also recommend drugs based on the patient's weight.
- **DENDRAL:** Expert system used for chemical analysis to predict molecular structure.
- **PXDES:** Expert system used to predict the degree and type of lung cancer
- **CaDet:** Expert system that could identify cancer at early stages

Characteristic of Expert System:

- **The Highest Level of Expertise:** The expert system offers the highest level of expertise. It provides efficiency, accuracy and imaginative problem-solving.

- **Right on Time Reaction:** An Expert System interacts in a very reasonable period of time with the user. The total time must be less than the time taken by an expert to get the most accurate solution for the same problem.

- **Good Reliability:** The expert system needs to be reliable, and it must not make any a mistake.

- **Flexible:** It is vital that it remains flexible as it the is possessed by an Expert system.

- **Effective Mechanism:** Expert System must have an efficient mechanism to administer the compilation of the existing knowledge in it.

- **Capable of handling challenging decision & problems:** An expert system is capable of handling challenging decision problems and delivering solutions.

Components of the expert system
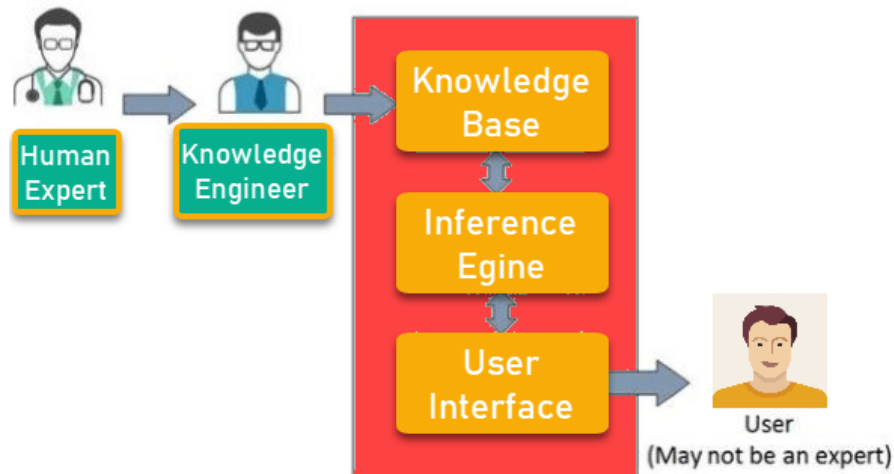
The expert System consists of the following given components:

Knowledge Base

The knowledge base is a repository of facts. It stores all the knowledge about the problem domain. It is like a large container of knowledge which is obtained from different experts of a specific field.

Thus we can say that the success of the Expert System mainly depends on the highly accurate and precise knowledge.

Inference Engine

The inference engine is the brain of the expert system. Inference engine contains rules to solve a specific problem. It refers the knowledge from the Knowledge Base. It selects facts and rules to apply when trying to answer the user's query. It provides reasoning about the information in the knowledge base. It also helps in deducting the problem to find the solution. This component is also helpful for formulating conclusions

User Interface

INFORMATION SYSTEM& E-COMMERCE

The user interface is the most crucial part of the expert system. This component takes the user's query in a readable form and passes it to the inference engine. After that, it displays the results to the user. In other words, it's an interface that helps the user communicate with the expert system.

.**The process of Building An Expert Systems**

- Determining the characteristics of the problem
- Knowledge engineer and domain expert work in coherence to define the problem
- The knowledge engineer translates the knowledge into a computer-understandable language. He designs an inference engine, a reasoning structure, which can use knowledge when needed.
- Knowledge Expert also determines how to integrate the use of uncertain knowledge in the reasoning process and what type of explanation would be useful.

Benefits of expert systems

- It improves the decision quality
- Cuts the expense of consulting experts for problem-solving
- It provides fast and efficient solutions to problems in a narrow area of specialization.
- It can gather scarce expertise and used it efficiently.
- Offers consistent answer for the repetitive problem
- Maintains a significant level of information
- Helps you to get fast and accurate answers
- A proper explanation of decision making
- Ability to solve complex and challenging issues
- Expert Systems can work steadily work without getting emotional, tensed or fatigued.

Limitations of the expert system

- Unable to make a creative response in an extraordinary situation
- Errors in the knowledge base can lead to wrong decision
- The maintenance cost of an expert system is too expensive
- Each problem is different therefore the solution from a human expert can also be different and more creative

INFORMATION SYSTEM& E-COMMERCE

Applications of expert systems

Some popular application where expert systems user:

- Information management
- Hospitals and medical facilities
- Help desks management
- Employee performance evaluation
- Loan analysis
- Virus detection
- Useful for repair and maintenance projects
- Warehouse optimization
- Planning and scheduling
- The configuration of manufactured objects
- Financial decision making Knowledge publishing
- Process monitoring and control
- Supervise the operation of the plant and controller
- Stock market trading
- Airline scheduling & cargo schedules

MANAGEMENT INFORMATION SYSTEM (MIS)

A management information system (MIS) is a computer system consisting of hardware and software that serves as the backbone of an organization's operations. An MIS gathers data from multiple online systems, analyzes the information, and reports data to aid in management decision-making.

MIS is also the study of how such systems work.

INFORMATION SYSTEM& E-COMMERCE

.

Management Information System (MIS) consists of following three pillars: Management, Information, and System. These are explained as following below.

1. **Management:** art of getting things done through and with the people of in formally organized groups.

2. **Information:** data that have a meaning with a context ,where data is raw facts about an entity (entity is the object of interest)

.

3. **System:** set of inter-related components with a clearly defined boundary working together to achieve a common goal.

Objectives of Management Information System : The main goals of an MIS are to help executives of an organization make decisions that advance the organization's strategy and to implement the organizational structure and dynamics of the enterprise for the purpose of managing the organization in a better way for a competitive advantage **.**

These are some goals of an MIS :

1. Capturing Data .
2. Processing Data .

3. Information Storage .
4. Information Retrieval .
5. Information Propagation .

Characteristics of Management Information System: The most important characteristics of an MIS are those that give decision-makers confidence that their actions will have the desired consequences , and among this characteristics we can mention :

- It should be based on a long-term planning .
- It should provide a holistic view of the dynamics and the structure of the organization .
- It should be planned in a top-down way .
- It should be based on need of strategic, operational and tactical information of managers of an enterprise .
- It should be able to make forecasts and estimates, and generate advanced information .
- It should create linkage between all sub-systems within the organization .
- It should have a central database .
- Nowadays , with the advanced technology presents in the world , to be a successful manager , you should have a very powerful and effective MIS that presents all the most relevant and useful information for a particular decision

Advantages of MIS:
- Improves quality of an organization or an information content by providing relevant information for sound decision making.
- MIS change large amount of data into summarize form and thereby avoid confusion which may an answer when an information officer are flooded with detailed fact.
- MIS facilitates integration of specialized activities by keeping each department aware of problem and requirements of other departments.
- MIS serves as a link between managerial planning and control. It improves the ability of management to evaluate and improve performance.

Disadvantages:
- Too rigid and difficult to adapt.
- Resistance in sharing internal information between departments can reduce the effectiveness.
- Hard to quantify benefit to justify implementation of MIS.

INFORMATION SYSTEM& E-COMMERCE

- Quality of output of an MIS is directly proportional to quality of input and processes.

BUSINESS INFORMATION SYSTEM:

  Business information systems are sets of inter-related procedures using IT infrastructure in a business enterprise to generate and disseminate desired information.

  Such systems are designed to support decision making by the people associated with the enterprise in the process of attainment of its objectives.

  The business information system gets data and other resources of IT infrastructure as input from the environment and process them to satisfy the information needs of different entities associated with the business enterprise.

  Information system contribute to both the effectiveness & efficiency of business, especially when positioned in specific business functions such as

- Finance   Accounting
- Marketing   production
- Personnel   engineering

And also used to help companies to achieve their goals more quickly by facilitating collaborative work, information system can be used in a wide variety of applications.
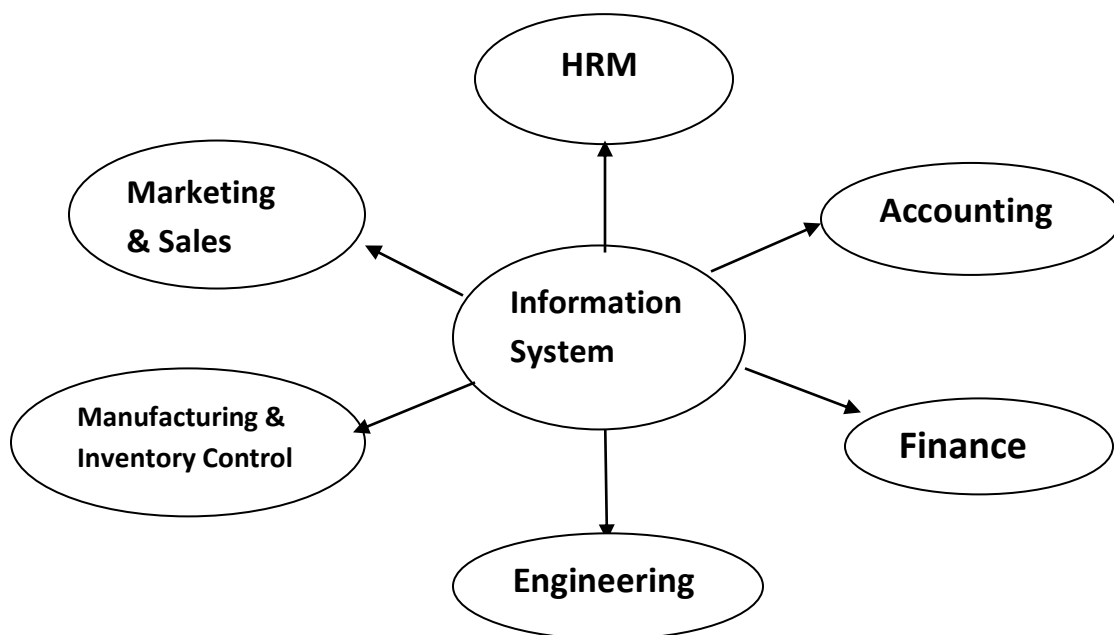
Information System Supports a Variety of Business Functions

INFORMATION SYSTEM& E-COMMERCE

MARKETING INFORMATION SYSTEM

Meaning & Definitions

The **Marketing Information System** refers to the systematic collection, analysis, interpretation, storage and dissemination of the market information, from both the internal and external sources, to the marketers on a regular, continuous basis.

The marketing information system distributes the relevant information to the marketers who can make the efficient decisions related to the marketing operations viz. Pricing, packaging, new product development, distribution, media, promotion, etc.

Every marketing operation works in unison with the conditions prevailing both inside and outside the organization, and, therefore, there are several sources (viz. Internal, Marketing Intelligence, Marketing Research) through which the relevant information about the market can be obtained.

K. Cox and K. Gonod hold, "MIS is a set of procedures and methods for the regular and planned collection, analysis and presentation of information in making marketing decisions."

Marketing Information System – Characteristics
1. MIS is an ongoing process. It operates continuously.
2. MIS acts as a data bank and facilitates prompt decision-making by manager.
3. MIS operates in a rational and systematic manner and provides required information.
4. MIS is future-oriented. It anticipates and prevents problems as well as it solves marketing problems. It is both a preventive as well as curative process in marketing.
5. The gathered data is processed with the help of operations research techniques. Modem mathematical and statistical tools are available for problem-solving in the field of marketing.
6. MIS is a computer-based method of data collection, processing, and storage.
7. Management gets a steady flow of information on a regular basis — the right information, for the right people, at the right time and cost.

INFORMATION SYSTEM& E-COMMERCE

Components of Marketing Information System

1. **Internal Records:** The Company can collect information through its internal records comprising of sales data, customer database, product database, financial data, operations data, etc. The detailed explanation of the internal sources of data is given below:

   - The information can be collected from the documents such as invoices, transmit copies, billing documents prepared by the firms once they receive the order for the goods and services from the customers, dealers or the sales representatives.

   - The current sales data should be maintained on a regular basis that serves as an aide to a the Marketing Information System. The reports on current sales and the inventory levels help the management to decide on its objectives, and the marketers can make use of this information to design their future sales strategy.

   - The Companies maintain several databases such as*Customer Database- wherein the complete information about the customer's name, address, phone number, the frequency of purchase, financial position, etc. is saved.

   *Product Database- wherein the complete information about the product's price, features, variants, is stored.

*Salesperson database, wherein the complete information about the salesperson, his name, address, phone number, sales target, etc. is saved.

- The companies store their data in the data warehouse from where the data can be retrieved anytime the need arises. Once the data is stored, the statistical experts mine it by applying several computer software and techniques to convert it into meaningful information that gives facts and figures.

2. **Marketing Intelligence System:** The marketing intelligence system provides the data about the happenings in the market, i.e. data related to the marketing environment which is external to the organization. It includes the information about the changing market trends, competitor's pricing strategy, change in the customer's tastes and preferences, new products launched in the market, promotion strategy of the competitor, etc.

In order to have an efficient marketing Information System, the companies should work aggressively to improve the marketing intelligence system by taking the following steps:

- Providing the proper training and motivating the sales force to keep a check on the market trends, i.e. the change in the tastes and preferences of customers and give suggestions on the improvements, if any.

- Motivating the channel partners viz. Dealer, distributors, retailers who are in the actual market to provide the relevant and necessary information about the customers and the competitors.

- The companies can also improve their marketing intelligence system by getting more and more information about the competitors. This can be done either by purchasing the competitor's product, attending the trade shows, reading the competitor's published articles in magazines, journals, financial reports.

- The companies can have an efficient marketing information system by involving the loyal customers in the customer advisory panel who can share their experiences and give advice to the new potential customers.

- The companies can make use of the government data to improve its marketing Information system. The data can be related to the population trends, demographic characteristics, agricultural production, etc. that help an organization to plan its marketing operations accordingly.

- Also, the companies can purchase the information about the marketing environment from the research companies who carry out the researches on all the players in the market.

- The Marketing Intelligence system can be further improved by asking the customers directly about their experience with the product or service via feedback forms that can be filled online.

3. **Marketing Research**: The Marketing Research is the systematic collection, organization, analysis and interpretation of the primary or the secondary data to find out the solutions to the marketing problems. Several Companies conduct marketing research to analyze the marketing environment comprising of changes in the customer's tastes and preferences, competitor's strategies, the scope of new product launch, etc. by applying several statistical tools. In order to conduct the market research, the data is to be collected that can be either primary data (the first-hand data) or the secondary data (second-hand data, available in books, magazines, research reports, journals, etc.)

   The secondary data are publicly available, but the primary data is to be collected by the researcher through certain methods such as questionnaires, personal interviews, surveys, seminars, etc.

   A marketing research contributes a lot in the marketing information system as it provides the factual data that has been tested several times by the researchers.

4. **Marketing Decision Support System**: It includes several software programs that can be used by the marketers to analyze the data, collected so far, to take better marketing decisions.With the use of computers, the marking managers can save the huge data in a tabular form and can apply statistical programs to analyze the data and make the decisions in line with the findings.

   Thus, the marketers need to keep a check on the marketing environment, i.e. both the internal (within the organization) and the external (outside the organization, so that marketing policies, procedures, strategies can be designed accordingly.

   Advantages of MIS:
   1. Control Systems:
   (a) Typical Applications:
   (i) Control of marketing costs.
   (ii) Diagnosis of poor performance.

(iii) Management of fashion goods.
(iv) Flexible promotion strategy.
(b) Benefits:
(i) More timely computer reports.
(ii) Flexible on-line retrieval of data.
(iii) Automatic spotting of problems and opportunities.
(iv) Cheaper, more detailed, and more frequent reports.

2. Research Systems:
(a) Typical Applications:
(i) Advertising strategy.
(ii) Pricing strategy.
(iii) Evaluation of advertising expenditures.
(iv) Continuous experiments.
(b) Benefits:
(i) Additional manipulation of data is possible when stored for computers in an unaggregated file.
(ii) Improved storage and retrieval capability allows new types of data to be collected and used.
(iii) Well-designed data banks permit integration and comparison of different sets of data.

Disadvantages of MIS:
1. Expensive – Establishment of MIS is costly affair as it involves huge cost to be incurred on setting up of hardware and software for the required purpose.

2. Not Preferred – The database marketing has been primarily used as a tactical tool. There is a possibility that MIS lead to less reliable and less secure data. MIS system may become slow, large, and hard to manage.

3. Depends on Database – The database marketing depends on the data quality. While the observational data is powerful, the corrupted observational data could be 'powerful misleading'. The quality also depends on the quality of analysis and the extent to which the databases are linked.

4. Requires New Set of Skills – The database often demands new skills and organisations from new analytical and decision-making skills in sales and marketing to a revamped information system organisation that could support the entirely new class of users.

INFORMATION SYSTEM& E-COMMERCE

What is an HRIS?

HRIS stands for Human Resources Information System. The HRIS is a system that is used to collect and store data on an organization's employees.

In most cases, an HRIS encompasses the basic functionalities needed for end-to-end Human Resources Management (HRM). It has a system for recruitment, performance management, learning & development, and more.

An HRIS is also known as HRIS software. This is a bit confusing as it implies that different systems can have different software running on them. However, this is not the case. The HRIS is, in essence, a software package.

9 Must-Have Core Functionalities in a Human Resource Information System
To find a pocket-friendly HRIS Software solution that meets the needs of your organization, look for a product with these nine must-have core functionalities:

1. Centralized Database:

With an automated database that collects, stores, and displays up-to-date, consistent information about the personnel, policies, and procedures in an organization, HR leaders can finally break up with spreadsheets and paper files.

A centralized database that is seamlessly integrated with other HR modules will not just facilitate virtualization but also offer great accessibility to all end-users. Any updates or changes made to the master database will reflect immediately across all modules, saving a considerable amount of time and effort human resources department put into matching and duplicating all records manually.

2. Recruitment Automation:

This feature offers a complete applicant tracking system with a reporting engine to analyze trends and patterns in recruitment. It also seamlessly integrates with job-portals, internal website, and employment-service providers to reduce the chaos in hiring.

3. Employee Onboarding:

With an employee self-service portal that is connected to a cloud-based database removes the necessary evil paperwork out of the onboarding equation. Employees can complete

the <u>onboarding process</u> using scanned documents, automated workflow, predefined checklist, and easy-to-use digital forms in 15 minutes.

4. Talent Management

Employees are the most valuable resources in any organization. However, the process of talent management, i.e, attracting, recruiting, engaging, developing, and retaining employees is a complicated process. Also, employee turnover cost is expensive. An HRIS with an exclusive <u>talent management system</u> will help the organization take better care of their employees.

5. Payroll:

Several SMBs already use a stand-alone system to manage their payroll process. And, no one is eager to switch it to an HRIS. Also, there may be concerns as to whether the payroll module in an HRIS is efficient enough to handle all the full spectrum of services like a dedicated payroll system.

In addition, an HRIS integrates seamlessly with the accounting module and <u>attendance management system</u>. So, the need for manual reconciliation is eliminated, reducing the room for manual errors and legal/financial compliance issues caused by them.

6. Employee Self-Service

SMBs often find it hard to keep their employee-related data updated. Employee Self-Service (ESS) is an effective way to manage this problem. Giving employees access to view and manage their personal information (profile, time off, benefits, or payroll) can reduce the time HR staff spend on mundane clerical tasks.

Employees don't have to engage in a mail chase to retrieve their leave balance or payslips. With a self-service portal, every HR process from employee onboarding to reporting will become more efficient. If the HRIS has multi-channel accessibility, employees can view, edit, and retrieve all work-related information right from their mobile phones.

7. Time and Absence Management

Managing <u>employee timesheets</u>, schedules, and tracking attendance manually involves an immense amount of HR labor. Keeping up with leave request emails and tracking

employee absence while sketching out a schedule to manage the changing workload is a huge ordeal. On top of that, exporting all attendance data to the payroll system is time-consuming and tedious.

If not handled properly, timesheets and vacation requests have the potential to stir up a lot of trouble. Mishandled time-off requests can leave a bad impression on the quality of life in the organization, and reduce employee satisfaction. So, streamlining the timesheet management and time-off process with an HRIS can control the manual errors and prevent possible disasters.

8. Training:

A training module can enable organizations to offer blended training experience to their staff to improve engagement, job satisfaction, and retention. They can also plan, track, and measure the impact of their training program to ensure its effectiveness.

9. Succession Planning:

This particular module enables organizations to map talent pipeline and rankings. Once key positions are identified, it would be easy to create employee-specific development plans.

5 Best Cloud HRIS Softwares for HR Department

If you're in the marketing for a Human Resource Information System, here are some of the popular HR software available that you can evaluate today.

1. BambooHR

BambooHR is a core-HR software designed for Small and Medium Business. It has all the features you would expect in a HRIS software including ESS, Recruitment, Performance Management, Talent Management, Training etc. They also have a trial which you can try out.

2. Kissflow HR Cloud

Kissflow's HR cloud is an all-in-one HRIS cloud that fits in extremely well with the mid-market companies by supporting all critical HR needs. It not only caters to hierarchical structures of an enterprise but also facilitates clear communication across its traditional

silo boundaries easily. Best of all, it comes with multiple levels of control and diverse range of functionalities including for applicant tracking, recruitment, performance management, employee database, and more.

