

EOM 301

Tools For E-Office Management

Skill Enhancement Course (SEC)

School of Vocational Studies



उत्तराखण्ड मुक्त विश्वविद्यालय

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UNIT- 1

E-OFFICE MANAGEMENT TOOLS- I

1.1	INTRODUCTION
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1.1 INTRODUCTION

E-office or electronic office is a term that refers to any office environment that makes significant use of computer technology to operate. The term was first coined during the middle of the 20th century and began to come into common use during the decade of the 1980s as more office environments dispensed with manual methods and began to rely more heavily on a combination of desktop computers, mainframes, and servers to manage a number of job-related tasks. Today, electronic office is more commonly equated with a virtual office, which involves the use of wireless technology allowing people to work from virtually anywhere with the right type of laptop or notebook and a reliable wireless connection.

1.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Explore the need and benefits of e-office.
- Explore the pre-requisites of e-office.
- Define the components of e-office.

- Define the role of an e-file management system.

1.3 WHY E-OFFICE?

For decades, paper documents and filing cabinets have been the way to organize information in an office, or at home. But that doesn't mean they're the best option. Many offices and homes globally are transitioning from physical documents to electronic document management. Why do they want to go paperless? Well, there are many reasons to get started for going paperless in today's modern business climate.

More and more business people are starting to realize that paper is an expensive and inefficient way to manage their information. So, they turn to a service, like electronic document management which has the tools they need. But going paperless isn't something that happens overnight; it is a process that takes time and effort, and many business owners and at home workers are intimidated by the prospect of making the switch.

As intimidating as the concept may be, going paperless with information management systems is a necessity if you're going to compete in the modern business world and still have a life outside the office.

Lead the Way-

What do you think is the number one reason why companies aren't going paperless? The answer may surprise you. 47% of employees surveyed said that one of the top three reasons for not going paperless was a lack of management initiatives or mandates. Essentially, they're ready and willing to go paperless, but nobody is leading the way or providing the tools. Executing steps for going paperless means your home business and major company needs you to take the initiative, step up, and lead the way for a more efficient office. Your employees will be grateful for improving their life at work.

Here are some tips for going paperless. Set goals for each department and for the company as a whole that encourage everyone to transition to an electronic document management system. You may even want to set up some kind of reward initiative for when the goal is met to encourage employees to participate in the efforts to go paperless.

The important thing about going paperless is that you lead by example. If you have your own



filing cabinet of documents, take responsibility for transitioning those to an electronic system. Set goals for yourself, and take ownership for meeting those goals. If your employees see you leading the way, they are more likely to follow, and you'll drive home how important going paperless really is.

Get Everyone on Board with Going Paperless-

No matter how strong the paperless example you set, your company won't make the transition unless you have your employees on board. Make sure the employees know about mobile apps. It gives them easy access wherever they have phone service. They can view, read, and share documents and files without taking up any personal phone storage. A recent survey asked businesses which departments were most resistant to a paperless work environment. It was found that legal and finance departments tend to be the most hesitant about going paperless. So how can you get them and the rest of your teams started and on board with the paperless plan? Here are three tips that might help.

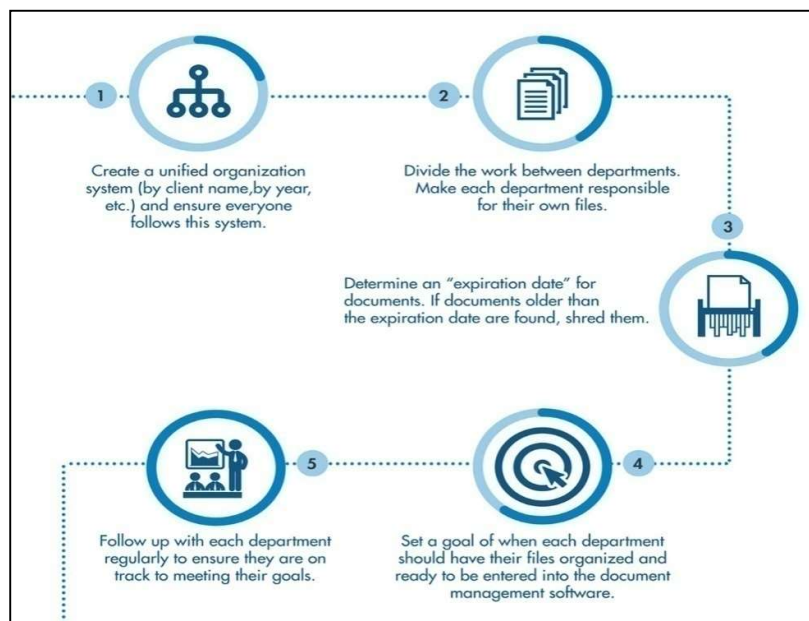
- Show them the ways going paperless benefits them: Demonstrate to people how going paperless will make their jobs easier. If they see the time and effort they can save, they're more likely to be on board with going paperless.
- Address compliance concerns about going paperless: There's a reason legal and finance department are the most resistant to go paperless: they're worried about compliance issues. However, the truth is going paperless can actually help you to become more compliant. Paper processes expose your company to potential liability due to lack of security or lost paperwork. On the other hand, electronic document management software possesses security measures and other features that ensure vital information is protected. Demonstrate these digital features to your team members to show them how going

paperless not only doesn't create compliance issues but can actually eliminate potential issues in existing paperless processes.

- Show how going paperless benefits customer services: The majority of consumers today prefer electronic correspondence to paper correspondence because they are easier to handle and are more secure. Providing these kinds of digital services for your customers can get a lot of your team members on board with the switch because customer service is arguably the most important part of any business.

Organize your Paper Documents and Files-

Now that you've set up some initiatives and gotten your team on board for going paperless, it's time to start the dirty work. Before you begin scanning your physical documents into their new



home in the digital cloud, an electronic system, read these ways to organize what you have—and odds are, you have a lot. To tackle these mounds of paper documents, you should divide the work and utilize your team appropriately.

Here's how you can quickly and easily get your stacks of paper documents organized and ready to be entered into a digital system on a desktop computer or in the cloud. Once the paper documents are all organized, you can prepare to take your business, whether at home or in a corporate office, into the paperless era.

Get Software and Get Training-

While your employees are preparing their documents and files for entry, you need to find the right digital document management system to aid you going paperless. There are many digital document management systems out there for you to choose from, so you need to do your research and compare your options before making a decision. To help you during your search,

you should sit down and make a list of the tools you need in a DMS service, as well as the things you want that aren't absolute necessities. These typically involve data backup, amount of storage, number of user accounts, audit logs, employee permissions, and automation.

Once you've read the tips and created a list of necessary tools, you need to figure out your budget for the new office software. You may need to consult with the finance team about this. Then, with your list in hand and budget in mind, you can start comparing cloud document management software. You should aim to find something that meets all of your needs and at least a few of your wants while still staying in your budget.

Get as many demonstrations and trials as you can so you can see how the software functions. You may want to let other employees test the software, to ensure that it is usable and easy to learn by others in the office.

After selecting your software, you need to select the office employees who need to be trained on the best way to use it. Depending on your situation and your business, you may want only certain departments to learn how to use the software or only the leaders of certain departments. The important thing is that all employees who handle, file, and need access to information in the cloud will be able to do so digitally and confidently.

Get Started Right the Way and File Electronically-

One of the most important tips for going paperless is relying on the right scanner to make the transition. With the necessary employees trained in the software, you can start scanning in your documents and filing them electronically with a document management vendor's scanner selection. This is also a good time for you to assess how to handle incoming documents and digital files while catching up on your backlog of existing documents. From the time you scan your first document, all incoming paperwork should be filed electronically. After all, you don't want to be constantly playing "catch-up" when it comes to being paperless; you want to move forward with paperless processes already in place.

Tell Clients, Tips, and Share Electronically-

Once you have your current documents switched to electronic copies, you can't stop there. Tell your clients about the switch you've made. Make sure to send out an email addressing any security concerns, and tell them about all of the benefits they'll experience from the switch. You'll also want to introduce them to electronic sharing as well. If your clients at home sharing digital documents with you and sign documents electronically with a phone or computer, your company will save even more time and money.

Make sure your clients are familiar with whatever version of electronic sharing you choose to use- email, online sharing, etc. Be willing to answer their questions and provide tips to make the transition easier for them. Any tips or help will let your clients know you care about their success.

One of the most important steps for going paperless is also to introduce them to the electronic signature services as well. Get your clients started with as many paper-free processes as you can. You will also help your company to keep your paperless systems consistent, efficient, and organized on your computer.

Enjoy the Benefits-

Once you finish the steps for going paperless, much less effort is needed to ensure you stay paperless, so you'll be able to rest on your laurels for a bit. Mostly you should minimize printing from a computer, and maintain the consistency in naming and filing.

As you continue to use a computer to make your processes digital, you'll see a number of benefits in your office and life outside of work. With savings in time and cost, as well as increased document security, data backup, your employees, customers, and your business as a whole will benefit from making the switch to a paperless office. When people at home or work ask how you had such a great business year, feel free to share these tips. After all, our main goal as a company is to improve your life by reducing stress at work.

1.4 BASIC INFRASTRUCTURE & PRE-REQUISITES FOR E-OFFICE

Basic infrastructure-

Digital workplaces not only enhance employee experience but enable business excellence and cost arbitrage. Research has shown that 87% of CIOs believe that digitally empowering employees can drive at least 5% additional revenue growth over three years (2). Here's a deeper look into some of these digital workplace infrastructure use cases that have already found a way into offices and are making an impact:

[1] User Preference-based Lighting and Temperature Control

Two of the most basic office necessities are lighting and air-conditioning/temperature control. An 'ideal temperature' is a myth. Employees have varied temperature requirements, which often lead to office temperature debates. This never-ending temperature tussle could be solved with the help of technology. Some companies have employed applications that allow employees to provide feedback on the current temperature – 'I'm cold,' 'It's too hot!', or 'It's perfect.' Based on such inputs, the building facility management team can adjust the temperature. Such tools place the control in the employee's hand, which further boosts productivity and employee satisfaction. A step further is a technology that helps employees set preferred temperatures for their own bays/work desks.

Similarly, for lighting, companies are exploring ways to install connected lighting systems that allow for remote light controlling, offering energy savings in the process. For instance, Cisco partnered with Philips to jointly implement smart lighting and HVAC systems. Philips'

connected lighting system collected data from 600 PoE (Power over Ethernet) enabled luminaires equipped with sensors to capture temperature, light level, and activity for optimizing user comfort. Philips' lighting management software, running in the building's IT environment, allowed system managers to monitor and manage each light point via a dashboard application. The system also stored data over time, allowing managers to assess occupancy patterns and optimize lighting operations based on historical trends and findings. Cisco thus reduced energy consumption in its office spaces and had better control of the lighting system.

[2] Digital Building Management System

A digital building management system will help enable facilities managers to run their buildings with high service levels and deliver cost savings and environmental benefits through reduced power consumption. For instance, a bank implemented technologies that help converge isolated building systems such as sensors, lighting, HVAC, security, and audio-video into a single system. It brought together different building systems on a single IP in order to be monitored and managed more effectively.

[3] Intelligent Workspace Allocation

Several companies today have implemented intelligent workspace allocation systems, which allow employees to choose and block their workstation based on their requirement for the day. Employees can also block workstations for longer durations, per their needs. This gives employees the freedom to select the seats they prefer, based on convenience, amenities required, and the type of work they are engaged in. It also allows employers to track workspace utilization and use the gathered data to plan for future expansion if needed.