3. Namely

Namely is an all-in-one HRIS software which lets your manage all your day to day HR tasks in a single platform. Some of the popular benefits of Namely include Payroll, Benefits administration, Talent management, Time management and ESS.

4. SuccessFactors

SuccessFactors puts people at the heart of your HR transformation – and improve the employee experience. Some of the popular modules of SuccessFactors include Core HR and Payroll, Time and Attendance Management, Learning and Development, Performance appraisals and Compensation, Recruiting and Onboarding, Workforce Planning and HR Analytics etc.

5. JustWorks

JustWorks is a HR software aimed at small businesses. Their HR tools simplifies all the complexities associated with HR processes and let's you work fearlessly.

Benefits of Human Resource Management System
There's a lot of benefits that come with adapting to a Human Resource Information System. Here are some of the major benefits that your HR department can enjoy when switching to a HRIS.

1. Tracking and creating reports

One of the major benefits of Human Resource Management Information System is that you can track any employee thats in the system or ex-employees or even the applicants. You can make use of the report module of HRIS to create some insightful reports.

2. Access anywhere

A cloud-based HRMS software can be accessed from anywhere. You can make use of the mobile friendly features of most of the HRIS softwares to get your work done on the go. All the information you will ever need as an HR professional is all located in one place.

INFORMATION SYSTEM& E-COMMERCE

3. Reduce human error

HRIS system helps to ensure the accuracy of employee data. Since all processes are automated, the amount of human effort required will be significantly reduced along with the errors that come with human intervention.

4. Reduce paperworks

HR's spend most of their time filing paper-works because of sheer volume of papers that come across their desks. <u>HR processes</u> like recruitment, leave management, performance management, payroll, onboarding, training all use a lot of paper templates which keeps pilling up. Human Resource Information Systems helps to automate these processes and make everything digital thus reducing a significant amount of paperwork required.

5. Collaboration

HRIS software usually have a collaboration module which helps HRs and Employees to talk with each other and collaborate successfully to get work done faster.

INFORMATION SYSTEM& E-COMMERCE

UNIT-2

INFORMATION TECHNOLOGY

A Managerial overview of Information technology

At the broadest level, managing IT is the practice of overseeing and running a company's information technology(IT)investments and systems. The highest level IT person in a company is usually the chief information officer (CIO), who participate in strategic planning with senior managers to determine how IT can help the company achieve its business objective. These objective might include getting to market faster with s new product or reducing the amount of inventory it carries.

At companies all sizes, it spending is one of biggest line items in the budget. large enterprises typically spend between 1% & 10% of revenues on IT, depending on the industry. A large company's major IT system typically include;

1. Enterprise resources planning (ERP): Manufacturing companies use ERP to run the business, tracking and entering orders, transferring them to the factory for production and then out through the supply chain for distribution to the ultimate customer.

2. Customer relationship Management(CRM): This system collects data directly from the customer (such as demographic data, product preferences and future buying intentions) and uses this data to plan marketing campaigns, improve customers services and design better products

3. Internetworking: The corporate local area network (LAN) connects employees to database and applications and lets them share data. The network may be based on wired (traditional) or wireless LAN technology. Corporate offices are connected via a wide area network (WAN).

4. E- Commerce platform: In the age of the internet, virtually all companies sell their goods and services to their market (whether consumer or business) via web sites. E-commerce platforms run the gamut from high-profile retailer's internet shopping sites to business- to-business (b2b) sites that a company's customers and suppliers can use for self-services functions such as order tracking.

In past years. Millions of companies all over the world spent enormous sums of money on technology without realizing a return on investment (ROI). As a result, senior management demanded better oversight of technology purchases with more emphasis on justifying the proposed project before allocating the funds. An alternate form of justification, called total cost of ownership (TCO) analysis, has gained popularity, this involves analyzing not only the initial cost of the hardware and software to determine project costs but also to train employees as well as maintain and run the system over its entire lifecycle.

INFORMATION SYSTEM& E-COMMERCE

Outsourcing IT is an outgrowth of the focus on achieving value for money spent on IT. The theory behind IT outsourcing is that an expert third party can handle IT functions most efficiently and less expensively than the company Itself. Companies increasingly desire to stick to their "core competencies", the functions that provide them competitive advantage in the marketplace.

Though a related phenomenon, off shore outsourcing, has gained prominence recently, companies have off loaded IT functions including help desk, IT Infrastructure , and data warehouse to outside providers for decades. Another related approach is the application services provider (ASP), model through which companies "rent" software application or equipment from the provider for a monthly fee. When companies outsources IT functions to outsources or ASPs, services level agreements (SLAs) define every aspect of the agreement between customer and provider, outlining the level of services to be provided (such as 99.9% network availability)and the consequences if that level is not met (such as a schedule of fee refunds).

COMPUTER SYSTEM

A computer system is a basic, complete and functional computer, including all the hardware and software required to make it functional for a user.

It should have the ability to receive user input, process data, and with the processed data, create information for storage and/or output.

A computer system allows users to input, manipulate and store data. Computer systems typically include a computer, monitor, keyboard, mouse and other optional components. All of these components also can be integrated into all-in-one units, such as laptop computers.

During the data processing stage, instruction sets, known as programs, are provided to let the system know what to do with the entered system data. Without these programs, the computer would not know how to process data that enters the system, and the data might be discarded. Known as a stored program computer, this type of computer is the most common in use today.

It is very flexible, as it can process any task by loading a program from storage. Computer systems can work by themselves or access other devices that are external or connected with other computer systems.

COMPONENTS

The internal architectural design of computers differs from one system model to another. However, the basic organization remains the same for all computer systems. The

INFORMATION SYSTEM& E-COMMERCE

following five units (also called **"The functional units"**) correspond to the five basic operations performed by all computer systems.

Input Unit

In short, an input unit performs the following functions.
1. It accepts (or reads) the list of instructions and data from the outside world.
2. It converts these instructions and data in computer acceptable format.
3. It supplies the converted instructions and data to the computer system for further processing.

Output Unit

In short, the following functions are performed by an output unit.
1. It accepts the results produced by the computer which are in coded form and hence cannot be easily understood by us.
2. It converts these coded results to human acceptable (readable) form.
3. It supplied the converted results to the outside world.

Storage Unit

In short, the specific functions of the storage unit are to store:
1. All the data to be processed and the instruction required for processing (received from input devices).
2. Intermediate results of processing.
3. Final results of processing before these results are released to an output device.

Central Processing Unit (CPU)

The main unit inside the computer is the **CPU**. This unit is responsible for all events inside the computer. It controls all internal and external devices, performs *"**Arithmetic and Logical operations**"*. The operations a Microprocessor performs are called **"instruction set"** of this processor. The instruction set is "hard wired" in the CPU and determines the machine language for the CPU. The more complicated the instruction set is, the slower the CPU works. Processors differed from one another by the instruction set. If the same program can run on two different computer brands they are said to be compatible. Programs written for IBM compatible computers will not run on Apple computers because these two architectures are not compatible.

INFORMATION SYSTEM& E-COMMERCE

The control Unit and the Arithmetic and Logic unit of a computer system are jointly known as the Central Processing Unit (CPU). The CPU is the brain of any computer system. In a human body, all major decisions are taken by the brain and the other parts of the body function as directed by the brain. Similarly, in a computer system, all major calculations and comparisons are made inside the CPU and the CPU is also responsible for activating and controlling the operations of other units of a computer system.

Arithmetic And Logic Unit (ALU)

The **arithmetic and logic unit (ALU)** of a computer system is the place where the actual execution of the instructions take place during the processing operations. All calculations are performed and all comparisons (decisions) are made in the **ALU**. The data and instructions, stored in the primary storage prior to processing are transferred as and when needed to the ALU where processing takes place. No processing is done in the primary storage unit. Intermediate results generated in the ALU are temporarily transferred back to the primary storage until needed at a later time. Data may thus move from primary storage to ALU and back again as storage many times before the processing is over. After the completion of processing, the final results which are stored in the storage unit are released to an output device.

Control Unit

How the input device knows that it is time for it to feed data into the storage unit? How does the ALU know what should be done with the data once it is received? And how is it that only the final results are sent to the output devices and not the intermediate results? All this is possible because of the control unit of the computer system. By selecting, interpreting, and seeing to the execution of the program instructions, the control unit is able to maintain order and directs the operation of the entire system. Although, it does not perform any actual processing on the data, the control unit acts as a central nervous system for the other components of the computer. It manages and coordinates the entire computer system. It obtains instructions from the program stored in main memory, interprets the instructions, and issues signals that cause other units of the system to execute them.

The control unit directs and controls the activities of the internal and external devices. It interprets the instructions fetched into the computer, determines what data, if any, are needed, where it is stored, where to store the results of the operation, and sends the control signals to the devices involved in the execution of the instructions.

INFORMATION SYSTEM& E-COMMERCE

PERIPHERAL DEVICE

      A peripheral device is defined as a computer device, such as a keyboard or printer, that is not part of the essential computer (i.e., the memory and microprocessor). These auxiliary devices are intended to be connected to the computer and used.

Types of Peripheral Devices

Peripheral devices can be external or internal.

- ✓ Examples of external peripherals include mouse, keyboard, printer, monitor, external Zip drive or scanner.
- ✓ Examples of internal peripherals include CD-ROM drive, CD-R drive or internal modem. Today's new devices, such as tablets, smartphones and wearable computing devices are considered peripherals as they can be connected and used on a computer system. The difference, however, is that these devices can run independently of the computer system, unlike a computer mouse, for example.

System software

      System software is a type of computer program that is designed to run a computer's hardware and application programs. If we think of the computer system as a layered model, the system software is the interface between the hardware and user applications. The operating system (OS) is the best-known example of system software. The OS manages all the other programs in a computer.

Other examples of system software include:

- ✓ The BIOS (basic input/output system) gets the computer system started after you turn it on and manages the data flow between the operating system and attached devices such as the hard disk, video adapter, keyboard, mouse and printer.
- ✓ The boot program loads the operating system into the computer's main memory or random access memory (RAM).
- ✓ An assembler takes basic computer instructions and converts them into a pattern of bits that the computer's processor can use to perform its basic operations.
- ✓ A device driver controls a particular type of device that is attached to your computer, such as a keyboard or a mouse. The driver program converts the more general input/output instructions of the operating system to messages that the device type can understand.

Additionally, system software can also include system utilities, such as the disk defragmenter and System Restore, and development tools, such as compilers and debuggers.

System software and application programs are the two main types of computer software. Unlike system software, an application program (often just called an application or app)

performs a particular function for the user. Examples include browsers, email clients, word processors and spreadsheets.

TELECOMMUNICATIONS

The electronic transmission of information over distances, called telecommunications, has become virtually inseparable from computers: Computers and telecommunications create value together.

Components of a Telecommunications Network

Telecommunications are the means of electronic transmission of information over distances. The information may be in the form of voice telephone calls, data, text, images, or video. Today, telecommunications are used to organize more or less remote computer systems into telecommunications networks. These networks themselves are run by computers.

A *telecommunications network* is an arrangement of computing and telecommunications resources for communication of information between distant locations.

A telecommunications network includes the following components:

1. *Terminals* for accessing the network
2. *Computers* that process information and are interconnected by the network
3. *Telecommunications links* that form a channel through which information is transmitted from a sending device to a receiving device.
4. *Telecommunications equipment* that facilitates the transmission of information.
5. *Telecommunications software* that controls message transmission over the network.

Scope of Telecommunications Networks

Two principal types of telecommunications networks can be distinguished from the point of view of their geographical scope. They are:

1. Local area networks
2. Wide area networks

Local area network (LAN): is a privately owned network that interconnects processors, usually microcomputers, within a building or on a campus site that includes several buildings.

INFORMATION SYSTEM& E-COMMERCE

Characteristics of a LAN:
a) LANs are the principal tool of workgroup computing
b) LANs ensure high-speed communication within a limited area and enables the users to   share facilities (peripherals) connected to it.
c) Usually include a large-capacity, secondary storage device, where database and applications software are maintained, managed by a microcomputer acting as a file server that delivers data or program files to other computers.
d) Facilities (peripherals) may include jukebox optical memory and fast printers
e) Frequently, one of the facilities (peripherals) in a LAN is the gateway hardware and software that give the network users access to other networks.
f) More group members may connect to the network from remote sites using wireless telecommunications.
g) Links and equipment of LANs are owned by the user company, and these networks are generally much faster than WANs.
h) LANs are generally composed of a network of microcomputers

Wide area network (WAN):
It is a telecommunications network that covers a large geographical area.

Characteristics of a WAN:
a) The information system of an entire organization may be structured as a hierarchy. The WANs system architecture looks very much like an organization chart.
b) WANs connect all the divisional minicomputers to the headquarters mainframe with a variety of local microcomputers and terminals located at remote sites connected, in turn, to the minicomputers.
c) WANs provide the backbone through which all other nodes (computers and terminals) communicate.
d) WANs often use telecommunication links and equipment provided by specialized vendors, called *common carriers.*
e) WANs serve to interconnect multiple LANs and can make specific resources available to a large number of workstations.
f) **Metropolitan Area Networks (MAN)** - are telecommunications networks that interconnect various local area networks within a metropolitan area, that is, within approximately a 50-mile range.

ALTERNATIVE TECHNOLOGY

INFORMATION SYSTEM& E-COMMERCE

Alternative technology is a term used to refer to technologies that are more environmentally friendly than the functionally equivalent technologies dominant in current practice. The term was coined by Peter Harper, one of the founders of the Centre for Alternative Technology, North Wales (a.k.a. *The Quarry*), in Undercurrents (magazine) in the 1970s. Alternative Technologies are created to be safer, cleaner, and overall more efficient. The goals of alternative technology are to decrease demand for critical elements by ensuring a secure supply of technology that is environmentally friendly, increased efficiency with lower costs, and with more common materials to avoid potential future materials crises. Alternative technologies use renewable energy sources such as solar power and wind energy. Some alternative technologies have in the past or may in the future become widely adopted, after which they might no longer be considered "alternative." For example, the use of wind turbines to produce electricity.

Internet, Intranet and Extranet

Internet: Internet is a worldwide, publicly accessible computer network of interconnected computer networks (internetwork) that transmit data using the standard Internet Protocol (IP). Largest Internetwork in the world is Internet.
The terms World Wide Web (WWW) and Internet are not the same. The Internet is a collection of interconnected computer networks, linked by copper wires, fiber-optic cables, wireless connections, etc. The World Wide Web is one of the services accessible via the Internet, along with various others including email, file sharing, remote administration, video streaming, online gaming etc. World Wide Web (WWW) is a collection of interconnected documents and other resources, linked together by hyperlinks and URLs.

Most of these interconnected documents in World Wide Web (WWW) are created using a markup programming language called HTML (HyperText Markup Language). Even the webpage you are reading now is created using HTML (HyperText Markup Language)

Intranet: An intranet is a private network that is contained within an enterprise. Typical intranet for a business organization consists of many interlinked local area networks (LAN) and use any Wide Area Network (WAN) technology for network connectivity. The main purpose of an intranet is to share company information and computing resources among employees. Intranet is a private Internetwork, which is usually created and maintained by a private organization. The content available inside Intranet are intended only for the members of that organization (usually employees of a company).

INFORMATION SYSTEM& E-COMMERCE

Extranet: An extranet can be viewed as part of a company's intranet that is extended to users outside the company like suppliers, vendors, partners, customers, or other business associates.

Extranet is required for normal day-to-day business activities. For example, placing purchase order to registered vendors, billing & invoices, payments related activities, joint venture related activities, product brochures for partners, discounted price lists for partners etc.

CLOUD COMPUTING

Introduction

Cloud computing provides us a means by which we can access the application as utilities, over the internet. It allows us to create, configure & customize application online.

With cloud computing users can access database resources via the internet from anywhere for as long as they need without worrying about any maintenance or management of actual resources.

What is Cloud?

The term cloud refers to a network or internet. In other words we can say that cloud is something, which is present at remote location, cloud can provide services over network i.e,. on public network or on private network. i.e,. WAN, LAN & VPN

Applications such as e-mail, web, conferencing, Customer Relationship Management (CRM), all run in cloud.

What is Cloud computing?

Cloud computing refers to manipulating, configuring & accessing the application online. It offers online data storage, infrastructure & application.

Cloud computing is both a combination of software & hardware, based computing resources delivered as a network services.

Basic components

There are certain services & models working behind the scene making the cloud computing feasible & accessible to end users.

Following are the working models for cloud computing :

1. Deployment models
2. Services models

INFORMATION SYSTEM& E-COMMERCE

1. **Deployment Models:** it define the type of access to the cloud i.e,. how the cloud is located? Cloud can have any of the four types of access Public Private, Hybrid & community.

Public Cloud		Private Cloud

Hybrid cloud		Community cloud

Public Cloud: The public cloud allows systems & services to be easily accessible to the general public. Public cloud may be less secure because openness. Ex: E-mail

Private Cloud: the private cloud allows systems & services to be accessible within an organization. It offers increased security because of its private nature.
Community cloud: the community cloud allows system & services to be accessible by group organization.

Hybrid Cloud: The hybrid cloud is mixture of public & private cloud. However, the critical activities are performed using private cloud while the non critical activities are performed using public cloud.

2. **Service Models:** These are the reference models on which the cloud computing is based. These can be categorized in to three basic service models as listed below:
   - ✓ Infrastructure as a service (IAAS)
   - ✓ Platform as a Services (PAAS).
   - ✓ Software as a services (SAAS)

   IAAS: It is the delivery of technology infrastructure as an on demand sealable services. IAAS provide access to fundamentals resources such as physical machines, virtual machines, virtual storage etc,.
   - ✓ Usually billed based on useage
   - ✓ Usually multi tenant virtualized environment.
   - ✓ Can be coupled with managed services for OS & application support.
   Eg: Opsource NTT Communications, terremark at & t BLIZZARD entertainment.

INFORMATION SYSTEM& E-COMMERCE

PAAS: It provides the runtime environment of application, development and deployment tolls etc.,

PAAS provide all of the facilities require to support the complete life cycle of building and delivering web applications and services entirely from the internet.

Typically application must be developed with a particular platform in mind. .

- ✓ Multi tenants environment
- ✓ High scalable multi tier architecture

Ex: Amezon web service, salesforce.com, +Joyent

SAAS: SaaS model allows to use software applications as a services to end users,

SaaS is a software delivery methodology that provides licensed multi-tenant access to software and its functions remotely as a web- based services.

- ✓ Usually build based on usage.
- ✓ Usually multi tenant environment
- ✓ Highly scalable architecture

Ex: saleforce.com google, facebook etc,.

Advantages

- ✓ Lower computer costs.
- ✓ Improved performance
- ✓ Reduced software costs.
- ✓ Instant software updates.
- ✓ Improved document format compatibility
- ✓ Unlimited storage capacity
- ✓ Increased data reliability
- ✓ Universal document access
- ✓ Latest version availability
- ✓ Easies group collaboration
- ✓ Device independence

Disadvantages

- ✓ Requires a consent internet connection
- ✓ Doesn't work well with low-speed communication
- ✓ Features might be limited
- ✓ Can be slow
- ✓ Stored data can be lost
- ✓ Stored data might not be secured

INFORMATION SYSTEM& E-COMMERCE

Download for cloud storage
- ✓ Download a cloud based app to an your computer
- ✓ The app lives on your computer
- ✓ Save files to the app
- ✓ When connected to the internet it will sync with the cloud
- ✓ The cloud can be accessed from any internet connection

Cloud storage

Create an a/c user name & password ⟶ content lives with the a/c in the cloud ➤ log on to any computer with to find your content

INFORMATION TECHNOLOGY ACT-2000

India is one of the few counties other than USA, Singapore, Malaysia in the world that have information technology Act to promote E-Commerce & Electronic Transaction .

Indian parliament has already passed the legislation known as information technology Act-2000 drafted by ministry of communication and information technology. The act is based on the United Nations Commission on International Trade Law (UNCITRAL) model law an electronic commerce.

Objective
1. To suitable amend existing loss in India to facilitate e-commerce
2. To provide legal recognition of electronic records of digital signature
3. To provide legal recognition to the transaction carried out by means of Electronic Data Interchange (EDI) and other means of electronic communication
4. to provide legal recognition to business contacts & creation of rights & obligations through electronic media.
5. To establish the regulatory body to supervise the certifying authorities issuing digital signature certificates
6. To create civil & criminal liabilities for contravention of the provision of the act and to prevent misuse of the e-business transactions.
7. To facilitate e-governance & to encourage the use & acceptance of electronic records & digital signatures in governments offices & agencies.

Components of the Act
- ✓ Legal recognition to digital signatures
- ✓ Electronic governance
- ✓ Mode of attribution, Acknowledgement & dispatch of electronic records.

INFORMATION SYSTEM& E-COMMERCE

✓ Secure electronic records
✓ Regulation of certification authorities
✓ Digital certificates

Civil offences (sec43)
✓ Unauthorized copyright, extracting & downloading of any data, database.
✓ Unauthorized access to computer, computer system or computer network
✓ Introduction of virus
✓ Damage of computer system & network
✓ Providing distance to person to do unauthorized activity
✓ Manipulation

Liable to pay damages by way of compensation not exceeding 1crore rupees to the person so affected

Criminal offences (sec65-\75)
✓ Hacking with computer system
✓ Electronic forgery
✓ False record
✓ Cheating
✓ Miss representation

Liable for 3yrs imprisonment upto 3yrs or with fine which may effect upto 2lakh rupees

MAJOR AMENDMENTS
✓ Electronic signatures introduced
✓ Corporate responsibility introduced in Sec 43A
✓ Legal validity of electronic documents re-emphasis
✓ New cyber crime as offences under amended Act
✓ Sec-69 power of the controller to intercept amended
✓ Power to block unlawful website should be excised with caution.
✓ Liability to intermediary amended.

CYBER CRIME
Cyber crime are offence that are committed against individuals or group of individuals with a criminal motive to intentionally harm the reputation of the victim or cause physical or mental harm to the victim directly or indirectly using modern telecommunication network such as internet (chat rooms, e-mails, notice boards & groups) & mobile phones, (SMS, MMS)

India is the third most affected nation by online banking malware & cyber crime.

INFORMATION SYSTEM& E-COMMERCE

Cyber crime is one of the fastest growing criminal activities on the planet.

It covers a huge range of illegal activity including:

- ✓ Credit cards frauds
- ✓ Cyber pornography
- ✓ Sales of illegal articles- narcotics, weapons, wildlife.
- ✓ Online gambling
- ✓ Intellectual property crimes- software piracy, copy rights, infringement, trade marks, violations theft of computers Sucre code
- ✓ E-mail spoofing
- ✓ Forgery
- ✓ Defamation
- ✓ Cyber stalking (sec 509IPC)
- ✓ Phishing
- ✓ Cyber terrorism

COMPUTER FORENSIC

Definition:

" Forensic computing is the process of identifying preserving, analyzing & presenting digital evidence in a manner that is legally acceptable"-Rodney Mckemmish 1999

Characteristics of Computer Forensic

- ✓ Identifying
- ✓ Analyzing
- ✓ Preserving
- ✓ Presenting

Needs of computer forensics:

- To produce evidence in the court that can lead to the punishment of the actual.
- To ensure the integrity of the computer system.
- To focus on the response to hi-tech offenses started to intertwine.

Goals of computer forensics:

The main goal of computer forensics experts is not only to find the criminal but also to find out the evidence and the presentation of the evidence in a manner that leads to legal action of the criminal.

DIGITAL SIGNATURES:

PARAMETER	PAPER	ELECTRONIC

INFORMATION SYSTEM& E-COMMERCE

Authenticity	May be forayed	Cannot be copied
Integrity	Signature independent of the document	Signature depends on the contents of the document
Non-repudiation	Hand writing Expert needed Error prone	Any computer user Error free

If a message should be reachable but not modifiable a digital signature is used to authenticate the sender,

INFORMATION SYSTEM& E-COMMERCE

UNIT-3

ACCOUNTING SOFTWARE

Introduction

At the centre of such systems, there is usually a general ledger, a facility for handling accounts payable and receivable, a payroll module, and a reporting function. Some accounting packages will also offer functions specifically for certain types of organisations or businesses. This introduction to accounting software will explain its main functions, benefits, and what solutions are available.

Accounting Software is vital for a business to fully understand their situation, determine the success of their business performance, and run a successful venture.

To get the best out of your purchase, you will need to answer some simple questions. The answers will ensure that you can analyse the available options and select the solution with the best possible fit to your organisations.

Meaning:

Accounting software describes a type of <u>application software</u> that records and processes <u>accounting</u> transactions within functional modules such as <u>accounts payable</u>, <u>accounts receivable</u>, <u>journal</u>, <u>general ledger</u>, <u>payroll</u>, and <u>trial balance</u>. It functions as an <u>accounting information system</u>. It may be developed in-house by the organization using it, may be purchased from a <u>third party</u>, or may be a combination of a third-party application software package with <u>local modifications</u>. Accounting software may be on-line based, accessed anywhere at any time with any device which is Internet enabled, or may be desktop based. It varies greatly in its complexity and cost.

Main Functions of Accounting Software:

* ❖ **General Ledger**: This is an organisation's main accounting books. They are the records that document the complete financial transactions of a business. A ledger contains the account information needed to prepare financial statements, and includes accounts for assets, liabilities, owners' equity, revenues and expenses.
* ❖ **Accounts Payable** - This enters bills and pays out money to where it's owed to creditors, such as suppliers or overheads.
* ❖ **Accounts Receivable** - This enters money received from debtors, such as clients or customers.
* ❖ **Billing** - Billing handles invoices to customers for goods or services.

❖ **Stock** - This records a business's current stock levels to ensure efficient stock is maintained.
❖ **Purchase Order** - Accounting Software can create purchase orders, which are commercial documents issued to sellers, indicating types, quantities and agreed prices for products or services.
❖ **Sales Order** - You can also create sales orders, which are confirmation documents sent to customers before delivering goods or services. Accounting Software allows you to record orders from customers.
❖ **Bookkeeping** - Bookkeeping records the financial affairs of a company.

Benefits of Accounting Software

Speed: Data entry into accounting software can be carried out far more quickly than manual processing thanks to its built-in databases of stock customers, supplier details and stock records.

Cost: Despite popular belief, there are plenty of low cost accounting software on the market. This means that you can still get access to basic accounting benefits without sacrificing all your cashflow at once. And added bonus is that Accounting Software reduces time spent by staff doing accounts, and reduce audit expenses as the system safeguards the accuracy of the data. Money saved is money earned, right?

Automatic Document Production: Additionally, it allows for fast and accurate invoicing, and fast production of documents, as reports can be drawn directly from software. All documents including invoices, credit notes, purchase orders, printing statements and payroll can be automatically generated, which streamlines the process which was once incredibly time-consuming when executed manually.

Accuracy: If your business is on the market for a UK accounting software, you're in for an extra treat: a good solution effectively removes the risk of human error, as only one accounting entry is required as opposed to two or three when done manually.

Up-To-Date Information: The Accounting Software is updated automatically, so account balances such as customer and client accounts are always up-to-date.

Availability of Information: Information is instantly accessible on work systems, and is available to employees in different locations at the same time.

Efficiency: Better use can be made of time and resources, and cash flow is improved due to easier debt collections and stock control.

INFORMATION SYSTEM& E-COMMERCE

Security: Accounting Software adds a layer of security to records. Businesses can assign specific areas of accounts and grant them access to those areas only. This protects company data from those who aren't authorised to view it.

Reporting: The reporting function provides users an eagle-eye view of the business. Reports are usually customisable in Accounting Software, so reports can easily be produced for specific data sets that an employee wishes to evaluate. Reports on business data are vital when it comes to making important business decisions. The function is good for reporting on tax amounts due and how much is owed to other companies. Again, this improves the financial situation of your business as payments can be made on time and kept up-to-date.

GST/VAT Return: The automatic creation of figures for the regular GST/VAT returns.

Legibility: The data contained in and printed from accounting software is easier to read than manually, avoiding errors caused by poorly written figures.

IMPORTANT NEEDS OF ACCOUNTING SOFTWARE

Speed:- Data entry onto the computer with its formatted screens and built-in databases of customers and supplier details and stock records can be carried out far more quickly than any manual processing.

Automatic document production:- Fast and accurate invoices, credit notes, purchase orders, printing statements and payroll accounting software documents are all done automatically.

Accuracy:- There is less room for errors as only one accounting software entry is needed for each transaction rather than two (or three) for a manual system.

Up-to-date information:-The accounting records are automatically updated and so account balances (e.g. customer accounts) will always be up-to-date.

Availability of information:- The data is instantly available and can be made available to different users in different locations at the same time.

Management information:- Reports can be produced which will help management monitor and control the business, for example the aged debtors analysis will show which customer accounts are overdue, trial balance, trading and profit and loss account and balance sheet.

GST/VAT return:- The automatic creation of figures for the regular GST/VAT returns.

INFORMATION SYSTEM& E-COMMERCE

Legibility:- The onscreen and printed data should always be legible and so will avoid errors caused by poor figures.

Efficiency:- Better use is made of resources and time; cash flow should improve through better debt collection and inventory control.

Staff motivation:- The system will require staff to be trained to use new skills, which can make them feel more motivated. Further to this with many 'off-the-shelf' packages like MYOB the training can be outsourced and thus making a particular staff member less critical of business operations.

Cost savings:- Computerized <u>accounting software</u> programs reduce staff time doing accounts and reduce audit expenses as records are neat, up-to-date and accurate.

Reduce frustration:- management can be on top of their accounts and thus reduce stress levels associated with what is not known.

The ability to deal in multiple currencies easily:- Many computerized <u>accounting software</u> packages now allow a business to trade in multiple currencies with ease. Problems associated with exchange rate changes are minimized.

TYPES OF ACCOUNTING SOFTWARE

To succeed at running your business – or even to know if you're succeeding – you need accounting software. Accounting software allows you to monitor the financial health of your business. Typically, it allows you to enter in all expenses, such as payroll and equipment expenses, as well as income, such as income from sales. Businesses of all sizes make use of accounting software.

Spreadsheets to Manage Financial Data

To help with bookkeeping, small businesses often use spreadsheet programs such as Microsoft Excel, Google Sheets or OpenOffice. You can adapt a spreadsheet to almost any basic accounting need. For example, you can use spreadsheet programs to list expenses, sales or other relevant financial data, and even to handle more advanced accounting functions. Generally, only a very simple business should rely solely on spreadsheets to handle accounting; for most others, spreadsheets usually compliment other accounting processes.

Commercial Accounting Software

Commercial accounting software such as QuickBooks, TurboCash or FreshBooks can handle most, if not all, of a small- to mid-size business's accounting needs.

INFORMATION SYSTEM& E-COMMERCE

Accounting software work with almost any business, and allow you to create customized functions to fit your specific needs. Commercial accounting software often includes graphs that summarize data, as well as reports that provide a picture of a business's health and the forms needed for taxes. Each type of commercial accounting software has strengths and weaknesses.

Enterprise Accounting Software

Larger companies may have enormously complex operations, and enterprise accounting software helps in managing this complexity. Accounting software for larger enterprises often integrates accounting with other services provided by the software, such as workflow management, business intelligence and project planning.

Often, when a large business selects this type of accounting software, it follows a multistage protocol that includes a request for information from accounting software vendors, a product demonstration and communication with other companies that use the software. Rather than using two-dimensional spreadsheets, enterprise software is often based on relational databases that can show the relationships between diverse sets of information, like showing sales volume from all customers compared to their regions, or the number of employees each company has. Common accounting software for enterprises include Oracle, SAP or Microsoft Dynamics GP.

Custom Accounting Software

Sometimes, a business creates its own accounting software. This often happens almost by accident: as the business grows, knowledgeable staff may be asked to write software to handle various accounting situations until, after a time, the business may find it has created its own custom accounting software. In other situations, a business creates custom software because there are no commercial accounting programs that meet its needs

Let's now proceed to the various types of accounting software. Depending on the type of operations, accounting & finance systems fall under four different categories. Note that there are also comprehensive accountings suites designed for enterprises that combine the best features of each category. Here is a brief overview:

Billing and invoicing systems:

Billing and invoicing systems complete companies' basic, day-to-day tasks, including check writing and informing customers about their due payments. They are essential to preserve control over the accuracy of accounting figures and make service

look more professional and credible to the end recipient. On the company's side, billing and <u>invoicing tools</u> help document financial activity and prepare it for authorization and validation.

Examples: <u>FreshBooks</u>, <u>Zoho Books</u>, and <u>Zoho Invoice</u>

Payroll management systems:

If you are looking to preserve control over your account payables and account receivables, you should be looking for payroll management systems that will handle it all. These tools were developed to perform an array of different tasks, including calculating employees' salaries, cutting deductions, depositing the salary directly into staff members' bank accounts, producing tax forms and payslips, and more. In the long run, they will secure your financial transactions, cut expenses, and help prepare detailed reports.

Examples: <u>Xero</u>, <u>Zenefits</u>, <u>AccountEdge</u>

Enterprise resource planning systems:

This is one of the most important accounting software categories. It combines all systems used for product planning, material purchasing, inventory management and control, distribution, accounting, marketing, finance, and HR. The latest ERP solutions also offer modules for CRM and business intelligence, so that the company can learn from its practices and prepare better strategies in the future**.**

Examples: <u>Intacct</u>, <u>Brightpearl</u>, <u>Odoo</u>

Time and expense management systems

These apps are designed to help expedite billing cycles and approve expenses on-the-go and are usually configurable enough for any business to adjust them to its operational pace. The core rationale behind them is to help collect payments faster and detect slow and ineffective practices that were not visible before. Their biggest advantage is being able to produce detailed graphical reports on how time and resources are being used in each company.

Examples: <u>FreshBooks</u>, <u>Zoho Expense</u>, <u>Expensify</u>

INFORMATION SYSTEM& E-COMMERCE

Some of the business also consider 7 Factors When Choosing Accounting Software for Small Business

If you are thinking of streamlining your books, you should not hurry. There are a few factors to consider in choosing an accounting software for small business. If you are the first-time buyer of an accounting system, you should not ignore these essential tips. They will only enhance your experience and your choice of business software.

Do you really need to use web-based accounting software? Regularly updating books of your small business, no doubt, is a mean task. It is especially so after juggling various tasks in the course of your working day. On the other hand, it is necessary as timely bookkeeping & accounting boost decision-making. And, it matters how you do it.

Doing your books manually is not efficient accounting. Only a business having a negligible number of financial transactions use paper-pencil accounting. Even a small business cannot use Excel sheets for long. The owner of an expanding business, sooner or later, has to think about automation.

User-Friendly Software

The ease of use is a prime factor to consider when buying accounting system. The user-friendly software provides you with a dashboard that shows charts giving the financial status of your company.

Seeing cash in or out of the company over the last six months, invoices owed to the company or bills to be paid by the company, and all user activities in one place is a great help. The software should simplify your bookkeeping and accounting.

Multi-Currency Transactions

The internet has reduced the distances between the consumers and businesses. Today, even small enterprise serve overseas clients.

If you have such clients, make sure that accounting software that you are investigating facilitates multi-currency transactions. It must also handle foreign exchange rates and conversions as per your convenience. It must also show these transactions in your base currency.

INFORMATION SYSTEM& E-COMMERCE

Web Based Application

The new breed of business owners prefers to use online accounting software. They like to keep in touch with their business' financial data on-the-go and email invoices to the clients from wherever they are.

Web-Based accounting software for small business allows them to collaborate with their staff or the accountants to speed up the things. The anytime and anywhere access to the latest financial data assists them in decision-making.

With Other Business Software

Integration

If you are looking to upgrade to the latest accounting software, you should be careful in what you select. Choose software that will integrate seamlessly with your suite of other business software. Picking an accounting software without considering the grave implication of your choice can be harmful to your business. It may disrupt its smooth running.

Moreover, in future, you may buy additional software tools for increasing the efficiency of your business. So buying software that is flexible and easy to integrate makes sense.

Secure Data

The market trend is to use web-based accounting software. You should also invest in such tool and not in the desktop-based ones. The heydays of desktop-based software tools are fading fast.

With the online accounting software, you can save business' financial data on the external servers. It is safe there from any physical hazard at your end. You should know when the data is backed up and make sure the frequency is as per your needs.

Many business owners hesitate to store their financial data on external servers. However, it is actually safer there than on your own servers. The security experts look after it. They use latest technologies to secure it. It should be one of the factors to consider when selecting a software package.

INFORMATION SYSTEM& E-COMMERCE

Customer Support

Switching to new accounting software, however, user-friendly or advanced, is a bit uncomfortable to everyone involved. Be sure that from time to time you or the staff are going to need support from an expert. The product's user manual is not going to have all the answers.

The level of customer support offered by the manufacturer of accounting software is one of the vital factors to consider when selecting a software package. If your staff is not happy with the software, it is going to delay the transition from the old system to new one.

Pricing of Accounting Software

The pricing, for small business owners, has always been one of the things to consider when buying accounting software. They are not in a position to pay high license fees for it.

However, it is not true in case of the <u>online accounting software</u>. You can use these tools by subscribing to them on a monthly basis. You can start using their basic features by paying $9-$20 in monthly subscriptions.

Don't Hurry, Take Your Time Before Buying an Accounting Software

The following is a list of accounting software that you should try before going ahead and buying one.

- ❖ Sage 50
- ❖ OneAccounting Software
- ❖ Xero
- ❖ Intuit Quickbooks Online

Sage 50, Xero, and Intuit Quickbooks are known tools. OneAccounting software is an online accounting software specially designed to meet the needs of small businesses. It is GST compatible software that offers multi-user & multi-currency support, Dashboard with live-feed, and can do reconciliation of any account.

Visit the software websites, download their trial versions, and see how the tools measure up in your daily use. Such a copy offers fewer features than its paid version. However, you will still be able to figure it out whether it is the tool that you would like to use for your business needs.

INFORMATION SYSTEM& E-COMMERCE

Go through their paid features too, and see, if they will satisfactorily map to your accounting needs.

Scope of Business

The first and most important thing business owners should document before choosing accounting software is the scope of the business and what accounting tasks the software should ideally perform. In addition to basic accounting requirements, make a list of other items you want the accounting software to handle, such as payroll, inventory management and cost accounting. Consider the future of the business in your decision as well as current operations. Software that fits perfectly today may not be enough a year from now. Keep business growth and expansion in mind when creating your scope list.

Modules Included

Once you have defined the scope of the business and the purpose of the accounting package, screening software possibilities becomes an easier task, because you can easily eliminate those that do not cover items on your scope list. For each accounting package that covers your scope, determine which modules are included in the base price and which modules have an additional cost. For example, some software manufacturers charge an additional price for a payroll module. Make a note of the entire cost of each software package so that you can accurately compare the packages.

Access and Portability

If you have a single business location and do not expect that to change, any accounting package that installs on a network server is suitable for your business. But if you have, or intend to have, multiple locations, you need to consider how field employees will access the accounting software, if needed. If you do not have an information technology employee, setting up exchange server logins may be too complicated a process to install or troubleshoot when you have problems. In the case of a small business with multiple locations, or employees that work from home, Internet-based software may be the best choice.

Knowledge Required

Powerful, do-it-all accounting software is still useless if your employees cannot learn to use it. When choosing accounting software, you must take into account the education level of your employees and the difficulty of the software selections. Some accounting software requires high-level accounting knowledge for setup and use, while other software packages are geared toward business owners and employees who do not have accounting education or experience.

INFORMATION SYSTEM& E-COMMERCE

Cost

Once you have eliminated software packages by scope, portability, module and knowledge requirements, the last factor to consider is the cost of the remaining software packages. When considering cost, take into account fees for upgrades, annual licensing and support. Compare technical support packages and factor additional fee support packages into the overall cost of the accounting software. If you cannot perform the installation and setup of the accounting software yourself, get estimates for installation and setup and factor those figures into the overall cost.

AREAS USING ACCOUNTING SOFTWARE'S

As your business expands, your financial data grows more complex. Handling business accounts in spreadsheets becomes confusing, time-consuming, and prone to errors. Growing business creates a need for a scalable accounting solution. To adapt to complex financial data, business owners have to think beyond spreadsheet accounting. The solution is accounting software.

Accounting software offers many features to optimize your business. From basic invoicing and billing, to tax calculations and project management, accounting software is an essential tool for your business' financial data. It also helps manage clients, reconcile bank accounts, and generate insightful financial reports that help your business grow smoothly and continuously.

Accounting software are used in following areas

Invoicing and billing

Invoicing and billing are indispensable business functions and the main source of cash flowing into your business. Managing invoices on paper is tedious, time-consuming and error-prone. When you have recurring orders, it is not feasible to create physical invoices for each time your client buys from you. It is also difficult to track invoices and remind customers of pending payments without automated software.

Online payments

The next step after invoicing your clients is getting paid. Collecting payments can be overwhelming if clients are not offered a proper system for making them.

INFORMATION SYSTEM& E-COMMERCE

You can integrate your accounting system with various online payment gateways that offer clients a swift and secure means of paying you. Payment gateways make records of payments you receive and update them under the corresponding invoice in your accounting system automatically. They also offer clients various methods of payments like credit and debit cards, and online bank transfers.

.

Expense tracking

Tracking expenses is vital for getting a grip on your cash flow. Accounting software helps you keep tabs on your expenses and categorize them to get a clear picture of where your money is going. You can also use accounting software to upload expense receipts, scan them, and record information from the scanned receipts automatically. This removes the need to store paper receipts and the risk of losing them. Accounting apps make it easier to bill customers for the expenses you incur on their behalf.

Bank reconciliation

Bank reconciliation is the core accounting feature of a business, and accounting software streamlines it. Connecting your bank account to accounting software directly lets you fetch statements from bank feeds automatically into your accounts. You can set up custom criteria and bank rules in your accounting software to categorize and match imported bank transactions automatically. Once your transactions are matched, you just need to verify and confirm them to reconcile your accounts. With simplified bank reconciliation, accounting software helps keep your business audit-ready throughout the year.

Timesheets and project management

A powerful accounting app should include a timesheets module to help you charge customers based on the time you've spent on a project. Timesheets help you manage your projects from budgeting to logging time and invoicing customers. Using accounting software to record the time spent on tasks helps you avoid overbilling or underbilling your customers. You can even get your time entries approved by your clients before you bill them to make sure everyone's on the same page. After a project is completed, timesheets help you compare your actual hours worked to your original budget so you can plan more accurately next time.