Companies are also installing desks with a height adjustment option that enables employees to work either standing or sitting, according to their comfort. Another variant of this is the treadmill desk, where a low torque treadmill is placed below a standing desk, where the employees can walk while working. This improves the overall health of the employees and helps attract the millennial workforce who prefer an ergonomic workplace.

[4] 3D Holographic Telepresence

As companies continue to globalize and expand across diverse geographical locations, connecting digitally for meetings and townhalls will be key to saving valuable time and traveling cost for leaders as well as organizations. High-definition 3D holograms are one of the most promising technology use cases that can enable these digital meetings. Accenture's tech team has already created a 3D holographic telecast technology to enable the digital presence of leadership teams in key meetings without actually needing them to be physically present. Accenture has built seven studios with the capacity to capture holograms across the globe and plans to expand its use. 3D holograms will not just help increase an organization's efficiency but will also help build a digital-ready culture in the organization.

[5] Smart Writing Boards

In several MNCs, traditional whiteboards are being replaced by smart boards. These smart boards can replicate the content onto a laptop or tablet in real-time, enabling better collaboration and saving the time spent on replicating the content. Smart writing boards can be used to edit existing files (e.g. Excel/PPTs) and can be saved for further use as well. Multiple files can be accessed simultaneously at the tap of a finger. Smartboards also have in-built webcams that relay the content being written on the board to a remote location of choice, in real-time. It helps extend the scope of discussions with ease of swapping data through files and making discussions more effective. It also ensures that the points discussed during meetings are captured without any loss of data due to human interventions.

[6] Intelligent Amenities

Companies are conscientiously taking initiatives and investing heavily in providing intelligent amenities to the employees through facilities like smart elevators, IoT-enabled parking availability tracking, biometric access and security, interactive platforms, etc. A case in point is RMZ Corp., a commercial real estate company that has adopted technology to transform its tenants' experience by providing them with a highly interactive platform enabled by AI and IoT. The platform acts as a comprehensive productivity and efficiency enabler that allows employees within the campus to enjoy certain features. Employees can make workplace decisions such as the right time and mode to get to and from work, in-campus services, security, concierge services, community socializing, etc.

Pre-requisites for e-office-

Some of the basic requirements for the E-office establishment are given below, e.g. Hardware, Software, Training, actualization.

[1] Actualization

- Pre-transition Preparedness
- Creation of Database (EMD)
- Creation of NIC email ID
- Procurement of Digital Signatures
- Establish a ten member PMU that can be reduced to five after six months and three after one year
- R and I section to be equipped and trained
- User PC Peripheral Equipment modifications
- Scanning
- Self
- Outsourced
- Migration

- All new files as e-files
- Physical files to be migrated to Electronic Files
- Cutoff Date
- Hardware
- Creation of a separate instance
- NIC Network
- Sufficient Bandwidth
- Backend Management Support
- Monitors are not too small
- Adequate RAM in CPU

Strategy

- Setting Up
- Application procurement
- Hardware changes (Screen size & RAM) rollout
- Training
- Scanning Arrangement –Vendor & Officers PA
- Pre-transition preparedness Cut off
- R&I going electronic
- New files electronic

Software

- E-office a NIC developed Software
- E-office Premium and E-office Lite
- Advantages
- File management
- Tracking
- Expeditious Movement
- Location agnostic saves paper
- Saves Space increases transparency
- Leave Management
- Inter Organizational Communication
- Needs to be purchased-Cost varies based on number of users and Locations

Training

- Overview
- Introductory training
- Enablement training
- Learn while you do

1.5 COMPONENTS OF E-OFFICE

Addition, maintenance of certain basic records, scheduling, processing summarized business information for structured decision making, and what-if analyses are some of the other automated office operations. Some of the common components of E-office are: Word Processor, Electronic Spreadsheet, Business Presentations, Scheduler, and Data Base Management System.

Each of these components is designed to perform a special type of desktop activity. The word processors help in designing documents for internal and external communication. The Electronic spreadsheets are used for analyzing numeric data and performing 'what-if' analysis.

The business presentation component of office suite helps in designing screens for business presentations before customers, investors, shareholders, policymakers, etc. These packages combine graphic facilities and databases to make the presentations accurate, interactive and flexible. Schedulers are packages that help managers in time management.

They record a manager's engagements and maintain dynamic scheduling and recordings. As a result, time management is made more systematic. Information regarding the lean periods and busy periods can be obtained easily.

1.6 E-FILE MANAGEMENT SYSTEM

E-file management or electronic document management is the practice of importing, storing, and managing documents in digital format, e.g. images, documents, etc. To resolve the issues with manual file system someone needs to upgrade into e-filing system that eliminates or minimizes the time spent managing and maintaining paper documents, amount of physical storage space required for paper files, risks of document loss due to fire, water damage, or any other physical damage, etc.

Benefits of an e-filing management system-

E-file management system provides the following advantages-

- Save space and resources otherwise needed for organizing, filing, and storing papers.
- Minimize errors that are likely with manual data entry and filing.
- Permanently preserve documents and information that could otherwise be misplaced or lost.
- Reduce or eliminate expenses for office supplies such as printers, copiers, paper, ink, etc.
- Optimize productivity by eliminating time and effort necessary to search through files for information.
- Improve customer service by speeding up response times.

- Access of official documents to the authorized person irrespective of space and time.

1.7 POINTS TO REMEMBER

- E-office software has been designed with an objective to help reduce the movement of hard copy papers within an organization and integrate various, seemingly unrelated activities within an organization.
- The software is based on open technologies and web-based, which is user-friendly. This facilitates easier deployment over the Local Area Network, Wide Area Network as well as over internet whenever required.
- The user can access the system using standard Internet browser such as Internet Explorer or Netscape after necessary authentication.
- The complete system works with a centralized backend database to store the necessary structured information, keyed in by the user.