INFORMATION SYSTEM& E-COMMERCE

Inventory management

Inventory management is a key part of your business. Good inventory management is a prerequisite to ensuring sufficient stock and providing better customer service. It involves recording item information, tracking items, accounting, and generating reports. Accounting software helps with recording Stock Keeping Unit (SKU) codes, adding item images, creating bundles, and tracking the movement of items by serial or batch number. When you receive an order for items, you can use your accounting app to create a sales order, convert it into an invoice after approval, and associate the appropriate taxes with it. You can track stock and set reorder levels for your goods to receive automated emails and place timely orders, so that you don't run out of stock. You can also generate inventory specific reports to gain better insight and manage inventory more efficiently.

Tax compliance

A good accounting app is designed to adhere to your local tax regulations and make working with taxes easier. When you have to work with multiple tax rates, accounting software can make calculating taxes faster, and help you apply the right tax to your transactions more accurately. It can also give you a better understanding of your taxes by generating tax summary reports to help you stay organized and ready for tax time.

Report generation

Move to smart accounting today!

Keeping accurate records of your financial data at all times is vital for business growth. However, for maintaining proper accounts, you need a system that overcomes the drawbacks of traditional spreadsheets. Your invoicing and payments are perhaps the most vital cog in the wheel, and accounting software helps managing them efficiently where spreadsheets fail. Handling expense receipts is hassle-free with an accounting app, because it minimizes paperwork and prevents data loss due to missing or damaged documents. Spreadsheets also fall short when it comes to billing for hours—you can't efficiently log time for project tasks with spreadsheets.

INFORMATION SYSTEM& E-COMMERCE

SYSYTEM APPLICATION SOFTWARE (SAP)

Definition of SAP ERP Software

SAP stands for Systems Applications and Products in Data Processing. SAP, by definition, is also the name of the ERP (Enterprise Resource Planning) software as well as the name of the company. SAP Software is a European multinational, founded in 1972 by Wellenreuther, Hopp, Hector, Plattner, and Tschira. They develop software solutions for managing business operations and customer relationships.

SAP system consists of a number of fully integrated modules, which covers virtually every aspect of business management.

SAP is #1 in the ERP market. As of 2010, SAP has more than 140,000 installations worldwide, over 25 industry-specific business solutions and more than 75,000 customers in 120 countries

Other Competitive products of SAP Software in the market are Oracle, Microsoft Dynamics, etc.

What is SAP ERP? Why is it Required?

The following video will explain the need for an ERP software like SAP in an enterprise

The very fundamental question for any beginners is why Enterprise Resource Planning also called ERP, is required? To answer this, let's examine this typical business scenario.

Suppose a client approaches a sales team asking for a particular product. The sales team contacts the inventory department to check the availability of the product. To their surprise, the sales team found out that the product is out of stock. So next time this doesn't happen, they have to introduce an SAP ERP tool.

Before we actually see in detail, what ERP is and how ERP can help in your business process, we will understand how different departments are involved in the whole business process, right from the ordering of the raw material – to manufacturing goods – to delivering final products to the customer.

INFORMATION SYSTEM& E-COMMERCE

Here is the whole process that is followed by any business unit.

1. Client contacts the sales team to check the availability of the product
2. Sales team approaches the Inventory department to check for the availability of the product
3. In case the product is out of stock, the sales team approaches the Production Planning Department to manufacture the product
4. The production planning team checks with inventory department for availability of raw material
5. If the raw material is not available with inventory, the Production Planning team buys the raw material from the Vendors
6. Then Production Planning forwards the raw materials to the Shop Floor Execution for actual production
7. Once ready, the Shop Floor Team sends the goods to the Sales Team
8. Sales Team who in turn deliver it to the client
9. The sales team updates the finance with revenue generated by the sale of the product. Production planning team update the finance with payments to be made to different vendors for raw materials.
10. All departments approach the HR for any Human Resource related issue.

That is a typical business process for any manufacturing company. Some key inferences one could derive from the scenario would be.

- It has many departments or business units
- These departments or business units continuously communicate and exchange data with each other
- The success of any organization lies in effective communication, and data exchange, within these departments, as well as associated third party such as vendors, outsourcers, and customers.

Based on the manner in which communication and data exchanged is managed. Enterprise systems can be broadly classified as

1) Decentralized System

2) Centralized System which is also called as ERP.

INFORMATION SYSTEM& E-COMMERCE

Decentralized System

Let's look at Decentralized system first, in a company with Decentralized System of Data Management. There are two major problems –

- **Data is maintained locally at the individual departments**
- **Departments do not have access to information or data from other departments**

To identify issues arising due to decentralized Enterprise management system lets look at the same business process again. The customer approaches the sales team for a product, but this time around, he needs the product, on an urgent basis.

Since it is a decentralized process, the Sales Team do not have any real-time information access to the productavailability. So they approach the Inventory department to check the availability of the product. This process takes time, and the customer chooses another vendor leading to loss of revenue and customer dissatisfaction.

Now, suppose the product is out of stock, and the Sales Team approaches the Production Planning team to manufacture the product for future use. Production Planning Team checks the availability of the raw materials required.

In a decentralized system, raw material information is stored separately by Production Planning as well as the Inventory Department. Thus, data maintenance cost (in this case, Raw Material) goes up.

The raw material information is available in two different departments Inventory as well as Production Planning. When sales team check a particular raw material required to manufacture the product, it shows the raw material is available as per the inventory, but as per the database of the production planning team, the raw material is out of stock.

So, they go ahead and buy the raw material. Thus, material, as well as inventory cost, goes up.

Once the raw material is available, the shop floor department suddenly realizes they are short of workers. They approach the HR, who in turn hire temporary employees at higher than market rates. Thus LABOR Cost Increases.

INFORMATION SYSTEM& E-COMMERCE

The production planning department fails to update the finance department on the materials they have purchased. The finance department defaults the payment deadline set by the vendor causing the company loss of its reputation and even inviting a possible legal action.

These are just a few of many problems with decentralized systems.

Some Major problems with the decentralized system are –

- Numerous disparate information systems created individually over time which are difficult to maintain
- Integrating the data is time and money consuming
- Inconsistencies and duplication of data
- Lack of timely information leads to customer dissatisfaction, loss of revenue and reputation
- High Inventory, material, and human resource cost.

These are some major drawbacks for which we need a solution. Well, the Solution lies in **Centralized Systems i.e., ERP.**

Centralized System

In a company, with a Centralized System of Information and Data Management.

1) Data is maintained at a central location and is shared with various Departments

2) Departments have access to information or data from other Departments

Let's look at the same business process again to understand how a Centralized Enterprise System helps to overcome problems posed by a Decentralized Enterprise System.

In this case, all departments update a Central Information System.

- When Customer approaches the sales team to buy a product on an urgent basis. The Sales Team has real-time information access to the products in inventory which is updated by the Inventory Department in the Centralized System
- Sales Team respond to customer request on time, leading to Increased Revenue and Customer Delight.
- In case, manufacturing is required the Sales Team update the Centralized Database, so that all the department remain informed about the product status.

INFORMATION SYSTEM& E-COMMERCE

- Production Planning Department is **auto updated** by the Centralized Database for requirements. Production Planning Team checks the availability of the raw materials required via the Central Database, which is updated by the Inventory Department.
- Thus, Data Duplication is avoided, and accurate data is made available. The Shop Floor Team update their Man Power Status regularly in the Central Database, which can be accessed by the HR department.
- In case of shortage of workforce, HR team starts the recruitment process with considerable lead time to hire a suitable candidate at market price. Thus labor cost goes down.
- While vendors can directly submit their invoices to the Central Enterprise System, which can be accessed by the finance department. Thus, payments are made on time, and possible legal actions are avoided
- SAP software is a type of Centralized System. SAP Systems are the most popularly used in ERP software.

Key benefits of the centralized system are:

- It eliminates the duplication, discontinuity, and redundancy in data
- Provides information across departments in real time.
- SAP System provides control over various business processes
- Increases productivity, better inventory management, promotes quality, reduced material cost, effective human resources management, reduced overheads boosts profits
- Better customer interaction and increased throughput. It also improves customer service
- Hence, a centralized enterprise management system is required.
- SAP Software is a centralized enterprise management system, also known as Enterprise Resource Planning.
- The meaning of the acronym SAP is **S**ystems **A**pplications and **P**roducts in Data Processing

KNOWLEDGE PROCESS OUTSOURCING

Knowledge Process Outsourcing (KPO) is when difficult, high-level tasks get outsourced by a company to a vendor. So the activities which the company will be outsourcing are core activities.

INFORMATION SYSTEM& E-COMMERCE

They require skills, technical knowledge, and expertise. So a company outsources these tasks to another company (vendor) or a <u>subsidiary</u> company located in the same country or sometimes offshores for cost purposes.

As we know, BPO services are also the outsourcing of activities, but non-core activities. So a KPO will be a subset of a BPO. However, KPO involves more core activities with specialized and technical work.

The <u>company</u> outsources to KPO's for their skilled labor and subject expertise, not to lower their work burden. It is also an opportunity to lower costs because, in developing countries like India, skilled and educated <u>labor</u> is a lot cheaper.

So a KPO is like an umbrella, it covers a variety of activities. So there are many types of KPO's like <u>market</u> research, legal discovery, <u>financial</u> research, pharma and biotech, data analytics, creative design, technical content writing etc.

As it happens India is one of the leading providers of many of these KPO <u>services</u>, especially in the technical and scientific fields. It is currently a $14 billion <u>industry</u> in India.

Some famous companies providing such KPO services in India are Wipro, TCS, WNS Global, Aditya Birla Minacs etc. And still, this sector continues to grow at a very fast pace. But in recent years India is facing huge competition from countries like China, the Philippines, and the Czech Republic etc.

List of KPO Companies in India

- Sutherland Global Services

- WNS

- Boston Analytics

- SG Analytic

- Eclerx

- Syntel

- CRISIL

- iGate

- McKc (Mckinsey Knowledge Centre)

- Deloitte

Advantages of KPO

❖ **Cost-effectiveness**: One of the biggest advantages of a KPO is obviously the cost advantage. The company does not have to set up any infrastructure or bear any operational or running <u>costs</u>. And it gets effective, expertizes services at a fraction of the cost.

❖ **Access to the best talent**: KPO's provide the company with the best, most knowledgeable and skilled professionals available in the global talent pool. And if the KPO is in a developing <u>country</u> like India or Philippines then the cost of such talent is also relatively low.

❖ **Focus**: Outsourcing some of the processes, allows the company to focus on its core functions. The KPO handles the peripheral functions, and the company can better focus on its core functions and improve their efficiency and results.

❖ **Better Utilization of Resources**: If the company outsources the process that is not at the core of their business strategy, it can use the resources it saves in better places. Say a company outsources its supply chain management. Then the resources it saves on this can be utilized to streamline the manufacturing process, R&D activities, better marketing etc.

Disadvantages of KPO

❖ Lack of confidentiality

❖ Risk of leaking of sensitive data and private financial information

❖ The possibility of hidden costs (especially in offshore outsourcing)

INTERNET OF THINGS(IOT)

Meaning:

INFORMATION SYSTEM& E-COMMERCE

Internet of Things(IoT) is a network of physical objects or people called "things" that are embedded with software, electronics, network, and sensors that allows these objects to collect and exchange data. The goal of IoT is to extend to internet connectivity from standard devices like computer, mobile, tablet to relatively dumb devices like a toaster.

IoT makes virtually everything "smart," by improving aspects of our life with the power of data collection, AI algorithm, and networks. The thing in IoT can also be a person with a diabetes monitor implant, an animal with tracking devices, etc.

History of IOT

- 1970- The actual idea of connected devices was proposed
- 1990- John Romkey created a toaster which could be turned on/off over the Internet
- 1995- Siemens introduced the first cellular module built for M2M
- 1999- The term "Internet of Things" was used by Kevin Ashton during his work at P&G which became widely accepted
- 2004 - The term was mentioned in famous publications like the Guardian, Boston Globe, and Scientific American
- 2005-UN's International Telecommunications Union (ITU) published its first report on this topic.
- 2008- The Internet of Things was born
- 2011- Gartner, the market research company, include "The Internet of Things" technology in their research

How IOT works?

The entire IOT process starts with the devices themselves like smartphones, smartwatches, electronic appliances like TV, Washing Machine which helps you to communicate with the IOT platform.

Here, are four fundamental components of an IoT system:

1) Sensors/Devices: Sensors or devices are a key component that helps you to collect live data from the surrounding environment. All this data may have various levels of complexities. It could be a simple temperature monitoring sensor, or it may be in the form of the video feed.

INFORMATION SYSTEM& E-COMMERCE

A device may have various types of sensors which performs multiple tasks **apart** from sensing. Example, A mobile phone is a device which has multiple sensors like GPS, camera but your smartphone is not able to sense these things.

2) Connectivity: All the collected data is sent to a cloud infrastructure. The sensors should be connected to the cloud using various mediums of communications. These communication mediums include mobile or satellite networks, Bluetooth, WI-FI, WAN, etc.

3) Data Processing: Once that data is collected, and it gets to the cloud, the software performs processing on the gathered data. This process can be just checking the temperature, reading on devices like AC or heaters. However, it can sometimes also be very complex like identifying objects, using computer vision on video.

4)User Interface: The information needs to be available to the end-user in some way which can be achieved by triggering alarms on their phones or sending them notification through email or text message. The user sometimes might need an interface which actively checks their IOT system. For example, the user has a camera installed in his home. He wants to access video recording and all the feeds with the help of a web server.

However, it's not always one-way communication. Depending on the IoT application and complexity of the system, the user may also be able to perform an action which may create cascading effects.

For example, if a user detects any changes in the temperature of the refrigerator, with the help of IOT technology the user should able to adjust the temperature with the help of their mobile phone.

IoT Applications

IoT solutions are widely used in numerous companies across industries. Some most common IoT applications are given below:

Application type	Description
Smart Thermostats	Helps you to save resource on heating bills by knowing your usage patterns.

INFORMATION SYSTEM& E-COMMERCE

Connected Cars	IOT helps automobile companies handle billing, parking, insurance, and other related stuff automatically.
Activity Trackers	Helps you to capture heart rate pattern, calorie expenditure, activity levels, and skin temperature on your wrist.
Smart Outlets	Remotely turn any device on or off. It also allows you to track a device's energy level and get custom notifications directly into your smartphone.
Parking Sensors	IOT technology helps users to identify the real-time availability of parking spaces on their phone.
Connect Health	The concept of a connected health care system facilitates real-time health monitoring and patient care. It helps in improved medical decision-making based on patient data.
Smart City	Smart city offers all types of use cases which include traffic management to water distribution, waste management, etc.
Smart home	Smart home encapsulates the connectivity inside your homes. It includes smoke detectors, home appliances, light bulbs, windows, door locks, etc.

Smart supply chain	Helps you in real time tracking of goods while they are on the road, or getting suppliers to exchange inventory information.

Challenges of IoT

At present IoT is faced with many challenges, such as:

- Insufficient testing and updating
- Concern regarding data security and privacy
- Software complexity
- Data volumes and interpretation
- Integration with AI and automation
- Devices require a constant power supply which is difficult
- Interaction and short-range communication

Advantages of IoT

Key benefits of IoT technology are as follows:

- **Technical Optimization:** IoT technology helps a lot in improving technologies and making them better. Example, with IoT, a manufacturer is able to collect data from various car sensors. The manufacturer analyzes them to improve its design and make them more efficient.
- **Improved Data Collection:** Traditional data collection has its limitations and its design for passive use. IoT facilitates immediate action on data.
- **Reduced Waste:** IoT offers real-time information leading to effective decision making & management of resources. For example, if a manufacturer finds an issue in multiple car engines, he can track the manufacturing plan of those engines and solves this issue with the manufacturing belt.
- **Improved Customer Engagement:** IoT allows you to improve customer experience by detecting problems and improving the process.

INFORMATION SYSTEM& E-COMMERCE

Disadvantages IOT

- **Security:** IoT technology creates an ecosystem of connected devices. However, during this process, the system may offer little authentication control despite sufficient security measures.
- **Privacy:** The use of IOT, exposes a substantial amount of personal data, in extreme detail, without the user's active participation. This creates lots of privacy issues.
- **Flexibility:** There is a huge concern regarding the flexibility of an IoT system. It is mainly regarding integrating with another system as there are many diverse systems involved in the process.
- **Complexity:** The design of the IOT system is also quite complicated. Moreover, it's deployment and maintenance also not very easy.
- **Compliance:** IOT has its own set of rules and regulations. However, because of its complexity, the task of compliance is quite challenging.

IOT Best Practices

- Design products for reliability and security
- Use strong authentication and security protocols
- Disable non-essential services
- Ensure Internet-managed, and IoT management hubs & services are secured
- Energy efficient algorithms should be designed for the system to be active longer.

Summary

- The Internet of Things (IoT) is a network of physical objects or people called "things" that are embedded with software, electronics, network, and sensors which allows these objects to collect and exchange data.
- The actual idea of connected devices was proposed in 1970
- Four Key components of IoT framework are 1) Sensors/Devices, 2) Connectivity, 3) Data Processing, 4) User Interface
- Various applications of IoT are Smart Thermostats, Connected Cars, Activity Trackers, Smart Outlets, Connect Health, etc
- Technical Optimization, Improve Data Collection, Reduced Waste, Improved Customer Engagement are key benefits of IoT
- Security, Privacy, Complexity, Compliance, are key challenges of IoT

INFORMATION SYSTEM& E-COMMERCE

UNIT: 4

E-COMMERCE

HISTORY:

In the 1970s, the term electronic commerce, referred data exchange for sending business documents such as purchase orders and voices electronically. Later, with the development of this industry the term of electronic commerce is used to business of goods and services via the web. When the first World Wide Web was introduced in 1994 comprehensive, many well known researchers have been predicated this type of business "The Web-based business" will became soon an important in the world economy, but it took four years that http based protocols should be widely available to users. The first electronic commerce created in USA and some European countries in 1998.Electronic commerce was spread rapidly in most cities in America, Europe and East Asia in 2005.

INTRODUCTION:

Commerce-the trading of goods has been a major drive of human survival since the beginning of recovered history and beyond. The mass adoption of internet has created a paradigm shift in the way businesses are conducted today. The past decade has seen an emergence of new kind of commerce, the buying and selling of goods, through human-computer interaction over the internet. Today, the line between e-commerce and traditional commerce is becoming more blurred as more businesses start and continue to integrate the internet and e-commerce technologies into their business processes.

Meaning:

E-Commerce can be defined as a modern business methodology that addresses the needs of organizations, merchants, and consumers to cut costs while improve the quality of goods and services and increasing speed of service delivery, by using internet.
Examples: Amazon, Flipkart, eBay, Upwork, Olx, Quikr etc.
(OR)
E-Commerce, also known as electronic commerce or Internet commerce, refer to the buying and selling of goods and services using the internet, and the transfer of money and data to execute these transactions.

Definition:

E-commerce refers the use of internet and other online service to be engaged in buying and selling of digital and non digital products and services which require digital transportation or physical transportation

INFORMATION SYSTEM& E-COMMERCE

CHALLENGES OF E-COMMERCE:(2019)

1. Finding the right products to sell: Shopping cart platforms like shops have eliminated many barriers of entry. Anyone can launch an online store within days and start selling all sorts of products. Amazon is taking over the e commerce world with their massive online product Catalog. Their marketplace and fulfillment services have enabled sellers from all over the world to easily reach paying customers.

2. Attracting the perfect customer: Online shoppers don't shop the same way as they used to back in the day. They use Amazon to search for products. They ask for recommendations on social Media. They use their smartphones to read product reviews while in-store and pay of payment methods.

3. Generating targeted traffic: Digital marketing channels are evolving. Retailers can no longer rely one type of channel to drive traffic to their online store. They must effectively leverage SEO, PPC, Email, Social, display ads, retargeting, mobile, shopping engines and affiliates to help drive qualified traffic to their online store.

4. Capturing quality leads: Online retailers are spending a significant amount of money driving traffic to their online store. With conversion rates ranging between 1%to 3%,they must put a lot of efforts in generating leads in order to get the most out of their marketing efforts.

5. Nurturing the ideal prospects: Having a large email list is worthless if you're not actively engaging with subscribers. A small percentage of your email list will actually convert into paying customers. Online retailers put a lot of focus on communicating product offering as well as promotions, but prospects need more than that.

6. Converting shoppers into paying customers: Driving quality traffic and nurturing leads is key if you want to close the sale. At a certain point, you need to convert those leads in order to pay for your marketing campaigns.

7. Achieving profitable long-term growth: Increasing sales in one way to grow the business but in the end , what matters most is profitability. Online retailers must always find ways to cut inventory costs, improve marketing efficiency, reduce overhead, reduce shipping costs and control order returns.

8. Choosing the right technology and partners: Some online retailers may face growth challenges because their technology is limiting them or they've hired the wrong partners/agencies to help them manage their projects. Retailers wanting to achieve growth must be built a good technology foundation.

INFORMATION SYSTEM& E-COMMERCE

ADVANTAGES OF E-COMMERCE:

1. Speed up the buying process and save time for customers: It literally speeds up the buying process because when someone thinks of buying one specific product from the physical store which is very far and not easily available. Ecommerce helps the customer to avail the specific product easily and speedily.

2. Personalize the store as per the customer expectation: One of the online business benefit which will enhance your online shopping experience. It is because every purchase which is made online will be referred as per location and recommended as per customer advanced searches. Even customers are eligible sometime to get extra services because of previous history and loyalty towards the services.

3. Reduce recurring cost while hiring virtual support resources: One of the factors which can benefit in E-commerce is that by hiring employees is affordable. It is like you can choose to outsource your task and work to the virtual assistants in different countries. In this case, you will not need many employees in an Ecommerce business as compared retail locations.

4. Easily retarget your customers: There are many way to retarget the customer and sell the product nicely.

Below are some of the techniques which you can use to retarget customers:

• Share a coupon when customers leave the checkout page.

• Even by sending email which are pitching up sell and cross-sell.

• Can be done through Google paid and organic search results.

• It can be done through the customers number of visits to a specific page with a certain period of time.

5. Easier to encourage an impulse buy: Impulse buying is one of the techniques where is works as a common behavior of customers perception towards a particular product. This is what can be used on an Ecommerce platform too by making the product more attractive with images, other color options and even by showing a video of the product.

6. Reviews available: It has so many positive recommendations which can give more values to your Ecommerce website and help customers to build more trust over a particular product. It can help you to be clear and more visible about the product that helps you with more product selection too.

7. Quick and affordable marketing: You will not have to spend many bucks to market your E-commerce biz. There are many ways to pull e commerce business into this online world through various ways of online marketing which are quick and affordable.

8. Avoid human error while dealing with customers: In the path of E-commerce, you will never face the issue of human error because every product is updated with details on the site, so have more visibility over the products.

DISADVANTAGES OF E-COMMERCE:

1. Lack of personal touch: It is kind of customer feeling that customer can't feel and touch the product. Sometimes no matter how good a product is explained and expressed you will not be able to sense the touch, small, taste, and sound through the dimensionality of a screen. This is what makes E-commerce sometimes in a situation where customer faces bit trust issues over products.

2. Unsure about the quality: One of the biggest problems with buying things online is that you will have no guarantee of a products quality. Reviews are not always helpful and through all the researchers will never assure you about the quality of a product.

3. Late delivery: When someone plans to order a product online they are never assured to get delivered as per time and there are plenty of issues which make such situation very delicate for customer. Such a situation makes consumer wait a lot for the delivery but at end services almost loses the trust of customer on that moment itself.

4. Security issues: E-commerce sites record all the important details about the customers which are to be kept secured because it includes details like name, Phono no, address, and don't implement rigorous cyber security quantity.

5. Internet bandwidth: E-commerce is the store which totally runs on the internet and through it needs a good connection to run the business online. If you are not the good bandwidth connection than you might face issue with placing the orders, loading pages, and check out issues too.

6. E-commerce is highly competitive: Every single step into e-commerce is very competitive because the online market has been growing rapidly. One has to focus on the services and try to learn more about the strategies to makes their visibility global market.

7. It is difficult to try before buying: You can say that online shoppers will not have much ability to inspect physically , even sometimes they lose the power to negotiate the price and payment terms might exit different as compared to local stores.

8. Site crash issues: This is one of the problems where you have to reckon the service to get online again because when you talk about E-commerce store, they face issue with servers sometimes which causes lots of problem on sales. What are network infrastructure: (2016) Network infrastructure is the hardware and software resources of an entire network that enable network connectivity, communications, operations and

management of an enterprise network. It provides the communications path and services between users, processes, application, services and external network/ the internet.

Network infrastructure includes:

Networking hardware: • Routers • Switches • LAN cards • Wireless routers • Cable

Networking software: • Network operations and management • Operating systems • Firewall • Network security applications Network services: • T-1 line • DNS • Satellite • Wireless protocols • IP addressing

1. Routers and Switches: Routers connect networks of your infrastructure, enabling systems to communicates. You need to ensure that the routers have spare capacity after the development to cope with projected growth and usage. In similar vein, switches connect systems within a network. Routers or infrastructure, enabling systems to communicate

2. Firewalls: Firewalls sit between a router and application servers to provide access control. Firewalls were originally used to protect a trusted network(yours)from the untrusted network(the internet). These days, it is becoming more common to protect application servers on their own(trusted, isolated) network from the untrusted networks.

3. Load Balancers: Use load balancers to distribute overall load on your web or applications servers, or to distribute demand according to the kind of task to be performed. A load balancing solution that reads packet headers enables you to identify privileged users and to direct requests to servers handling specific tasks.

4. Storage Area Networks (SANs): Understand the data requirements of the storage system is necessary for a successful deployment .SANs are being deployed so that the storage is independent of the servers used in conjunction with it. Deploying SANs can represent a decrease in the time to recover from a non-functional server as the machine can be replaced without having to relocate the storage drives.

5. Domain Name System (DNS): Servers which make usage of DNS queries should be equipped with a local caching DNS server to reduce lookup latency as well as network traffic. When determining your requirements, consider allocating host names for functions such as mail-store, mail-relay-in, mail-rely-out, and so forth. You consider this policy even is the host names all are currently hosted on one machine.

INFORMATION SYSTEM& E-COMMERCE

TRANSACTION TO E-COMMERCE IN INDIA

Challenges to India corporate
- ❖ Awareness, 16%
- ❖ Infrastructure and access
- ❖ Human capacity and skills
- ❖ Legal and regulatory framework
- ❖ Financial institutes
- ❖ Internal resistance (cultural changes, not many are prepared)

External driving factors
- ❖ Sheer necessity
- ❖ Global market
- ❖ Value for money
- ❖ No-entries barriers

Need of Act-2000
- ❖ For legal recognition transaction carried out by means of electronic data interchange and other means of electronic communication
- ❖ For electronic filling of document, with govt. agencies
- ❖ For delivering govt. services by means of reliable electronic records.

Overview of Act-2000
- ❖ Electronic contracts will be legally valid
- ❖ Legal recognition of digital signature
- ❖ DS to be effected by use of asymmetric crypto system and hash function
- ❖ Security procedure for ER & DS
- ❖ Appointment of certifying authorities and controller of CA
- ❖ CA should get license to issue digital signature certificate
- ❖ Various types of computer crime defined and penalties are decided
- ❖ Appointment of adjudicating officer
- ❖ Establishment of cyber appellate tribunal
- ❖ Appeal from adjudicating officer to cyber appellate tribunal not to civil court
- ❖ Appeal from cyber appellate tribunal to high court
- ❖ Act to apply offence committed outside India
- ❖ NSP not to be liable in certain areas
- ❖ Power of police officers to enter in to any public place and search and arrest without warrant

INFORMATION SYSTEM& E-COMMERCE

IT Act enables

- ❖ Legal recognition to electronic record
- ❖ Facilitate electronic communication by means of electronic record
- ❖ Acceptance of contract expressed by electronic mean
- ❖ Facilitate e-commerce and EDI
- ❖ Retention of documents in electronic form
- ❖ Prevent computer crime, forged electronic record falsification in e-commerce and electronic transaction.

Positive aspects for corporate sector

- ❖ E-mail will now be valid from legal from (memos)
- ❖ E-commerce using legal infrastructure
- ❖ Able to use DS
- ❖ Entry to corporate in the business of being CA
- ❖ 2001-2002, 4%, hike in online Shopping
- ❖ 2001-02, 13%, to 16% internet user
- ❖ Cost effecting, time saving and profitable solutions
- ❖ Push for e-commerce adoption
- ❖ Started using EDI and E-SCM

SOME POINEERING CASE STUDIES IN INDIA

1) Increase Conversions with Compelling Copy
2) Build Powerful Backlinks to Your Online Store
3) Create Content for Each Stage of Your Funnel
4) Recover Abandoned Carts with a Twist
5) Make the Most of Your Customer Reviews
6) Create an Irresistible Unboxing Experience
7) Turn One-Time Shoppers into Repeat Customers

1. Increase Conversions with Compelling Copy

Good e-commerce brands don't rely on attention-grabbing visuals or big advertising budgets—they go above and beyond to write compelling copy that convinces users at every stage of their sales funnel.

INFORMATION SYSTEM& E-COMMERCE

Only with well-crafted and persuasive copy, can they position themselves as the best option in the market.

To follow the path of leading brands, start with your value proposition and answer the problems you're solving with your products.

Then, repurpose your value proposition across different channels, such as your site, social media content, email marketing, and paid ads.

While there's no one-size-fits-all recipe for crafting a good value proposition, there's one proven copywriting formula you can try: **Problem, Agitation, Solution (PAS).**

It's as simple as it sounds:

1. You define a problem;
2. Agitate the reader's emotions;
3. Offer a solution.

Take this example by Bellroy and how they use PAS in their value proposition:

Bellroy, first, introduces a common problem among their target audience: *getting weighed down by baggage, bulk, stuff.*

Then, they touch upon the results caused by this problem and agitate the reader's responses: *It can slow you down and narrow your view.*

Finally, they relieve you by saying that *it doesn't need to be that way.*

Because Bellroy's products are *the* solution to your problems.

The PAS formula is easy to replicate for your brand, once you find the answers to the following questions:

1. What are your buyer persona's typical problems?
2. How do these problems affect their lives?
3. How do you solve them with your products?

With a similar approach, you can promise to free your prospects from *pain*.

Bellroy makes it easy for you to relate to the problems they solve. And they promise to free you from problems, pain, and panic.

Use the PAS formula to address prospects' fears and pain points, and offer your products as the best solution for them.

2. Build Powerful Backlinks to Your Online Store

Even though most online stores rely on Google search for their organic traffic today, few e-commerce marketers know and appreciate the importance of e-commerce SEO. And even fewer spend enough time and effort on link building. Getting high authority sites to link to your online store will make your domain more powerful. And a powerful domain will help you outrank your competitors in search engine result pages (SERPs).

I'll be honest—link building takes time and effort, but the results are worth it.
No matter if you're selling men's apparel, design furniture, children's books, or personalized gifts—chances are, your e-commerce site specializes in something. And there's a greater chance that many publishers are already writing articles about the best products in your industry.

Here comes into play, what Sam calls, *"The Best-Of Backlink Builder"* strategy. Simply put, you reach out to authority domains in your industry and ask to get featured in their "best-of" content.

MeUndies is a great example of this. You can see them on BuzzFeed under "21 Inexpensive Gifts For The Cool Guy In Your Life".

I don't suggest reaching out to the biggest names in your industry and spend all your budget on sponsorships. However, this strategy is worth testing with small, niche-specific podcasts. You can also build strong links and expand your reach by sponsoring local events or awards.

3. Create Content for Each Stage of Your Funnel

Whether you're a novice in your field or a seasoned marketer, it's likely you know about the effectiveness of content.
E-commerce content marketing can help you acquire new leads and convert them into customers. But no piece of content will work the same for different people.

Users at different stages of your sales funnel have different questions, concerns, and needs. That's why you need to align your content marketing with the buyer's journey. This doesn't mean that you need to write 5,000-word blog posts for different segments each week. It simply means that you need to find the questions in your prospects' minds and answer them with your content. Take Beardbrand as an example.
The company's ToFu prospects most likely have questions about how to grow a beard. And when they Google that term, they'll see Beardbrand after featured snippets:

Why does Beardbrand rank so well for that term? Well, beyond having a strong backlink profile, they have a highly-detailed guide about how to grow a beard:

Once you learn that you need to take better care of your beard, you slowly become interested in Beardbrand products.

This means you then become a middle-of-funnel (MoFu) prospect for the company.

At this stage, Beardbrand has content to educate you while subtly promoting their products. So if you're wondering what the difference is between beard oil and beard balm, you'll most likely end up on another one of their blog posts:

And in that blog post, you'll see call-to-action (CTA) buttons to buy their products:

If blogging isn't a part of your marketing strategy, try creating "how-to" videos to educate your target audience and subtly promote your products, just like Beardbrand does:

Visit Reddit or Quora to understand what your prospects are discussing, then create content to answer their questions. Implement product marketing into your content strategy, without being salesy.

4. Recover Abandoned Carts with a Twist

Cart abandonment is every e-commerce marketer's nightmare.

According to Baymard, the average cart abandonment rate for e-commerce is close to 70%. This means that most of your visitors will leave your site without buying the items in their basket.

While cart abandonment is inevitable, luckily there's something you can do to minimize it. With an optimized checkout and well-written abandoned cart emails, you can go beyond recovering the abandoned carts—and even sell more.

In the end, you'll not only recover potential lost revenue but also increase the average order value (AOV). Harry's has a genius strategy to reclaim abandoned carts (with a twist.)

When you leave Harry's' site without starting your subscription, you receive an email that reminds you to complete the process.

At first, it looks like any other abandoned cart email:

In the first part of the email, Harry's reminds you about the benefit of buying a subscription plan.

But in the second part, things get interesting. Harry's offers you a *downsell*, in case you're not ready to commit to a subscription.

But they don't stop there. When you follow the link and add the Truman Set to your cart, this time they *upsell* with a popup suggesting a mystery item.

This way, they take you back to a higher price point, even if you're not ready for committing to a subscription plan.

5. Make the Most of Your Customer Reviews

When it comes to customer testimonials, there are two main challenges waiting for e-commerce marketers:

1. Collecting as many rich and insightful reviews as possible; and
2. Using those reviews in the best way possible to convince your prospects to buy from you.

How you're asking for testimonials can have a huge impact on both the quantity and the quality of the reviews you collect.

Even if you convince your customers to leave a product review, most of the times they're too generic and broad.

Casper finds a clever solution to this common problem. A few days after you become a customer, the company sends you this email asking for a product review:

When you click the CTA button, you land on a page where you can submit the following form and leave a review:

Casper invites you to answer some specific questions rather than leaving it completely open-ended. This way, it becomes easier for their customers to fill the form.

Plus, they get richer and more meaningful product reviews, like this:

How you display your reviews is as important as collecting them.

You can repurpose your customer testimonials across several channels: Use them in your emails, product pages, paid ads, and many more.

Take inspiration from Casper again. They both display customer reviews on adedicated page and use it in their email marketing as social proof

6. Create an Irresistible Unboxing Experience

With the rise of user-generated content and electronic word-of-mouth, the phenomenon of unboxing made a quick entrance into our lives.

It's not a coincidence that today a YouTube channel on unboxing has over 14 million subscribers.

Both consumers and marketers *love* unboxing videos. Because they help consumers get a detailed overview of the products they're interested in. And they mean social proof and more reach for marketers.

In order to create an irresistible unboxing experience for your customers, you need to set their expectations from the start.

Man Crates does that well by teasing the unboxing experience. When you enter your zip code on one of their product pages, the company gives you an estimated delivery date:

Plus, they give you more information about *how* your delivery will ship: During checkout, they also let you write a gift note and enhance the gift recipient's unboxing experience. And even better, they suggest some fun pre-written notes to choose from:

Their crates don't only come with a fun note but also with a message that encourages you to record and share your unboxing experience.

If you want even more people to take action, you can offer your customers a special discount on their next order, in return for sharing their unboxing moments.

7. Turn One-Time Shoppers into Repeat Customers

Many e-commerce marketers focus too much on getting ToFu leads and converting them into new customers. While doing that, they fail to use the full potential

of their existing customers. In fact, <u>repeat customers spend around 67% more</u> than your new customers. But without the right incentive, your customers will have little reason to return to your store.

With an attractive <u>customer loyalty program</u>, you can turn one-time purchases into repeat buyers and increase your revenue dramatically.

Knowing this well, Sunski has a unique customer loyalty program that rewards their customers for different actions they take.

Going beyond shopping points, they offer you many other ways to earn credit:

As part of their customer loyalty program, the company also uses <u>referral marketing</u>.

All you need to do is to write your friend's email address and Sunski takes care of the rest for you.

Your friend receives the following email and you both get a nice $10 discount on Sunski products. This way, you don't only retain your existing customers, but also let them bring you more customers. The best part is, you don't need to create a loyalty program from scratch to use referrals. You can easily set up a Shopify app or use a third-party tool to start a referral program.

E-TRASITION CHALLENGES FOR INDIAN CORPORATE

Some of the challenges faced by e-commerce in India are:

1. Infrastructural Problems,
2. Absence of Cyber Laws,
3. Privacy and Security Concern,
4. Payment and Tax Related Issues,
5. Digital Illiteracy and Consumer Psyche,
6. Virus Problem and
7. English Specific.

E-commerce in spite of opportunities, hoopla and hype, also bears the connotations of challenges as well at the same time. We, therefore, enumerate the major challenges e-commerce in small enterprises is facing and also submit the remedial measures to meet these challenges.

1. Infrastructural Problems:

Internet is the backbone of e-commerce. Unfortunately, internet penetration in India is so far dismally low at 0.5 per cent of the population against 50 per cent in Singapore. Similarly, penetration of personal computer (PC) in India is as low as 3.5 per thousand of population compared to 6 per thousand in China and 500 per thousand in US. Internet is still accessible through PCs with the help of telephone lines.

INFORMATION SYSTEM& E-COMMERCE

Given the penetration of telephone only 2.1 per cent of population, e-commerce remains far away from the common man. It is difficult for e-commerce to reach to 1,000 million population spread over 37 million households in 6, 04,374 odd villages and 5,000 towns and cities. Besides, both cost of PCs and internet access in India are quite high.

2. Absence of Cyber Laws:

Other big challenge associated with e-commerce market is the near absence of cyber laws to regulate transactions on the Net. WTO is expected to enact cyber laws soon. The India's Information Technology (IT) Bill passed by the Indian Parliament on May 17, 2000 intends to tackle legislatively the growing areas in e-commerce.

The Bill also intends to facilitate e-commerce by removing legal uncertainties created by the new technology. As it stand today, the Bill deals with only commercial and criminal areas of law. However, it does not take care of issues such as individual property rights, content regulation to privacy and data protection specific legislation.

3. Privacy and Security Concern:

As of to-day, quite vulnerable issues related to e-commerce are privacy and security. So far, there is no protection offered either by Website or outside watchdogs against hazard created by exploiting one's privacy.

4. Payment and Tax Related Issues:

Issues related to payment and tax is yet another problem continuously hinting e-traders. The electronic payment is made through credit card or plastic money which could, however, not become popular so far in India mainly due to two reasons. First, the penetration of credit card in India is very low (2 per cent of the population).

Second, the Indian customers are quite skeptical of paying by credit card with the increasing threat of fraud played by hackers. Like elsewhere, credit card could not gain growth in India mainly because of authentification and recognition problems of electronic signatures (Dahiya and Singh 2000: 70).

Similarly, tax administration is yet another complex problem in this seamless worldwide e-commerce. As establishing incidence of tax in case of e-commerce transactions becomes difficult, this, thus, provides ample scope for tax evasion. How to get rid of this? Some suggest total tax holiday till 2010 for e-commerce in the country. There are others who support zero duty on e-commerce to flourish it in the country. It has already been decided in US that there will be no tax on anything sold on the internet in digital form. Should India not follow US, at least for the time being? We have to ponder over it.

5. Digital Illiteracy and Consumer Psyche:

At present, digital illiteracy is one of the formidable problems e-commerce is facing in India. On the other hand, the continuous exodus of skilled computer engineers to other countries has denuded India of software engineers. This has posed a real threat to the Indian IT industry. Obviously, solution to this problem lies in curbing the computer brain – drain and uses the same in the country.

The Indian consumer is also characterised by his unique psyche. Usually, the Indian consumer does not go long distances for having any good of his choice when a neighbourhood store provides him whatever he wants.

That is why the consumer does not browse the Net knowing the consequent hassles of connectivity and other botherations. Added to this is that building trust on the electronic media also takes long time more especially when the vendor is situated at a very far off place.

6. Virus Problem:

That computer virus is also a formidable problem in the execution of e-transactions is confirmed by the computer virus originated in Manila. A computer virus lagged' I Love You' originated in Manila, Philippines on May 5. 2000 rippling across world, inflected millions of computer files causing colossal loss of US $7 billion to the governments and the businesses. The offenders causing 'virus' must be awarded deterrent punishment, otherwise similar assaults in future can cause lasting blows to the quite young e-commerce in India as well.

7. English Specific:

Last but not the least, the software so far in the country is English specific. But, in order to make e-commerce reach to the small enterprises, it needs to be available in the languages (regional) of the owners of the small enterprises to enable them to adapt e-commerce processes in their operations. Sooner it is done, better will be it for small enterprises to adapt e-commerce.

E- PAYMENT:

E-Payment is a part of an e-commerce transaction to include electronic payment for buying and selling goods or services offered through the internet. OR Electronic payment system is a system which helps the customer or user to make online payment for their shopping.

INFORMATION SYSTEM& E-COMMERCE

How e-payment works?

Online payments are made instantly, so it's convenient and saves lots of time. It is important, especially today when every aspect of our lives happens at a fast pace. The entire process behind the payment button is complicated, so here's the basics to make you understand it better.