1.8 GLOSSARY

- **Word Processor:** Word processor is software or a device that allows users to create, edit, and print documents. It enables you to write text, store it electronically, display it on a screen, modify it by entering commands and characters from the keyboard, and print it.
- **Electronic Spreadsheet:** Electronic spreadsheets computerise the traditional layout of any tabulation or complex calculation done with pencil, paper and calculator.
- **Data-Base Management System:** A database management system (DBMS) is a software package designed to define, manipulate, retrieve and manage data in a database.

1.9 CHECK YOUR PROGRESS

Objective type questions-

- The electronic office is a term that refers to any office environment that makes significant use of to operate.
- 47% of employees surveyed said that one of the top three reasons for not going paperless was a lack of
- some of the basic requirements for the E-office are &
- PDF stands for
- Some of the common components of E-Office are,,,,
- for formatting the E-documents we mostly preferred animations formatting software.

- (True / False)
- g) If you want to strip all of the formatting, Select the text and press [Ctrl]+[Spacebar].
(True / False)
- h) Two of the most basic office necessities are lighting and air-conditioning/temperature control. (True / False)
- i) One of the most common applications of PCs is inter-office and intra-office communications. (True / False)
- j) MS-Word, Notepad, WordPad are some of the examples of text editing and formatting tools. (True / False)

Descriptive type questions-

- a) What is E-office management?
- b) What is a word processor?
- c) Explain the components of E-office.
- d) Describe the E-file Management System.

Answers (Objective type questions)

[a] Computer technology [b] Management initiatives or mandates [c] Hardware, software, training, actualization [d] Portable document format [e] Word processor, electronic spreadsheet, business presentations, scheduler, data base management system [f] False [g] True [h] True [i] True [j] True

1.10 BIBLIOGRAPHY/ REFERENCES

- <https://www.techopedia.com/definition/24361/database-management-systems-dbms>
- <https://www.ncbi.nlm.nih.gov/pubmed/3880333>
- https://www.webopedia.com/TERM/W/word_processing.html
- <https://www.inc.com/encyclopedia/office-automation.html>
- <https://www.computerhope.com/jargon/e/elecoffi.htm>
- <https://www.wisegeek.com/what-is-an-electronic-office.htm#>
- <https://www.collinsdictionary.com/dictionary/english/electronic-office>

1.11 SUGGESTED READINGS

- Balachandran, “Office Management”, Tata McGraw-Hill Education
- Dr. R.C. Bhatia, “Principles of Office” Management, Lotus Press
- R S N Pillai, “Office Management”, S. Chand.

UNIT- 2

E-OFFICE MANAGEMENT TOOLS- II

- 2.1 INTRODUCTION

- 2.2 OBJECTIVES

- 2.3 E-OFFICE MANAGEMENT TOOLS

- 2.4 INTRODUCTION TO GOOGLE DOCS, AND PHOTOS

- 2.5 APPLICATION OF DIGILOCKER

- 2.6 HOW TO USE DIGILOCKER?

- 2.7 SHARING DOCUMENTS OVER INTERNET

- 2.8 POINTS TO REMEMBER

- 2.9 GLOSSARY

- 2.10 CHECK YOUR PROGRESS

- 2.11 BIBLIOGRAPHY/ REFERENCES

- 2.12 SUGGESTED READINGS

2.1 INTRODUCTION

The electronic office, or e-office, was a term coined to cover the increasing use of computer-based information technology for office work, especially in the 1980s. It was a popular marketing buzzword during that era, but is no longer so widely used since all modern offices are electronic offices. The term appeared much earlier in the name of the LEO computer (Lyons Electronic Office), that first ran a business application in 1951 in England.

The general objective of e-office adoption was the elimination of paper and converting most or all office communications to electronic form. The definition of electronic office is not precise, and it might be either:

The introduction of individual computers running office software applications, such as word processors, or the interconnection of office computers using a local area network (LAN), or the

centralization of office functions via collaborative software (i.e., groupware), which was later superseded in many contexts by web applications.

The introduction of e-office improved accuracy and efficiency of organizations and thereby improved their level of service, while theoretically lowering costs and drastically reducing the consumption of paper. Many documents are still being printed out and circulated on paper, however, especially those that require signatures or other legal formalities.

2.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Describe the concept of e-office.
- Define e-office management tools.
- Describe the basic concept of GOOGLE DOCS, PHOTOS.
- Identify the effectiveness of DIGILOCKER.

2.3 E-OFFICE MANAGEMENT TOOLS

The e-office product aims to support governance by ushering in more effective and transparent inter and intra-government processes. The vision of e-office is to achieve a simplified, responsive, effective and transparent working of all government offices. The Open Architecture on which e-office has been built, makes it a reusable framework and a standard reusable product amenable to replication across the governments, at the central, state and district levels. The product brings together the independent functions and systems under a single framework.

- Enhance transparency- files can be tracked and their status is known to all at all times
- Increase accountability- the responsibility of quality and speed of decision making is easier to monitor.
- Assure data security and data integrity.
- Provide a platform for re-inventing and re-engineering the government.
- Promote innovation by releasing staff energy and time from unproductive procedures.
- Transform the government work culture and ethics.
- Promote greater collaboration in the work place and effective knowledge management.

2.4 INTRODUCTION TO GOOGLE DOCS, AND PHOTOS

Google Docs is a word processor included as part of the free, web-based Google Docs Editors suite offered by Google Corporation. The service also includes Google Sheets, Google Slides, Google Drawings, Google Forms, Google Sites, and Google Keep. Google Docs is available as a web application, mobile app for Android, iOS, Windows, BlackBerry, and as a desktop application on Google's Chrome OS. The app is compatible with Microsoft Word file formats. The app allows users to create and edit files online while collaborating with other users in real-time. Edits are tracked by user with a revision history presenting changes. An editor's position

is highlighted with an editor-specific color and cursor and a permissions system regulates what users can do. Updates have introduced features using machine learning, including "Explore", offering search results based on the contents of a document, and "Action items", allowing users to assign tasks to other users.

Google Docs is available as a web application supported on Google Chrome, Mozilla Firefox, Internet Explorer, Microsoft Edge, and Apple Safari web browsers. Users can access all Docs, as well as other files, collectively through the Google Drive. In June 2014, Google rolled out a dedicated website homepage for Docs that contains only files created with the service. In 2014, Google launched a dedicated mobile app for Docs on the Android and iOS mobile operating systems. The mobile website for Docs was updated in 2015 with a "simpler and more uniform" interface, and while users can read files through the mobile websites, users trying to edit will be redirected towards the dedicated mobile app, thus preventing editing on the mobile web.

Features-

Google Docs and the other apps in the Google Drive suite serve as a collaborative tool for cooperative editing of documents in real-time (online). Documents can be shared, opened, and edited by multiple users simultaneously and users are able to see character-by-character changes as other collaborators make edits. Changes are automatically saved to Google's servers, and a revision history is automatically kept so past edits may be viewed and reverted to. An editor's current position is represented with an editor-specific color/cursor, so if another editor happens to be viewing that part of the document, they can see edits as they occur.

A sidebar chat functionality allows collaborators to discuss edits. The revision history allows users to see the additions made to a document, with each author distinguished by color. Only adjacent revisions can be compared, and users cannot control how frequently revisions are saved. Files can be exported to a user's local computer in a variety of formats (ODF, HTML, PDF, RTF, Text, Office Open XML). Files also can be tagged and archived for organizational purposes.

In March 2014 Google introduced add-ons, new tools from third-party developers that add more features for Google Docs. In order to view and edit documents offline on a computer, users need to be using the Google Chrome web browser. A Chrome extension 'Google Docs Offline', allows users to enable offline support for Docs files on the Google Drive website. The Android and iOS apps natively support offline editing.

In June 2014, Google introduced "Suggested edits" in Google Docs; as part of the "commenting access" permission, participants can come up with suggestions for edits that the author can accept or reject, in contrast to full editing ability. In October 2016, Google announced "Action items" for Docs. If a user writes phrases such as "Ryan to follow up on the keynote script", the service will intelligently assign that action to "Ryan". Google states this will make it easier for

other collaborators to see which person is responsible for what task. When a user visits Google Drive, Docs, Sheets or Slides, any files with tasks assigned to them will be highlighted with a badge.

A basic research tool was introduced in 2012. This was expanded into "Explore" in September 2016, which has additional functionality through machine learning. In Google Docs, Explore shows relevant Google search results based on information in the document, simplifying information gathering. Users can also mark specific document text, press Explore and see search results based on the marked text only.

In December 2016, Google introduced a quick citations feature to Google Docs. The quick citation tool allows users to "insert citations as footnotes with the click of a button" on the web through the Explore feature introduced in September. The citation feature also marked the launch of the Explore functionalities in G Suite for Education accounts.

Supported file formats-

Files in the following formats can be viewed and converted to their Docs format, such as- .doc (if newer than Microsoft Office 95), .docx, .docm .dot, .dotx, .dotm, .html, plain text (.txt), .rtf, .odt File limits. Limits to insertable file sizes, overall document length and size are listed below:

Up to 1.02 million characters, regardless of the number of pages or font size. Document files converted to .doc. Docs format cannot be larger than 50 MB. Images inserted cannot be larger than 50 MB, and must be in either .jpg, .png, or .gif formats.

Google Workspace- Google Docs and the Google Docs Editors suite are free of charge for use by individuals, but are also available as part of Google's business-centered Google Workspace, enabling additional business-focused functionality on payment of a monthly subscription.

More functionalities on Google Docs-

A simple find and replace tool is available. Google offers an extension for the Google Chrome web browser called Office editing for Docs, Sheets and Slides that enables users to view and edit Microsoft Word documents on Google Chrome via the Docs app. The extension can be used for opening Office files stored on the computer using Chrome, as well as for opening Office files encountered on the web (in the form of email attachments, web search results, etc.) without having to download them. The extension is installed on Chrome OS by default. Google Cloud Connect was a plug-in for Microsoft Office 2003, 2007 and 2010 that could automatically store and synchronize any Word document to Google Docs (before the introduction of Drive) in Google Docs or Microsoft Office formats. The online copy was automatically updated each time the Microsoft Word document was saved. Microsoft Word documents could be edited offline and synchronized later when online. Google Cloud Connect maintained previous Microsoft Word document versions and allowed multiple users to collaborate by working on the same document at the same time. Google Cloud Connect was

discontinued in April 2013 as, according to Google, Google Drive achieves all of the above tasks, "with better results"

Google Photos-

Google Photos is a photo sharing and storage service developed by Google. It was announced in May 2015 and separated from Google+, the company's former social network. In its free tier, Google Photos stores unlimited photos and videos up to 16 megapixels and 1080p resolution respectively (anything larger gets down-scaled to these sizes). This free tier will end on June 1, 2021. Photos and videos uploaded after that date get counted towards the 15 GB free quota shared across the user's Google services. There are subscriptions offered for users wanting to store their photos and videos at their "original" quality and requiring more storage than the 15 GB offered free.

The service automatically analyzes photos, identifying various visual features and subjects. Users can search for anything in photos, with the service returning results from three major categories: People, Places, and Things. The computer vision of Google Photos recognizes faces (not only those of humans, but pets as well), grouping similar ones together (this feature is only available in certain countries due to privacy laws); geographic landmarks (such as the Eiffel Tower); and subject matter, including birthdays, buildings, animals, food, and more.