1. **Customer action** – The process begins when a customer visits the merchant's site and adds to the cart items (products or services) they want to buy. They, then need to fill out the payment form with certain information (e.g. card number, expiration date, CVV code, address). Depending on the payment method, the customer is either redirected to external service or bank's website or continues the payment on the website or in an app.
2. **Payment authentication by the operator** – The payment gateway (with other parties involved) checks whether the payment information is valid. If everything's OK, the process continues and the payment gateway reports back the successful transaction. After that, the customer receives a payment confirmation — the notification is usually displayed in real-time.
3. **Payment to the seller's account** – An online payment provider receives a payment from a customer's bank and transfers it to the merchant's account.

In general, e-payments are considered a fast and secure alternative to traditional payment methods, such as bank transfers, checks, etc. Accepting electronic payments comes with lots of benefits for both merchants (of any size) and consumers.

Moreover, electronic payments are highly effective for international transactions. It is generally cheaper, easier and faster than other payment methods. As a merchant, you don't have to worry about currency conversion or high commission.

MOBILE PAYMENT:

A transfer of funds in return for a goods or service, where the mobile phone in involved in both the initiation and confirmations of the payment. OR A mobile payment is a money payment made for a product or service through a portable electronic device such as a tablet or cell phone. Mobile payment technology can also be used to send money to friends or family members, such as with the applications paypal venom.

INFORMATION SYSTEM& E-COMMERCE

Types of mobile payments

1. **Point-of-sale solutions**
   - ❖ NFC payments
   - ❖ Sound wave payments
   - ❖ MST payments

2. **In-store & remote**
   - ❖ Mobile wallets
   - ❖ QR codes

3. **Remote payments**
   - ❖ Internet payments
   - ❖ SMS payments
   - ❖ Direct carrier billing
   - ❖ Mobile banking

1. **Point-of-sale solutions**

Near-field communication (NFC) payments: Use of near-field communication (NFC) payments is growing rapidly in the UK. Digital wallets using NFC for contactless card machines include Apple Pay, Samsung Pay and Google Pay. But how does it work?

NFC phones communicate with with NFC-enabled card machines using close-proximity radio frequency identification. The mobile phones don't have to touch the point of sale to transfer information, i.e. money, but they have to be within a few inches of the terminal.

In London, busses and tube stations accept phone payments through NFC where you would normally tap the travel card. Similarly in China, NFC is accepted as a means of payment on all public transport, and in Japan, it is also being used to provide identity card information. In Nice, visitors and residents can use NFC to purchase almost anything.

NFC involves a direct, almost instantaneous transfer of encrypted data to point-of-sale devices, as opposed to chip and PIN technology that takes longer to process. Many mobile phone operators are looking at ways to further develop this technology.

INFORMATION SYSTEM& E-COMMERCE

Sound waves-based payments:

Sound wave-based (or sound signal-based) mobile payments represent a newer, cutting-edge solution that works for most mobile phones. Transactions are processed – without the need for internet – through unique sound waves containing encrypted data about the payment. Sound waves are sent from a terminal to the mobile phone to convey payment details, where after the customer's phone converts that data into analog signals that finalise the transaction.

Instead of using inbuilt technology like NFC, your mobile wallet, banking app or card terminal just needs a simple software installation. There's no need for any extra hardware. This makes it an affordable solution especially in areas and countries where people can't afford the latest smartphones, but rely on more basic technology to process payments.

Magnetic secure transmission (MST) payments

A third way to pay with a mobile phone at a card terminal is through magnetic secure transmission (MST). Samsung Pay uses both MST and NFC payments for contactless mobile phone payments.

MST is when a phone emits a magnetic signal imitating the magnetic strip on the payer's credit card, which the card terminal picks up and processes as if a physical card was swiped through the machine. Some card machines may require a software update to accept MST, but most new terminals accept it already.

Magnetic secure transmission is as secure as NFC, in part because they both use a secure tokenisation system, and it is safer than using a physically present

2. Both in-store and remote payments

Mobile wallets: A mobile wallet (also called digital wallet) stores payment information on a mobile device, usually in an app. Mobile wallets can utilise different technologies in the payment process, most frequently NFC, but other modalities like QR codes have been used by some services.

Apple Pay is an example that cuts across several categories, allowing contactless payments on card terminals (using fingerprint authentication via the phone), in-app purchases and payments on the internet.

INFORMATION SYSTEM& E-COMMERCE

Google Pay and Samsung Pay are two other big mobile wallet contenders.

Digital wallets are very secure to use. They commonly work through complex encryption and tokenisation, a method using time-limited token numbers generated to process the specific transaction using your already-encrypted card "stored" in your mobile wallet.

Apart from credit and debit cards, it's also possible to attach loyalty cards, boarding passes, tickets and other important documents in mobile wallets.

Quick response (QR) code payments

QR (abbreviation of "quick response") codes have many uses and are often found in advertising, on product labels and what seem to be the most random places. Not everyone knows they can be used to pay for things too. It works through certain banking apps where your cards are already associated, and other apps by stores and providers where your card details can be connected.

To use an American example of in-store payments through a QR code, Walmart customers can use the Walmart Pay app, where their payment method is connected, and simply pay in store by scanning a QR code at checkout through the app.

In all cases, you have to aim the camera carefully to match the indicators on your phone screen before the app can scan the code. Some people report feeling this is a hassle, especially since you have first open the relevant app before you can start scanning.

Some e-commerce businesses use QR codes at their website checkout as an alternative to manually entering card details. For card-not-present transactions, this is more secure because your phone, that your card details are securely connected to, confirms you are the owner of the card – and because you're not typing your unencrypted card details on a device screen.

3. Remote payments

Internet payments

Many people simply pay on the internet in their phone browser (e.g. Safari, Chrome) or within apps, provided there's WiFi or a 3G/4G network signal. There are

several ways to pay this way. For instance, you can manually enter card details on a website to pay for an order (just like on a computer), automatically charge a bank card attached to a mobile app, use PayPal or follow a link to a <u>digital invoice</u> emailed to you.

Pre-2010, this was commonly referred to as wireless application protocol (WAP) payments. WAP used to be the most common facility on smartphones connecting to the internet. So instead of a web browser with access to the entire internet, people paid through a more limited-capacity WAP browser or app – together classed as WAP payments.

But times have changed the payment landscape rapidly, and now, phones commonly use a newer mark-up language with full access to the internet.

SMS payments

SMS payments – also called premium SMS – simply means paying for products or services via a text message. Once you've submitted a text message with the relevant information to the right payee phone number, the payment amount is added to your mobile phone bill. So in effect, you're paying through your phone network provider, perhaps through direct debit or pay-as-you-go – the way you usually pay for your phone use.

Just a few years ago, SMS payments were one of the most popular methods of using donate to charity, and for good reason due to its simplicity – all the user needs is a phone with text capability and prepaid SIM card or phone contract. With the increase in more advanced smartphones, however, other modes of mobile payments have seen faster growth.

Direct carrier billing

Direct carrier billing (DCB) – also called direct operator billing – is a way to pay through your mobile carrier instead of using bank or card details. A way to do this is to enter your phone number on a payment mobile phones to pay for goods or services (even for person-to-person payments) or page or in an app, where after you go through a few authentication steps to confirm you're the owner of that number (for instance, by confirming a text message). The payment will then be deducted from your phone bill or prepaid SIM card as with SMS payments.

INFORMATION SYSTEM& E-COMMERCE

Digital services like Google Play and the App Store offer the option to pay by DCB. It is also used for TV voting, charity donations and subscriptions for digital content.

Mobile banking

In certain countries such as Sweden and the UK, mobile banking has proven popular for transferring money between private individuals or paying bills.

Mobile banking is simply an app provided by the user's bank, through which you can conduct financial transactions directly from your bank account. This is usually used for peer-to-peer transfers and payments to other people, but bills can also be paid this way.

Each bank has their own sign-up procedures for their app to verify you are the owner of the bank account. But once signed up, it is usually easy to log in on your phone and view your account balance and transaction history, make bank transfers, and anything else that your bank allows. Every bank has their own limits for what you can do through the app.

MOBILE COMMERCE:

Mobile commerce is the buying and selling of goods and services through wireless handheld devices such as smart phones and tablets. As a form of e-commerce, m-commerce enables users to access online shopping platforms without needing to use a desktop computer.

But mobile commerce is so much more than that. In fact, m-commerce triggered the emergence of brand-new industries and services or helped the existing ones to grow in new directions.

Examples of such innovations include:

- tickets and boarding passes,
- mobile banking,
- money transfers, contactless payments, and in-app payments,
- digital content purchases,
- location-based services,
- mobile marketing, including coupons and loyalty cards.

INFORMATION SYSTEM& E-COMMERCE

All of these features which today are part of our customer experience wouldn't be possible if not for the rise of mobile commerce.

Mobile commerce advantages

Now that you know what mobile commerce is all about, you might be wondering why so many businesses are investing in it today. The truth is that an m-commerce application offers numerous advantages to companies and customers who use them.

Here are three good reasons why your business needs a mobile commerce application.

a. Better customer experience

We all know what happened when e-commerce became popular. It made shopping so much more convenient and fun for customers. They could browse through a wide range of products, benefit from more competitive pricing, and complete their purchases without having to step away from their computers.

b. Omnichannel

This is a unique strength of mobile commerce applications. An omnichannel experience is an experience of customers who purchase from stores that sell through multiple online and offline channels. Examples of such touch points include brick-and-mortar stores, an online store, online marketplaces like Amazon, social media apps like Facebook or Instagram, and dedicated mobile apps..

c. Great variety of payment options

New mobile payment solutions emerge every year. Businesses can now offer their customers a broad and diverse range of payment options to make the process of buying products and services even smoother.

Examples of such modern mobile payment solutions are PayPal One Touch, Amazon Pay, and Apple Pay.

Types of mobile commerce applications

M-commerce applications cover a broad range of transaction options. However, it's possible to divide them into one of the following types:

INFORMATION SYSTEM& E-COMMERCE

Mobile shopping – this type of m-commerce implementation is most similar to e-commerce, only accessible through a mobile device. We're talking about dedicated apps, optimized websites, or even social media platforms like Facebook or Instagram that allow in-app purchases or linking to online stores.

Mobile banking – mobile banking is quite similar to online banking. However, you will find that some transactions might be restricted or limited on mobile devices. Mobile banking is a type of implementation that usually involves a dedicated application – though some financial services companies are now experimenting with chatbots or messaging apps to deliver customer service.

Mobile payments – this type of mobile commerce focuses on the progressive innovation in payment options realized with mobile devices. Today consumers can take advantage of many diverse mobile payment options that go way beyond mobile wallets.

Mobile commerce applications examples

By now, you have a good grasp of the theory behind mobile commerce applications.

Here are five examples of outstanding m-commerce applications that offer excellent examples to follow for companies looking to enter the mobile commerce scene.

Amazon: Amazon is one of the largest online marketplaces in the world, featuring hundreds of thousands of items on sale. Packing all of this content into a user-friendly and intuitive app was surely challenging. But Amazon's m-commerce app is light and fast, allowing its users to search and filter a wide range of products using various parameters with just a few clicks.

Moreover, Amazon provides several payment gateways to build a smooth checkout experience. Users also get notified about their order status in up-to-the-minute updates. The app also takes advantage of localization services to help users discover offers from businesses located nearby.

Starbucks: The global coffee shop chain created this app primarily to enable mobile payments and boost their loyalty program. Customers can add funds to their loyalty card and use their phones to buy drinks at Starbucks coffee shops.

INFORMATION SYSTEM& E-COMMERCE

They can earn loyalty points on the go and then exchange them for free refills or snacks. The app also takes advantage of geolocation services and helps users to locate nearby stores quickly.

Uber: Uber might not be the first thing that pops into your mind when thinking about m-commerce, but this leading on-demand car service app is, in fact, a great example of mobile commerce capabilities.

By connecting riders with drivers, the app uses GPS technology to access the progress of the car on its way. It also allows users to compare different vehicle types and pay for rides using their mobile wallets. After completing the ride, both the driver and the passenger can rate one another and leave their feedback.

Sephora: This international cosmetics and beauty retailer operates almost 2000 retail stores across 30 countries all over the world. Sephora launched its digital transformation journey a while ago. The brand's mobile app plays a critical role in the company's marketing strategy today.

The app offers a memorable digital experience, making shopping fun and quick. For example, it features an integrated loyalty card and personalized alerts about offers available in the store. Moreover, users can scan products for ratings and reviews while shopping in Sephora stores. Finally, the app features an amazing AR functionality that allows app users to try on different makeup products from their mobile device with Sephora Visual Artist.

ASOS: The UK-based global fashion retailer offers thousands of products in its mobile app. A while ago, ASOS revamped the app experience to make it more attractive to customers. The brand managed to do it so successfully that consumers now spend <u>80 minutes per month</u> on average in the ASOS app.

One of the most interesting features is the style match functionality, a visual search tool that enables users to find similar items quickly. They need to take a picture or upload a reference photo, and the app will show the closest results among the brand's extensive stock. The mobile app can analyze the pattern, color, and texture from the image and make satisfactory recommendations to users.

E- TRADING:
Electronic trading is known as an online trading, it is the act of purchasing and selling financial products on the internet. The trader buys and sells using an online

trading platform. Online trading may includes trading in bonds, stocks(shares), futures, internationals currencies, and other financial instruments.

E- procurement

E-procurement (**electronic** procurement, sometimes also known as **supplier exchange**) is the business-to-business or business-to-consumer or business-to-government purchase and sale of supplies, work, and services through the Internet as well as other information and networking systems, such as electronic data interchange and enterprise resource planning.

Objectives of e-Procurement
- ❖ To act as the catalyst for procurement reform
- ❖ To enhance transparency, monitoring and control in procurement process
- ❖ To bring in economies of scale through aggregation of demand
- ❖ To reduce cost of doing business for both government and suppliers
- ❖ To establish level playing field and "fair" competitive platform for the suppliers

E-Way Bill

E-Way Bill is the short form of Electronic Way Bill. It is a unique document/bill, which is electronically generated for the specific consignment/movement of goods from one place to another, either inter-state or intra-state and of value more than INR 50,000, required under the current GST regime.

As per the update on 23rd Mar 2018, Generation of the e-Way Bill has been made compuslsory from 1st April 2018. Inter-state implementation of e-way bill is notified to be implemented from 1st April 2018.

The implementation of Eway Bill to kick-off from 15th April 2018 in a phased manner. States to be divided into 4 lots to execute this phased rollout.

When e-Way Bill is generated, a unique e-Way Bill Number (EBN) is made available to the supplier, recipient and the transporter.

The e-Way Bill replaces the Way Bill, which was a physical document and existed during the VAT regime for the movement of goods.

INFORMATION SYSTEM& E-COMMERCE

Who should generate an <u>e-Way Bill</u>**?**

Let's try to understand who needs to generate an eway bill during transportation.

GST Registered Person:

(a) When a registered person causes the movement of goods/ consignment, either in the capacity of a consignee (i.e., buyer) or consignor (i.e., seller) in his/her vehicle or hired vehicle or railways or by air or by ship, then either the registered person or the recipient should generate the e-Way Bill in Form GST EWB 01 electronically on the common portal by furnishing information in Part B.

(b) When a registered person causes the movement of goods and hands these over to the transporter for transportation by road, but the e-Way Bill has not been generated, then it is the transporter who needs to generate the bill. The registered person will first furnish the information relating to the transporter in Part B of Form GST EWB. After which, the transporter will generate the e-Way Bill by the information furnished by the registered person through Part A of Form GST EQB 01.

Unregistered Person:

(a) When an unregistered person causes the movement of goods, through his/her conveyance or hired conveyance or using the services of a transporter, then the e-Way Bill needs to be generated either by the unregistered person or by the transporter, by completing Form GST EWB-01.

(b) When an unregistered person supplies the goods to a registered person AND the registered person is known to the unregistered person at the time of the start of the movement of goods, then it will be considered that the registered person is moving the consignment. In this case, the registered person or transporter shall complete the formalities of the e-Way Bill.

When Should E-Way Bill Be Issued

Ideally, e-Way Bill should be generated before the commencement of movement of goods above the value of INR 50,000 (either individual invoice or consolidated invoice of multiple consignments). The movement of goods will be either about a supply/ reasons other than supply (like return)/ inward supply from an unregistered person.

INFORMATION SYSTEM& E-COMMERCE

For purposes of an e-Way Bill, supply is considered either a payment in the course of business/ a payment which may not be in the course of business/ no consideration of payment (in the case of barter/ exchange).

GST E-Way Bill Format

Below is the image of the e-Way Bill to be electronically generated after completing the Form GST EWB-01.

FORM GST EWB-01
(See rule 138)
E-Way Bill

PART-A		
A.1	GSTIN of Recipient	
A.2	Place of Delivery	
A.3	Invoice or Challan Number	
A.4	Invoice or Challan Date	
A.5	Value of Goods	
A.6	HSN Code	
A.7	Reason for Transportation	
A.8	Transport Document Number	
PART-B		
B.	Vehicle Number	

The bill comprises of 2 parts – Part A and Part B.

Part A of the form is to collect the details of the consignment, usually about the invoice.

* **GSTIN of Recipient:** The recipient of the goods needs to provide the **GST I**dentification **N**
* **Place of Delivery:** The Pin Code of the place where goods are to be delivered needs to be filled in.
* **Invoice or Challan Number:** The Invoice or Challan number of the supplied goods, needs to be filled in.
* **Value of Goods:** The total consignment value of the goods.
* **HSN Code:** The HSN (**H**armonized **S**ystem of **N**omenclature) code of the transported goods is required. If the turnover is up to INR 5 crores, then the first two digits need to be mentioned. For a turnover more than INR 5 crores, four digits of HSN code are required.
* **Reason for Transportation:** One needs to select the most appropriate option from the list of reasons which is pre-defined.

INFORMATION SYSTEM& E-COMMERCE

∗ **Transport Document Number:** One needs to enter the Goods Receipt Number/ Railway Receipt Number/ Airway Bill Number/ Bill of Loading Number.

In Part B of this form, one needs to fill in the vehicle number of the transported goods. The transporter will complete this information in the common portal.

INFORMATION SYSTEM& E-COMMERCE

UNIT-5

E-MARKETING

Introduction

E-marketing means using digital technologies to help promote and sell your goods or services. It is not just about selling goods over the web. These technologies, like e-mail and websites, are a valuable complement to traditional marketing methods whatever the size of your company or your business model.

Meaning

E-marketing is the process of marketing a product or service using the Internet. E-marketing not only includes marketing on the Internet, but also includes marketing done via e-mail and wireless media. It uses a range of technologies to help connect businesses to their customers.

Advantages

Speed: One of the benefits of electronic mail marketing strategy for small business is that the time it takes to create an e-mail newsletter is a lot shorter than creating campaigns for traditional media. You can take advantage of already made e-mail templates to speed up the process or make your own and reuse it.

Low Cost: Sending out e-mail newsletters is very cost effective. There are a lot of free options such as Mail chimp that a lot of startups take advantage of. There are tons of them, you just have to look and find the best email marketing tool for yourself.

Ease : Learning how to send and crate an email marketing campaign is fairly straight forward and there isn't a huge learning curve for your email
marketing strategy for small business**.**

Personalization : One of the benefits of email marketing platforms is that you can start segmenting your customers and creating different lists. This allows you to send different messages to different customers, e.g. gift ideas for him to your female customers and gift ideas for her to your male customers.

INFORMATION SYSTEM& E-COMMERCE

Immediate response : Emails have traditionally received a high click through rate than other mediums and also a higher conversion rate. This allows marketers to receive a high ROI from their email marketing strategy for small business and their efforts.

Tracking : Using email marketing platforms makes the whole campaign very tractable from how many emails were opened, through to each individual link click, through to who opened your email and who didn't. So, email marketing tracking is very easy and insightful.

Viral : Emails make it easy for people to press forward and send it to their friends on their contact list. This allows your message to spread virally, which means that one of the benefits of email marketing strategy for small business is also its great coverage opportunities.

Opt-in : The fact that the people on your database have opted in according to the spam act to receive your emails makes them more open to your messages.

Testing: Just like many other online marketing methods the speed to deployment and the flexibility of email marketing strategy for small business allows you to constantly test strategies and content with your customers. By splitting your database into 2 different lists and sending each a different message you can study the open and click through rates to gage which message resonated with your customers more. This is also called A/B testing.

Integration: You can integrate email marketing strategy for small business very easily with your other marketing efforts by sending a similar message to your other marketing material with a slightly different call to action or benefit. Great ways to do this is to put on your website an offer where, by subscribing to you, they can receive a discount off the product. This message can then be run via banner ads as well.

Disadvantages

Branded a spammer: This can occur if you send emails too often with content that doesn't add value to your audience. In addition, some people are too lazy to unsubscribe so they will continue throwing your emails into the trash and will avoid buying from your company passively. Make sure you always aim to get clear feedback and activity from your subscriber base to ensure this does not build up.

INFORMATION SYSTEM& E-COMMERCE

Burning out your list : People will regularly unsubscribe, but you can learn from this by keeping an eye on the % of unsubscribe and also ask them to give you a reason before they finalize their subscription cancellation. This can give you a valuable feedback that will help you improve your emails and reduce the unsubscribe rate avoiding one of the most frequently occurring disadvantages of email marketing.