Different forms of machine learning in the Photos service allow recognition of photo contents, automatically generate albums, animate similar photos into quick videos, surface past memories at significant times, and improve the quality of photos and videos. In May 2017, Google announced several updates to Google Photos, including reminders for and suggested sharing of photos, shared photo libraries between two users, and physical albums. Photos automatically suggested collections based on face, location, trip, or other distinction.

Google Photos acts as a backup when photos are sent or in Google terms 'Shared'. This is just a common backup tool when photos are shared between social media or other platforms or apps.

2.5 APPLICATION OF DIGILOCKER

DigiLocker is an Indian digitization online service provided by Ministry of Electronics and Information Technology (MeitY), Government of India under its Digital India initiative. DigiLocker provides an account in cloud to every Aadhaar holder to access authentic documents/certificates such as driving license, vehicle registration, academic mark sheet in digital format from the original issuers of these certificates. It also provides 1GB storage space to each account to upload scanned copies of legacy documents. Users need to possess an Aadhaar number to use DigiLocker. For sign-up, the Aadhaar number and the one-time password sent to the Aadhaar-registered mobile number, need to be entered.

The beta version of the service was rolled out in February 2015, and launched by Prime

Minister Narendra Modi on 1 July 2015. The storage space provided was 100 MB initially, and was later increased to 1 GB. The individual file size for upload cannot exceed 10 MB. In July 2016, DigiLocker recorded 20.13 lakh users with a repository of 24.13 lakh documents. The number of users saw a large jump of 7.53 lakh in April when the government had urged all municipal bodies to use DigiLocker to make their administration paperless.

From 2017, the facility was extended to allow students of ICSE board to store their class X and XII certificates in DigiLocker and share them with agencies as required. In February 2017, Kotak Mahindra Bank started providing access to documents in DigiLocker from within its net-banking application, allowing users to e-sign them and forward as needed. In May 2017, over 108 hospitals, including the Tata Memorial Hospital were planning to launch the use of DigiLocker for storing cancer patients' medical documents and test reports. According to a UIDAI architect, patients would be provided a number key, which they can share with another hospital to allow them to access their test reports.

As of December 2019, DigiLocker provides access to over 372+ crore authentic documents from 149 issuers. Over 3.3 crore users are registered on DigiLocker. 43 requester organisations are accepting documents from DigiLocker. There is also an associated facility for e-signing documents. The service is intended to minimise the use of physical documents, reduce administrative expenses, provide authenticity of the e-documents, and provide secure access to government-issued documents and to make it easy for the residents to receive services. Each user's digital locker has the following sections.

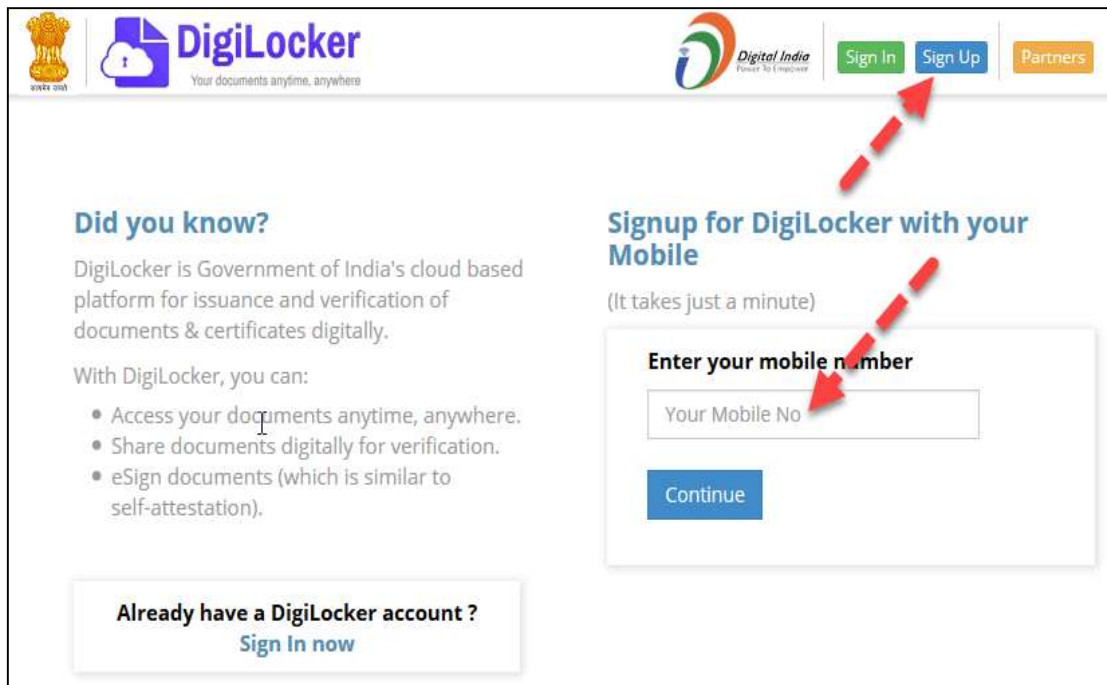
- My Certificates: This section has two subsections:
- Digital Documents: This contains the URI's of the documents issued to the user by government departments or other agencies.
- Uploaded Documents: This subsection lists all the documents which are uploaded by the user. Each file to be uploaded should not be more than 10MB in size. Only pdf, jpg, jpeg, png, bmp and gif file types can be uploaded.
- My Profile: This section displays the complete profile of the user as available in the UIDAI database.
- My Issuer: This section displays the issuers' names and the number of documents issued to the user by the issuer.
- My Requester: This section displays the requesters' names and the number of documents requested from the user by the requesters.
- Directories: This section displays the complete list of registered issuers and requesters along with their URLs.

2.6 HOW TO USE DIGILOCKER?

Digital Locker, one of the key initiatives under the Digital India initiative, is aimed at eliminating the usage of physical documents and enable sharing of e-documents across government agencies via a mechanism to verify “authenticity” of the documents online. Residents can also upload their own electronic documents and digitally sign them using the e-sign facility. These digitally signed documents can be shared with Government organizations or other entities.

[1] USER ID CREATION

Step 1: Access digital locker at <https://digitallocker.gov.in/>



Citizens with Aadhaar number can create Digital Locker accounts.

Kindly ensure that your current mobile number is registered with Aadhaar number.

You can update your mobile number in Aadhaar by visiting any UIDAI centre.

Step 2: Click on ‘Sign Up’

Step 3: Enter your Aadhaar Number.

Enter your unique 12-digit Aadhaar number.

Two options are there to proceed further- Use OTP or Use Fingerprint.

Step 4: User ID Creation

The application will prompt the user to create ‘Username’ and ‘Password’. Enter your desired User name and Password for ‘Digital Locker’ account.

Click on SignUp button. After successful account creation, the application will show the ‘Dashboard’ page.

2.7 SHARING DOCUMENTS OVER INTERNET

Today's computers are capable of storing all types of files, including documents, songs, videos, and full applications. When you move one or more files from your local computer to another device or remote location, you are partaking in the activity of file sharing. In some scenarios, the recipient will have to accept the file, but typically the transfer will complete automatically.

The Pros and Cons of sharing files over the Internet.

There are a number of factors to keep in mind before you start actively file sharing. Let's walk through some of the key positives and negatives about the process.

Pros-

Allows you to transfer large files over a network connection.

Makes it easier to collaborate with other people across the globe.

Reduces the need to maintain a central file server that is always online.

Cons-

Amount of bandwidth required can be costly.

Hard to trace what happens to a file after it is shared publicly.

Higher risk of acquiring a virus or other type of malware from a remote file.

Types of File Sharing-

Before you can start distributing files over the internet, you need to determine what method and protocol you want to use. Your decision should be based on what types of files you are moving and who will be receiving them. We'll dive into the main options and explain what scenarios they can help with the most.

File Transfer Protocol (FTP)

FTP was one of the first methods invented for moving data across networks and it remains very popular today thanks to its reliability and efficiency. FTP actions can be run through a command prompt window or a tool with a user interface. All it requires is for you to specify the source file you want to move and the destination where it should be placed. Tools used for FTP, Example- FileZilla, Telnet, WinSCP, etc.

Peer to Peer (P2P)

The purpose of a P2P file transfer is to remove the need for a central server that hosts the data. Instead, individual clients connect to a distributed network of peers and complete the file transfers over their own network connections. P2P might eventually be used to create an unstoppable TOR. Whether or not The Onion Router (TOR) is a truly P2P environment depends on many factors, but its popularity in creating a more secure online connection is unquestioned. Example- Limewire, Gnutella, BearShare.

Cloud Services

With a cloud file sharing service, one user uploads their data to a central repository and then other users can download the files to their own devices. All data is hosted by a third party

provider, although users can specify what types of permission levels to put on the files. Tools used for cloud services, as- Dropbox, Box, OneDrive, iCloud.

Email Providers

Some people don't realize that email can actually function as a file transfer system. Every time you attach a document to an outgoing message, you are initiating a transfer of that data over the open internet. Example- Gmail, Outlook, Yahoo! Mail.

Removable Storage (offline)

When no network-based option will fulfill your needs, you can always rely on a physical drive to serve as your file transfer operation. This means you are literally copying data to a USB flash drive or external hard drive and plugging that device into the destination computer. Example- USB thumb drives or external hard drives.

2.8 POINTS TO REMEMBER

- The electronic office, or e-office, was a term coined to cover the increasing use of computer-based information technology for office work, especially in the 1980s.
- Google Docs is a word processor included as part of the free, web-based Google Docs Editors suite offered by Google.
- Google Photos is a photo sharing and storage service developed by Google. It was announced in May 2015 and separated from Google+, the company's former social network.
- DigiLocker is an Indian digitization online service provided by Ministry of Electronics and Information Technology (MeitY), Government of India under its Digital India initiative.

2.9 GLOSSARY

- LEO- Lyons Electronic Office
- LAN- Local Area Network
- UIDAI- The Unique Identification Authority of India

2.10 CHECK YOUR PROGRESS

Descriptive Type Questions-

- a) What is e-office management?
- b) Define various e-office management tools.
- c) What are the applications of Google Docs and Photos?
- d) Define the term DigiLocker.

Objective Type Questions-

- a) The electronic office, or e-office, was a term coined to cover the increasing use of computer-based information technology for office work. (True/False)
- b) Google Sheet is a word processor included as part of the free, web-based Google Docs Editors suite offered by Google. (True/False)

- c) DigiLocker is an Indian digitization online service provided by Ministry of Electronics and Information Technology (MeitY). (True/False)
- d) Google Calendar is the time management and scheduling tool created by Google. (True/False)