Breaking the law : Be aware that due to spammers there are very strict laws around the world and it is easy to break them. Know the regulations around spam in the countries you are dealing with and make sure you don't break them. In Australia you can have a read of the Spam Act and prevent these disadvantages of email marketing from happening to you.

Alienating readers : Don't try and sell to your customers all the time. This can get frustrating for your audience and cause them to unsubscribe or be disengaged. A lot of businesses found better success at sending helpful emails such as "10 quick recipes for you to try at home" vs. "Buy our product XYZ now it's on special."

Delivery issues : People often change email addresses and spam filters are getting increasingly selective on what emails get let through to the inbox. This is one of the disadvantages of email marketing and can create issues for your email since it may be undeliverable or may never make it to the eyes of your customer. To combat this remember to ask your customers to keep their emails updated and also learn how spam filters work so you don't do anything that violates their rules.

Design issues : One of the disadvantages of email marketing is also that different screen sizes and other factors can affect the way your email is displayed on the screen. Be sure to test it on various resolutions to check that all the content is visible**.**

Keeping them engaged : I'm sure we've all experienced annoyance after receiving emails from a company or brand. This is usually because the content is no longer relevant to us. Make sure this does not happen to your database by sending emails in an appropriate time space (not too often) and with really important messages. The better you segment your database, the better you will be at tailoring relevant messages to individuals.

Resource intensive : There will be some skills that you will need to spend time on to learn and also time taken to create a design content and planning your email marketing strategy. This all requires additional resources and shouldn't just be tacked on.

INFORMATION SYSTEM& E-COMMERCE

TRADITIONAL MARKETING

Traditional marketing is a rather broad category that incorporates many forms of advertising and marketing. It's the most recognizable types of marketing, encompassing the advertisements that we see and hear every day. Most traditional marketing strategies fall under one of four categories: print, broadcast, direct mail, and telephone.

Print: Numerous communication studies have underscored the influence of the printed word. At their best (and depending on the source), newspapers and magazines are viewed as trustworthy and credible, often engendering intense loyalty among longtime readers. Print also offers the advantages of providing a targeted audience at an affordable price. And magazines can enjoy a long "shelf life."* **The tradition lives on:** Daily newspaper circulation remained impressive in 2017, hitting 31 million for weekdays and 24 million for Sundays. But these numbers are still down double digits from the year before as readers continue to be lured online. As the Pew Research Center says, "Americans express a clear preference for getting their news on a screen, though which screen that is varies. TV remains the dominant screen, followed by digital." Meanwhile, when it comes to magazines, "We read more, read longer and subscribe more often to print than digital," the Freeport Press says, noting that 41 percent of adults regularly read one or two magazines while 33 percent read three or more.

Broadcast: The ability to reach a large audience has long been the primary advantage of TV and radio. But attaining such reach can be elusive for many small business owners, who often cannot afford TV and radio spots. Local programming can be less expensive, but lower viewership numbers help explain why.

The tradition lives on: A record number of U.S. households – 119.6 million – included TV sets during the 2017-18 viewing season, though the number of "pay TV" households continues to decline, Statista says. Radio, meanwhile, "is the third most powerful medium in the United States," trailing only TV and social media.

Direct mail: Marketers "in the know" also know that studies repeatedly show that people like going through direct mail and depend on it to make purchase decisions. Studies also suggest that such "hard copy marketing" is easy for people to process and recall. It helps that they may spend more time reviewing direct mail (enjoying the ability to turn it over in their hands, often at the end of the day) than online messages.* **The tradition lives on:** Between 80 and 90 percent of all direct mail gets opened every day in America (far

outpacing the 20-to-30-percent open rate of emails), Small Biz Trends reports. Even millennials consider direct mail to be helpful in guiding their purchase decisions.

Telephone: As a means of communication, the telephone has arguably undergone more of a transformation than any other medium. (Doesn't even the reference to "telephone" sounds quaint compared to "cell phone" and "smartphone"?) It didn't take long for an invention that revolutionized communication between two or more people in the 20th century to become a
favored tool of sales people and telemarketers. But just when consumers got the hang of "don't call me lists," Apple released its first smartphone in 2007, with Samsung following in 2009. More than a way to hold a conversation, the phone has become a ubiquitous form of modern life, with people using it to communicate, read news, shop, research, organize their day, socialize, gossip and play games.

The tradition lives on: Americans love their phones, with 95 percent of them owning a cell phone and 77 percent pocketing a smartphone, the Pew Research Center says. It's easy to take these numbers in stride, until you consider that only 35 percent of Americans owned a smartphone in 2011.

 Print can be difficult to measure – a considerable handicap if your marketing team is pushing you to quantify the return on your marketing investment (ROI). Just because people subscribe to a newspaper or magazine doesn't mean they actually read it. Circulation should never be confused with actual readership, which has always been vexing for publishers to quantify in meaningful terms.

Broadcast can be expensive, if not out of the financial reach of many small business owners. And since it is designed to reach "the masses," it doesn't target consumers the way many business owners believe is crucial to their success.

Direct mail has historically produced a relatively low response rate – generally between 2 and 5 percent. But these are usually reliable and consistent numbers that can be bolstered by careful execution. For example, be certain that you're working with an up-to-date mailing list, emphasize benefits rather than features, highlight a compelling offer and develop a recurring campaign in which consumers receive multiple direct mail pieces from you. You will probably be disappointed if you expect a single direct mail piece to be a "one-shot wonder."

INFORMATION SYSTEM& E-COMMERCE

Telephone marketing may be inexpensive, but just try getting even a small percentage of those cell phone owners to answer a call from a number they don't recognize. And the number of landlines has dropped commensurately with
the growth of cell phones. In fact, the AARP reports that in 2017, the "wireless only" rate for "those ages 18 to 24 was 64.2 percent; for those 35 to 44 it was 63.9 percent; for those 45 to 64 it was 47.1 percent; and for those 65 and older it was 23.9 percent."

MARKETING MIX

Before we go into all the elements of the marketing mix, and to avoid confusion between the 4p's, 7p's and even the 4c's – you should pay attention at the image below to understand what makes up the entire marketing mix.
A marketing expert named E. Jerome McCarthy created the Marketing 4Ps in the 1960s. This classification has been used throughout the world. Business schools teach this concept in basic marketing classes.

The marketing 4Ps are also the foundation of the idea of marketing mix.

1 . Product

A product is an item that is built or produced to satisfy the needs of a certain group of people. The product can be intangible or tangible as it can be in the form of services or goods.You must ensure to have the right type of product that is in demand for your market. So during the product development phase, the marketer must do an extensive research on the life cycle of the product that they are creating. A product has a certain life cycle that includes the growth phase, the maturity phase, and the sales decline phase. It is important for marketers to reinvent their products to stimulate more demand once it reaches the sales decline phase. Marketers must also create the right product mix. It may be wise to expand your current product mix by diversifying and increasing the depth of your product line. All in all, marketers must ask themselves the question "what can I do to offer a better product to this group of people than my competitors".

2. Price

The price of the product is basically the amount that a customer pays for to enjoy it. Price is a very important component of the **marketing mix definition**. It is also a very important component of a marketing plan as it determines your firm's profit and survival. Adjusting the price of the product has a big impact on the entire marketing strategy as

well as greatly affecting the sales and demand of the product. This is inherently a touchy area though. If a company is new to the market and has not made a name for themselves yet, it is unlikely that your target market will be willing to pay a high price. Although they may be willing in the future to hand over large sums of money, it is inevitably harder to get them to do so during the birth of a business. Pricing always help shape the perception of your product in consumers eyes. Always remember that a low price usually means an inferior good in the consumers eyes as they compare your good to a competitor.

3.Place

Placement or distribution is a very important part of the product mix definition. You have to position and distribute the product in a place that is accessible to

potential buyers. This comes with a deep understanding of your target market. Understand them inside out and you will discover the most efficient positioning and distribution channels that directly speak with your market.

There are many distribution strategies, including:

☐ Intensive distribution
☐ Exclusive distribution
☐ Selective distribution
☐ Franchising

4. Promotion

Promotion is a very important component of marketing as it can boost brand recognition and sales. Promotion is comprised of various elements like:

❖ Sales Organization
❖ Public Relations
❖ Advertising
❖ Sales Promotion

Advertising typically covers communication methods that are paid for like television advertisements, radio commercials, print media, and internet advertisements. In contemporary times, there seems to be a shift in focus offline to the online world. Public relations, on the other hand, are communications that are typically not paid for. This includes press releases, exhibitions, sponsorship deals, seminars, conferences, and events. Word of mouth is also a type of product promotion. Word of mouth is an informal communication about the benefits of the product by satisfied customers and ordinary individuals. The sales staff plays a very important role in public relations and word of mouth.

5. People

Thorough research is important to discover whether there are enough people in your target market that is in demand for certain types of products and services. The company's employees are important in marketing because they are the ones who deliver the service. It is important to hire and train the right people to deliver superior service to the clients, whether they run a support desk, customer service, copywriters, programmers…etc.

When a business finds people who genuinely believe in the products or services that the particular business creates, it's is highly likely that the employees will perform the best they can. Additionally, they'll be more open to honest feedback about the business and input their own thoughts and passions which can scale and grow the business. This is a secret, "internal" competitive advantage a business can have over other competitors which can inherently affect a business's position in the marketplace.

6. Process

The systems and processes of the organization affect the execution of the service. So, you have to make sure that you have a well-tailored process in place to minimize costs. It could be your entire sales funnel, a pay system, distribution system and other systematic procedures and steps to ensure a working business that is running effectively. Tweaking and enhancements can come later to "tighten up" a business to minimize costs and maximise profits.

7. Physical evidence

In the service industries, there should be physical evidence that the service was delivered. Additionally, physical evidence pertains also to how a business and it's products are perceived in the marketplace. It is the physical evidence of a business' presence and establishment. A concept of this is branding. For example, when you think of "fast food", you think of McDonalds. When you think of sports, the names Nike and Adidas come to mind. You immediately know exactly what their presence is in the marketplace, as they are generally market leaders and have established a physical evidence as well as psychological evidence in their marketing. They have manipulated their consumer perception so well to the point where their brands appear first in line when an individual is asked to broadly "name a brand" in their niche or industry.

IDENTIFYING WEB PRESENCE GOALS

On the web, businesses have the luxury of intentionally creating a space that creates a distinctive presence.

INFORMATION SYSTEM& E-COMMERCE

A website can perform many image-creation tasks very effectively, including:
- ❖ Serving as a sale brochure
- ❖ Serving as a product showroom
- ❖ Showing a financial report
- ❖ Posting an employment and
- ❖ Serving as a customer contact point

THE BROWSING BEHAVIOR MODEL

The models outlined in the last section are promising approaches, particularly in their ability to reveal global , historical patterns of use; suggest alternative metrics of information value; and provide implications for systems design. At the same time, models may also be needed that focus on the information behaviors of individuals as they traverse the web, taking into account the context in which this information seeking is situated. In this subsection , we review four modes of organizational scanning discussed in organization science. The next subsection (3.2) reviews a model based on six categories of information seeking activities. Subsection 3.3 combines elements from both models to propose a new behavioral framework for analyzing information seeking on the web.

Research in organization science suggests that it might be helpful to distinguish between four modes of organizational scanning: undirected viewing, conditioned viewing, informal search and formal search (aguilar 1967, 1988; weick and daft 1983; daft and weick 1984).

In undirected viewing, the individual is exposed to information with no specific informational need in mind. The overall purpose is to scan broadly in order to detect signals of change early. Many and varied sources of information are used, and large amounts of information are screened. The granularity of information is coarse, but large chunks of information are quickly dropped from attention. The goal of broad scanning implies the use of a large number of different sources and different types of sources. These sources should supply up-to-date news and provide a variety of points of views. Information on the web appears to match these requirements well. The web is a laissez faire information marketplace offering a huge diversity of sources presenting information through a wide range range of perspectives. Information often becomes available on the web more quickly than through print channels. The immediacy, variety and eclecticism of the web makes it a useful medium for detecting early, weak signals about trends and phenomena that could become significant over time. As a result of undirected viewing, general areas or topics may be identified as being potentially relevant to the organizations goals or tasks, and the individual becomes sensitive to these areas.

INFORMATION SYSTEM& E-COMMERCE

In conditioned viewing, the individual directs viewing to information about selected topics or to certain types of information. The overall purpose is to evaluate the significance of the information encountered in order to assess the general nature of the impact on the organization. The individual has isolated a number of areas of potential concern from undirected viewing, and is now sensitized to assess the significance of developments in those areas. The individual wishes to do this assessment in a cost-effective manner, without having to dedicate substantial time and effort in a formal search. The web can provide a number of ways of obtaining information to make initial sense of emergent phenomena. For example, market research companies, financial institutions industry associations, and government organizations make available on web pages their reports, bulletins, and newsletters that analyze ongoing developments in their areas of watch. Some academics, authors, consultants, industry observers, and knowledgeable experts use the web to share their insights and predictions, and to stimulate further discussion. If the impact is assessed to be sufficiently significant, the scanning mode changes from scanning to searching.

During informal search, the individual actively looks for information to deepen the knowledge and understanding of a specific issue. It is informal in that it involves a relatively limited and unstructured effort. The overall purpose is to gather information to elaborate an issue so as to determine the need for action by the organization. The individual has determined the potential importance of specific developments, and embarks on a search that would build up knowledge about those developments, deepen understanding of their implications and consequences. In conducting an informal search, the web can address the requirement for information that is directed at specific issues, but that still does not cost a great deal of time or money to acquire. On the web, search engines can be used to locate information on web pages, newsgroups and mailing list discussions. Librarians and specialists have also compiled web-based directories and lists of focused web resources. If a need for a decision or response is perceived, the individual dedicates more time and resources to the search.

During formal search, the individual makes a deliberate or planned effort to obtain specific information or information about a specific issue. Search is formal because it is structured according to some pre-established procedure or methodology. The granularity of information is fine, as search is relatively focused to find detailed information. The overall purpose is to systematically retrieve information relevant to an issue in order to provide a basis for developing a decision or course of action. Formal searches could be a part of for example, competitor intelligence gathering, patents searching, market

demographics analysis, and issues management. Formal searches prefer information from sources that are perceived to be knowledgeable, or from information systems and services that make efforts to ensure data quality and accuracy.

ONLINE MARKETING

Online marketing is the practice of leveraging web-based channels to spread a message about a company's brand, products, or services to its potential customers. The methods and techniques used for online marketing include email, social media, display advertising, search engine optimization, Google AdWords and more. The objective of marketing is to reach potential customers through the channels where they spend their time reading, searching, shopping, and socializing online. Widespread adoption of the internet for business and personal use has generated new channels for advertising and marketing engagement, including those mentioned above. There are also many benefits and challenges inherent to online marketing, which uses primarily digital mediums to attract, engage, and convert virtual visitors to customers. Online marketing differs from traditional marketing, which has historically included mediums like print, billboard, television and radio advertisements.

Before online marketing channels emerged, the cost to market products or services was often prohibitively expensive, and traditionally difficult to measure. Think of national TV ad campaigns, which are measured through consumer focus groups to determine levels of brand awareness. These methods are traditionally also not well suited to controlled experimentation. Today, anyone with an online business (as well as most offline businesses) can participate in online marketing by creating a website and building customer acquisition campaigns at little to no cost. Those marketing products and services also have the ability to experiment with optimization to fine-tune their campaigns' efficiency and ROI.

Merits

1. Global reach: Internet marketing provides businesses with a wide base of customers for their services or products. With the internet, all types of businesses, from multinationals to small and medium enterprises, have access to millions of prospective customers. Your adverts are seen by many customers through the advertising tools that you use. The greater the number of users that visit your page, the higher the sales that you will make.

INFORMATION SYSTEM& E-COMMERCE

2. 24/7 marketing: With online marketing campaigns, one will be advertising their business 24 hours every day. Furthermore, you will not have to worry about staff wages or store hours. Additionally, the time variations in the different parts of the world will not affect your campaigns. Your target customers can access your website and purchase goods and services irrespective of the time or fear of closing hours.

3. Low cost: In any marketing campaign, cost is a key factor that must be considered as it affects the company's budget. Businesses can avoid the high cost of marketing that is associated with traditional forms of advertising by embracing internet marketing and blogging. Internet marketing is way cheaper than television and radio ads and creating and mounting billboards. Marketing though your blog is one of the ways you can sell effectively online.

4. Social media: Social media plays a crucial role in modern advertising. This is because customers look at comments and reviews posted by other consumers online. Businesses can easily incorporate social network tools in their advertising campaigns and make profits from customers that rely heavily on social media.

5. Builds lasting relationships: As long as your business has an online presence, your customers will always find you. With internet marketing, suppliers can easily access the email addresses or contacts of both the prospects and the buyers. Businesses can use this information to send updates to their customers regarding special discounts, new products or services, new coupons and products available. Furthermore, businesses can continue interacting with their clients after the sale.

6. Ease of personalization: Electronic marketing enables businesses to tailor their advertising techniques to suit the needs of their target audience. Businesses can also personalize communication between them and their clients. This ensures that your service or product will reach your prospects in a timely manner. Furthermore, it strengthens the brand image and presence of the company.

7. Blogging provides quality content: Content reigns on the internet and it attracts natural links. If the content of your blogs is good, other people will want to refer to it and this will attract people to your website. Make sure that your website is consistently flowing with fresh, educative and relevant information that your users are looking for.
Today, there is an increase in the number of consumers who buy products and services online. As a result, more and more companies globally are now resorting to internet

marketing to connect with their customers and advertise their products and services. This sets them apart from their competitors and it helps them to increase their profit margins.

Demerits

- ❖ Dependability on technology.
- ❖ Security, privacy issues.
- ❖ Maintenance costs due to a constantly evolving environment.
- ❖ Higher transparency of pricing and increased price competition.
- ❖ Worldwide competition through globalization.

E-ADVERTISING

E-advertising is any type of marketing message that shows up with the help of the Internet. That means it could appear in a web browser, search engine, on social media, on mobile devices, and even in email. Savvy advertisers are increasingly making use of this forum for reaching consumers, for a number of reasons:

- ❖ It's relatively inexpensive
- ❖ It reaches a wide audience
- ❖ It can be tracked to measure success (or failure)
- ❖ It can be personalized for a target audience

Indeed, online advertising is only growing in scope, as new avenues for marketers pop up (think ads delivered through text message or marketing messages delivered to users in a certain area, known as geo-targeting). But, while some of the ads are less common or just gaining traction, there are plenty that we're exposed to multiple times every day. Let's take a look at some of the most popular types of online advertising.

TYPES OF E-ADVERTISING

1.Display Advertising

Display advertising is a type of online paid advertising, typically using images and text. The most popular forms of display ads are banners, landing pages (LP's) and pop ups. Display ads differ from other ads because they do not show up in search results. Most commonly, display ads are found on websites and blogs to redirect user's attention to the company's product. Working together with remarketing, display ads can have great success. According to Digital Information World, "*website visitors who are retargeted with display ads are **70% more likely to convert** on your website.*"

INFORMATION SYSTEM& E-COMMERCE

2. Search Engine Marketing & Optimization (SEM) & (SEO)

SEM and SEO are two types of online advertising that promote content and increase visibility through searches.

❖ **SEM:** Instead of paying for the actual ad, advertising pay each time users click on the ad to their website. Businesses benefit by gaining specific information about their market.

❖ **SEO:** To gain a higher rank in search engine results, advertisers use various SEO tactics, such as linking, targeting keywords and meta descriptions and creating high level content that other sites will link to. While SEM is a paid strategy, SEO is organic, making it a sought out type of online advertising.

3. Social Media

There's no doubt that social media advertising just keeps growing and growing each year. Consider these numbers: There are 1.65 billion active mobile social accounts globally with 1 million new active mobile social users added every day. According to the Hoot suite social media advertising statistics, social media advertising budgets have doubled, worldwide, from $16 billion to $31 billion in the past 2 years alone.

The two types of social media online advertising are organic, an online word-of mouth technique, and paid. Placing paid ads, promoted posts or sponsored stories are a popular way to reach more of the demographic of the company, without paying a bundle. As you can see from the chart below, Facebook and Twitter are the most popular social media platforms for companies to reach potential new customers with LinkedIn a popular avenue for B2B sales.

4. Native Advertising

Have you ever noticed those sponsored ads at the bottom of blog or FB posts? They can be "*other recommended readings*" or "*other people liked*" with suggested examples for users to click on. This is native advertising.

5. Pay Per Click (PPC)

Pay per click (PPC) ads explain their concept right in the name. These are ads that advertisers only pay for when a user clicks on them, which contributes to the strength of PPC as a tool. If the ad was seen by 100 people and only 1 person clicked the ad, the cost of the ad revolves solely around the 1 who clicked. PPC ads are usually text, with a small image if at all. Keep in mind that 64.6% of people click on Google ads when they are looking to buy an item online.

6. Remarketing

Remarketing (or retargeting) is a type of online advertising that does exactly what it says it does. This cookie-based technology literally followers the user around the internet, in order to remarket him/her again. Statistics show that only 2% of web traffic converts on the first visit, which means **98% of users leave without converting right away**. These users are targeted once they leave the website by then seeing subtle hints (ads), reminding them about their previous interest. Here's how the code works:

7. Affiliate Marketing

Affiliate marketing is promoting a company's product while earning a commission for each sale that was made. It's essentially a 3-party advertising agreement between the advertiser, publisher and consumer. It's widely adopted with bloggers who have large numbers of followers and are looking to gain passive income.

8. Video Ads

Video ads are growing in popularity, especially with the younger generation of consumers. BI Intelligence reported that digital video will reach nearly $5 billion in ad revenue and with the highest average click-through rate, 1.84%, of any digital format (2016). And the stats don't lie. 55% of consumers view videos in their entirety while 43% want to see more video content from markets.

INTERNET MARKETING TRENDS

The idea of business has been affected by the emergence of modern technologies in the past decade and it went through a vast alternation. Internet has become a major medium for communication and online trade was born through it. We are living in the digital era where internet marketing is playing a vital role to boost the business.

In brief, you can say digital marketing is the only thing that helps you to enhance your online business in an effective way. Marketing trends and tactics change frequently due to the increased competition and if you are searching for the latest marketing trends in 2019, this article will help you to learn about the latest marketing trends.

Digital Marketing Trends for 2020

1. Voice Search

INFORMATION SYSTEM& E-COMMERCE

That's right, over 25% of adults in the US own a smart speaker like an Amazon Echo or Google Home. In addition, 31% of smart phone users worldwide use voice activated search, like Siri, at least once a week. It is estimated that in 2020, 50% of all searches will be voice searches. That makes voice search one of the biggest online marketing trends of 2020. This is the year that digital marketers can no longer ignore voice search. There are

a lot of things you can do to optimize your site for voice search, but the most important change involves using long tail keywords like "how to make vegan brownies" instead of a shorter keyword like "vegan brownies."

2. Shoppable Posts

By now, you know that social media is a huge part of online marketing. What you might not realize is just how many people shop on social. 60% of Instagram users say they discover new products on Instagram and in a survey of over 4,000 interest users, a whopping 70% said interest helps them find new products. These platforms have taken note of the fact that people are using them to shop and have made it easier for merchants to sell via social media. Over the past few years, Instagram, interest, and Facebook all have ways for ecommerce stores to create shoppable posts using a native integration that makes it easy to tag and shop products directly in your posts. For online retailers, this is a great way to drive traffic to product pages.

3. Immersive Tech like AR and VR

Augmented reality (AR) and virtual reality (VR) have exploded in popularity over the past few years and are quickly becoming one of the top marketing trends. While VR was the more popular of the two for a long time, it is predicted that AR will outpace VR in 2020 and by 2021, VR won't be able to catch up. AR is already being used by major companies like IKEA. Using their app and AR, customers can see what a piece of furniture would look like in their space before purchasing (or even setting foot in a store)! Take a look at this shelving unit we tested in the Digital conference room.

4. Interactive Content

91% of buyers are looking for more interactive content online and in 2020, content marketing will shift its focus to give the people what they want. Shoppable posts, AR/VR, 360-degree video, quizzes, and polls are just a few examples of interactive content.

Interactive content will be one of 2020's top marketing trends for a few reasons:
- ❖ This type of content is new and original, helping it cut through noise

❖ It gives visitors a reason to stay on the page
❖ It's extremely shareable (almost everyone has seen someone share results of a silly quiz like "What kind of cheese are you?")
❖ The shareability increases your brand awareness
❖ Last but not least, people just love to interact!

5. Smart Bidding in Google Ads

Automation is nothing new in the digital marketing world, but thanks to recent Google Ads updates announced at Google Marketing Live, we expect automation and smart bidding to become the norm for many PPC account managers. Google Ads relies on machine learning to optimize your bids so you get the most value out of every conversion. The improvements announced at Google Marketing Live make optimizing your bids better than ever with the ability to choose conversion actions at the campaign level, the ability to optimize your bids across several campaigns with a set of desired conversion actions, and the ability to set bids to automatically change when a sale starts or stops. These improvements will help you maximize your conversions.

6. Personalization

Personalized marketing is where it's at in 2020. Consumers are tired of seeing generic ads that may not have anything to do with them. We change the channel when commercials are on (that's if we still have cable) and pay extra to music streaming services to avoid ads. Traditional advertising and generic commercials are increasingly ineffective. That's where personalized advertising comes in. 90% of 1,000 people surveyed said they find personalization appealing and 80% said they're more likely to do business with a company that offers personalized experiences. Customers are beginning to expect personalization and there are a lot of ways for digital marketers to deliver. Segmented email lists are one of the most popular ways to personalize your online marketing efforts. In fact, personalized email blasts perform 3X better than generic e-mails sent to your entire list! Most email marketing tools, like MailChimp and Constant Contact, and marketing automation tools, like HubSpot and Pardot, make list segmentation simple and easy. If you're not personalizing your marketing messages, make 2020 the year that youmake marketing personal.

7. Social Messaging Apps

Social media apps like Facebook Messenger, WeChat, and WhatsApp aren't just for messaging friends anymore. These apps are becoming popular ways for businesses to communicate with their customers. In fact, Facebook Messenger sees over 10 billion messages exchanged between individuals and businesses each month. Messaging apps

are popular for businesses because customers find it convenient to have direct contact with companies. In addition, it allows for extremely personalized marketing, which we already know people love. Here are a few ways businesses are using messaging apps:

- ❖ Establishing contact and building relationships
- ❖ Educating customers about their business/products
- ❖ Boosting sales
- ❖ Inviting people to events
- ❖ Regaining potential customers
- ❖ Providing customer support

Think about how your business can use social messaging apps in 2020!

Ongoing Digital Marketing Trends

Just like aviator sunglasses and the little black dress, some things just don't go out of style. Here are six online marketing trends that have been big over the past few years and will continue to be big in the digital marketing world in 2020.

1. Chat bots

Over the last several years, we've been communicating more and more with bots. Thanks to artificial intelligence (AI) and machine learning, chatbots are becoming more sophisticated and capable of handling more complex requests. In 2020, this technology will continue to be perfected and incorporated into company websites. Customer service via the web is becoming faster and more efficient every day thanks to these new technologies — so don't overlook them in your web presence.

2. Video

Video was a digital marketing must in 2019 and it will continue to be one in 2020. In addition to adding videos to your social networks and on your site, live videos on Facebook Live and Instagram Live get watched 3X longer than videos that aren't live.

3. Position "Zero" in SERP

The position #1 is no longer the top spot in search results. Position Zero or "#0" position, the featured snippet of text that appears before the search results, is now the top spot and it's highly coveted. This prime-time ranking spot typically answers the question or search query and includes a link back to the source of the information. Dr. Peter J. Meyers wrote an interesting article for Moz about the "0" position and tips for getting this ranking.

4. Influencer Marketing

Influencer marketing has been around for several years now, and it's not going away any time soon. Influencers used to be huge celebrities or "internet celebs" with a tens of thousands of followers but now, companies are turning to people with much a smaller social media following to be influencers. Leveraging influential people on social media allows you to reach their audience with a voice that they trust. You can find influencers by looking for people who reach your target demographic and then sponsoring them as a brand advocate. Brands that leverage influencers to spread their message see an ROI 11X higher than they do with other digital marketing methods.

5. Content Marketing

Is content still king in 2020? You better believe it! Not only does content demonstrate knowledge and expertise to potential customers reading your articles or pages, it's what search engines put in their search results. In short, content fuels the fire that is your search engine optimization, so it's best to never stop creating content. In 2020, focus on creating interactive content and videos.

6. Page Speed

Page speed has been important for several years and it will continue to be vital to your website's success in 2020. 25% of users will abandon a page if it doesn't load in four seconds and they're not likely to come back. Focus on improving your page speed in 2020 and watch your site's performance improve!

TARGET MARKET

A **target market** is a group of customers within a business's serviceable available market at which a business aims its marketing efforts and resources. A target market is a subset of the total market for a product or service. The target market typically consists of consumers who exhibit similar characteristics (such as age, location, income or lifestyle) and are considered most likely to buy a business's market offerings or are likely to be the most profitable segments for the business to service.

Selecting the target market

A key consideration in selecting the target markets is whether customer needs are sufficiently different to warrant segmentation and targeting. In the event that customer needs across the entire market are relatively similar, then the business may decide to use an *undifferentiated approach*. On the other hand, when customer needs are different across segments, then a *differentiated* (i.e. targeted) approach is warranted. In certain

circumstances, the segmentation analysis may reveal that none of the segments offer genuine opportunities and the firm may decide not to enter the market.

When a marketer enters more than one market, the segments are often labeled the *primary target market* and the *secondary target market.* The primary market is the target market selected as the main focus of marketing activities and most of the firm's resources are allocated to the primary target. The secondary target market is likely to be a segment that is not as large as the primary market, but may have growth potential. Alternatively, the secondary target group might consist of a small number of purchasers that account for a relatively high proportion of sales volume perhaps due to purchase value, purchase frequency or loyalty.

In terms of evaluating markets, three core considerations are essential:

❖ Segment size and growth
❖ Segment structural attractiveness
❖ Compatibility with company objectives and resources.

However, these considerations are somewhat subjective and call for high levels of managerial judgement. Accordingly, analysts have turned to more objective measures of segment attractiveness. Historically a number of different approaches have been used to select target markets. These include:

Distance Criterion: Under this approach, the business attempts to define the primary geographic catchment area for the business by identifying people who live within a predetermined distance of the business. For a retailer or service-provider the distance might be around 5 km; for domestic tourist destination, the distance might be 300km. This method is used extensively in retailing.

Sales Criterion: Using this method, the business allocates its resources to target markets based on historical sales patterns. This method is especially useful when used in conjunction with sales conversion rates. This method is used in retail. A disadvantage of the method is that it assumes past sales will remain constant and fails to account for incremental market potential.

Interest Survey Methods: This method is used to identify new business potential. Primary research, typically in the form of surveys, identifies people who have not purchased a product or service, but have positive attitudes and exhibit some interest in making a purchase in the short-term. Although this method overcomes some of the disadvantages of other methods, it is expensive even when syndicated research is used.

INFORMATION SYSTEM& E-COMMERCE

Chain ratio and indexing methods: This method is used in marketing of branded goods and retail. It involves ranking alternative market segments based on current indices. Widely used indices are the Category Index and Brand Index. The Category Index measures overall patterns within the product category while the Brand Index calculates a given brand's performance within the category. By dividing the Category Index by the Brand Index, a measure of market potential can be obtained.

E-BRANDING

Internet branding (also referred to as **Online branding**) is a brand management technique that uses the World Wide Web as a medium for positioning a brand in the marketplace. Branding in the digital age is increasingly important with the advancements of the internet. Most businesses are exploring various online channels, which include search engine, social media, online press releases, online marketplace, to establish strong relationships with consumers and to build their brands awareness.

- ❖ E-branding is the next wave of development online
- ❖ Brand is how you market yourself to others
- ❖ E brand is the digital representation of yourself online
- ❖ Brand is who you are and what you stand for
- ❖ Direct relationship between customer and brand owners
- ❖ Helps in better sales & brand loyalty
- ❖ To strengthen
- ❖ To deliver

Benefits of e- branding

- ❖ Easy to survive among competitors
- ❖ Helps to build familiarity and loyalty from consumers
- ❖ Convenient to gain reputation amongst customers
- ❖ Becomes the digital asset for a company
- ❖ Easy to expand customer relationship
- ❖ Helps to be a part of the grand global internet community of the 21st century
- ❖ Result in higher sales of not only one product, but other product associated with brand.

Promotion for e- branding

- ❖ Youtube
- ❖ Social media
- ❖ Facebook

- ❖ Yahoo!
- ❖ Movies

7 Important Strategies of E-Marketing

E-marketing or electronic marketing has been an effective tool in the hands of commercial enterprises online for some time now. Ever since its inception, it has rocked the web world by creating online marketing opportunities and opening options for promoting online businesses, brick and mortar businesses, and websites.

On the outset, e-marketing has been dependant on the same basic principles that any brick and mortar business depends on. Implementing the seven marketing strategies, which e-marketing experts have streamlined, will result in success. These strategies have been categorized as the 2 C's, 2 P's, and 3 S's.

TWO C's

<u>Customer Service</u> – When the customer chooses a product or service from a website, he will want to be assured of good customer service. Once he or she receives the product or service, customer service should not be a disappointment. Good customer service promotes customer loyalty and referrals.

<u>Community</u> – Just as traditional businesses operate in a community so does online businesses. The larger communities can attract more clientele with traditional business and with online businesses. The online community setting is important to attracting a large number of targeted customers.

THE TWO P's

<u>Personalization</u> – Generally it becomes important to strike a rapport with the client at first contact and understand his or her needs. Personalized emails and other replies will be important for the customer to feel valued and not just like another number.

<u>Privacy</u> – There is inherent need to assure privacy. Not only should the information for transactions be private and protected, the address, email, and phone numbers should never be sold or shared without the customer's permission.

INFORMATION SYSTEM& E-COMMERCE

THE THREE S's

<u>Site</u> – The e-commerce website should work properly from phones, laptops, desktops, and any other type of access. Knowledge of 2.0 technologies by whoever designs the website will be important.

<u>Security</u> – Every customer expects security while doing business online. There are also guidelines and regulations when it comes to securing private and protected information. A professional web design company may be needed to assure the website is secure.

<u>Sales Promotion</u> – Once an online business is set up for e-marketing, one would obviously need effective sales promotion for the merchandise and services being offered. Skillful and effective Internet marketing will be necessary to be successful online.

E-commerce is expected to only expand and businesses will need to keep up. Online and brick and mortar businesses will need a strong online presence and be at the top of the search engine results pages to successfully bring in income. Karma Snack Internet Marketing can make that happen with a large selection of Internet marketing services to choose from. To get a free proposal and a website analysis, contact them today.

A strong online marketing strategy will help you boost your business. These 10 digital strategies have been proven to help companies improve their performance. If you employ them, you could be on your way to creating a [concrete internet marketing strategy](#) that helps you brings in more customers and retain new ones.

1. Invest in Web Design

We don't often think about web design as a marketing tactic, but it influences the amount of time and attention a user will spend on your page. Your website is the center of all your digital marketing efforts, so if your page is not clean, easy to read, and interesting, it won't matter how much time you put into strategy development – you're still going to lose customers. If you don't have the design skills to do it yourself, then it's worth hiring someone to create a website that is modern, attention-grabbing, and mobile friendly.

2. Use Search Engine Marketing and Optimization

Search engine marketing and optimization are part of what helps make your business appear higher on a list of search engine results. With a strong SEO strategy, your company website will become associated with the keywords used to find your services. This increases your chances of being the company an individual chooses to work with after searching online.

3. Affiliate and Associate Programs

With an affiliate program, people who believe in your company can share your information and grow your market on a commission-based platform. An affiliate or associate program doesn't make sense for every business. However, if you do use these, you can quickly see your marketing efforts improve without needing to do much yourself.

4. Hire a Coach or Consultant

If you're not an expert in digital and internet marketing, ask someone who is. There are hundreds of internet marketing coaches and consultants available to you, many of whom can give you a consultation about what you should change to see success. For small business owners who need to focus on other business systems, a coach or consultant can be extremely helpful.

5. Use Email Marketing

It isn't enough to just send out emails. You will want to consider various email lists that cater to the specific needs of each individual and can present a personalized approach to your campaigns. Take a hard and clear look at the purchasing habits of your customers and use that information to develop your strategy.

6. Build an Opt-In Email List

An opt-in email list allows customers to come to you and sign up to receive email correspondence. This allows you to connect with potential customers and current clients.

7. Get Into Articles or News Stories

Work with a public relations professional to get your business into articles and news stories on topics related to what you do. It will not only help establish you as a trusted expert, but it will introduce your business to an even broader base of people. You

can also sign up for free services that connect you with writers looking for sources, such as [Help a Reporter Out](#).

8. Write Online Press Releases

When you use online press releases, you're getting your information out there in a formal setting. This allows newspapers, blogs, or other media sources to see your information and write posts about your company without you needing to put in the effort to connect and claim a story.

9. Hold Contests and Giveaways

People love contests and giveaways. Anytime you can encourage promotion from your customers in exchange for a free product or service, you will usually see a surge in purchases or connections.

10. Maintain a Blog

Your blog should be used for a number of reasons, including allowing you to consistently post new keywords and optimize your search engine strategy. More than that, your blog becomes somewhere you can offer advice, share bits of information, and really connect with your customers. A lasting relationship begins with trust, and your blog is a great way to build that.

E-Supply chain management: E-SCM in a manufacturing context, is a series of Internet- enabled value-adding activities to guarantee products created by a manufacturing process can eventually meet customer requirements and realize returns on investment. E-SCM is the effective utilization of internet and business processes that help in delivering goods, services and information from the supplier to the consumer in an organized and efficient way.

Players of E-Supply Chain Management

ESCM chain consists of the following players — manufacturer, logistics companies, distributors, suppliers, retailers and customers. E-Supply Chain Management concentrates on the coordination between the various players in the chain. Coordination is very essential for the success of the organization. E-SCM focuses on reducing the inventory cost.

INFORMATION SYSTEM& E-COMMERCE

Supply Chain Management flow
SCM flows can be divided into three main activities

1. Product flow,
2. Information flow and
3. Financial flow.

1. **<u>Product Flow</u>**: The product flow includes the movement of goods from a supplier to a customer, and also any goods returned by customers.

2. **<u>Information flow</u>**: The information flow involves transmitting orders and updating the status of delivery.

3. **<u>Financial flow</u>**: The financial flow consists of credit terms, payment schedules, consignment and title ownership arrangements.

Issues dealt by Supply Chain Management
Supply chain management deals with three issues:

1. Coordinating all the order processing activities that originate at the customer level, such as the process of order generation, order acceptance, entry into order processing system, prioritization, production, and material forecast.

2. Material related activities such as scheduling, production, distribution, fulfillment and delivery and

3. Financial activities such as invoicing, billing, fund transfer and accounting.

    SCM involves counter checks of materials, information and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. It involves coordinating and integrating these flows both within and among companies.

    Extranet, intranet, Internet are used in e-supply chain. Extranet helps to connect the participating companies. It may be the supplier or the customer. A customer can check the order status. Likewise, a supplier can collect data about inventory to know about the replenishment of the inventory.

INFORMATION SYSTEM& E-COMMERCE

With the help of internet, a company can advertise about the product and accept online orders. With the help of intranet, an organization can maintain communication within the boundaries of the company. It is said that the ultimate goal of any effective SCM is to reduce inventory.

E-supply chain enables to link the supplier with the customer by exchanging information instantaneously. The organization has sufficient inventory when required. There will not be any shortage or surplus of inventory. Shortage of inventory brings down the reputation of the firm. Likewise, excess inventory blocks the funds of the firm unnecessarily.

Advantages of e-supply chain management
Companies implementing E-SCM can enjoy the following advantages:

1. It improves efficiency

2. It reduces inventory

3. It reduces cost

4. It helps to take competitive advantage over competitors.

5. It increases ability to implement just-in-time delivery, increases on-time deliveries, which enhances customer satisfaction.

6. It reduces cycle time, increases revenue, by providing improved customer service.

7. It improves order fulfillment, order management, decision making, forecasting, demand planning, and warehouse/distribution activities.

8. It reduces paperwork, administrative overheads, inventory build-up, and the number of hands that handle goods on their way to the end-user i.e., the customer.

INFORMATION SYSTEM& E-COMMERCE

E-CRM (Electronic Customer Relationship Management)

Definition:

Electronic customer relationship management (E-CRM) is the application of Internet-based technologies such as emails, websites, chat rooms, forums and other channels to achieve CRM objectives. It is a well-structured and coordinated process of CRM that automates the processes in marketing, sales and customer service.

An effective E-CRM increases the efficiency of the processes as well as improves the interactions with customers and enables businesses to customize products and services that meet the customers' individual needs.

Techopedia explains *Electronic Customer Relationship Management (E-CRM)*

Electronic customer relationship management provides an avenue for interactions between a business, its customers and its employees through Web-based technologies. The process combines software, hardware, processes and management's commitments geared toward supporting enterprise-wide CRM business strategies.

Electronic customer relationship management is motivated by easy Internet access through various platforms and devices such as laptops, mobile devices, desktop PCs and TV sets. It is not software, however, but rather the utilization of Web-based technologies to interact, understand and ensure customer satisfaction.

An effective E-CRM system tracks a customer's history through multiple channels in real time, creates and maintains an analytical database, and optimizes a customer's relation in the three aspects of attraction, expansion and maintenance.

A typical E-CRM strategy involves collecting customer information, transaction history and product information, click stream and contents information. It then analyzes the customer characteristics to give a transactional analysis consisting of the customer's profile and transactional history, and an activity analysis consisting of exploratory activities showing the customer's navigation, shopping cart, shopping pattern and more.

The benefits of E-CRM include the following:

❖ Improved customer relations, service and support
❖ Matching the customers' behavior with suitable offers
❖ Increased customer satisfaction and loyalty
❖ Greater efficiency and cost reduction
❖ Increased business revenue

INFORMATION SYSTEM& E-COMMERCE

Businesses that strategize and implement an E-CRM solution are able to align their processes around technology to effectively deliver seamless, high-quality customer experience across all channels. Customers have the power to help themselves through online personalized services that are made available on demand. The Internet provides a simple and ideal medium where customers can get information from websites, buy products and find answers using FAQ sections, forums or chat rooms.