Answer (Descriptive Type Questions)-

[a] True

[b] False

[c] True

[d] True

2.11 BIBLIOGRAPHY/ REFERENCES

- Susan Fenner (ed.), Complete Office Handbook: The Definitive Reference for Today's Electronic Office, 2nd edition. Random House, 1996. ISBN 0-679-77038-0. [1]
- Marshall, Matt (March 9, 2006). "Google acquires online word processor, Writely". VentureBeat. Retrieved June 1, 2017. [2]
- Savov, Vlad (March 3, 2017). "Google adds auto white balance to constantly improving Photos app". The Verge. Vox Media. Retrieved March 10, 2017. [3]
- Alawadhi, Neha. "Digital India programme: Government rolls out beta version of 'digital locker'". The Economic Times. Archived from the original on 10 May 2015. Retrieved 30 May 2015 [4]
- Pranav Mukul (25 July 2016). "DigiLocker initiative records a repository of 24.13 lakh docs from 20.13 lakh users". The Indian Express. Archived from the original on 14 July 2017. Retrieved 10 June 2017. [5]
- https://en.wikipedia.org/wiki/Electronic_office#
- https://eoffice.gov.in/about_us.php
- https://en.wikipedia.org/wiki/Google_Docs
- https://en.wikipedia.org/wiki/Google_Photos
- <https://www.varonis.com/blog/secure-file-sharing/>
- <https://www.eztalks.com/unified-communications/5-messaging-and-collaboration-services.html>
- <https://www.actitime.com/software-collections/to-do-list/>
- <https://www.google.com/calendar/about/>
- https://play.google.com/store/apps/details?id=com.google.android.calendar&hl=en_IN&gl=US
- <https://www.cnet.com/how-to/google-meet-4-steps-to-setting-up-googles-video-chat-app-free/>
- https://en.wikipedia.org/wiki/DigiLocker#cite_note-DigiLocker_Official_Statistics-10

2.12 SUGGESTED READINGS

- https://en.wikipedia.org/wiki/Google_Photos
- <https://www.varonis.com/blog/secure-file-sharing/>

- <https://www.eztalks.com/unified-communications/5-messaging-and-collaboration-services.html>

UNIT-3

OFFICE MEETINGS

3.1	INTRODUCTION
3.2	OBJECTIVES
3.3	OFFICE MEETINGS
3.4	NOTICE
3.5	AGENDA
3.6	RESOLUTION
3.7	MINUTES
3.8	ABBREVIATIONS AND TERMS USED IN BUSINESS CORRESPONDENCE
3.9	POINTS TO REMEMBER
3.10	GLOSSARY
3.11	CHECK YOUR PROGRESS
3.12	BIBLIOGRAPHY/ REFERENCES
3.13	SUGGESTED READINGS

3.1 INTRODUCTION

Office meetings are an intrinsic part of running a business. They allow for the business to have a common objective. They also allow every employee and department in the business to know what they should be doing. Essentially, they allow everyone to work towards a common goal. A meeting is important because it helps a group to reach a common decision when urgent and crucial matters need to be discussed and brainstormed through personal interaction. E-mail or conference call may not effectively iron out any issues arising in the office. The objective of a meeting is to provide updates, deliver announcements, solicit feedback, share information and participate in a team environment. Meetings should have a detailed agenda, a time limit and a designated moderator to be effective.

3.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Know meetings types
- Know the importance of meetings and essential elements of meeting.

3.3 OFFICE MEETINGS

Meetings can be of various types based on formality, purpose, use, legality, participation and more. Types of meetings are; formal meetings, annual general meetings (AGM), statutory meetings, board meetings, and informal meetings. Meeting or plural form “Meetings” can be defined as; “A gathering of people; as for a business, social, or religious purpose.”

We know how important part meetings play in our professional lives. But they also have a significant role in other parts of our life. Meetings can be of various types based on formality, purpose, use, legality, participation and more. However, the main principle of the meeting is remaining common: a gathering of people.

Types of Meetings-

[1] Informative- the purpose is to give information to the participants about a new scheme, product, etc.

[2] Consultative- the members are consulted to solve a problem.

[3] Executive- decisions are taken by those empowered to do so.

In practice, most of the meetings serve more purposes than one. Some additional classifications of meetings are – meeting for negotiation purpose, meeting for giving instructions, etc.

Purposes of Meetings-

The purposes of holding meetings are listed here in a skeleton form:

- To reach a common decision/agreement.
- To solve a problem.
- To understand a situation, exchange ideas and experiences.
- To inform, explain, present ideas.
- To give and get feedback on new ideas.
- To give training.
- To plan and prepare for action.
- To resolve differences and misunderstandings.
- To generate enthusiasm and seek cooperation.

- To review past performance and evaluate it.
- To create a feeling of continuity and solidarity in a body's working.

Advantages of Meetings:

- **Save time:** Since one can meet a number of people at a time, a meeting can save time.
- **Addressing groups:** One can divide the audiences according to their background and need, and address them group by group.
- **Cope with information explosion:** New technology and new regulations are coming thick and fast. Meetings enable us to cope with this situation.
- **Social and emotional support:** Members get personal support from each other when they meet and exchange ideas.
- **Feeling of being consulted:** Members get the feeling that they have been consulted and this is useful in getting their intelligent and willing cooperation.
- **Democratic functioning:** Democracy aims at achieving all people's welfare by all people's involvement. This is possible through meetings.
- **Idea development:** Ideas are systematically cross-fertilized, analyzed and improved by a group.
- **Defusing troublemakers:** By collective constructive forces, troublemakers can be isolated in a meeting and positive action gets going. The opponents of a plan get a forum to voice their opposition, which can be overcome before a group of supportive people.
- **Bolder decisions:** Collectively we can take more adventurous decisions because of united strength.
- **Various interest groups represented:** In a meeting many interest groups can be represented and minorities can also be given due attention.
- **Preventing mistakes:** A meeting helps avoid mistakes by a collective and many-angled focus on issues.

Disadvantages of Meeting:

- **Time-consuming:** Meetings require a number of people to come together at the same time and place. This costs time because other work has to be set aside for the sake of the meeting.
- **Inability to arrive at a decision:** Just as "two heads are better than one," it is also true that "too many cooks spoil the soup." Multiplicity of views and personal stubbornness of members may prevent a meeting from taking a decision which a chief executive may take

alone.

- **Lack of seriousness:** Many meetings suffer from the drawback that members come unprepared and feel that the others will do the thinking and talking. They feel they can take a free ride. “Everybody’s job is nobody’s job.”
- **Inexpert chairing:** Just as an airplane is steered by a pilot, a meeting is piloted by the chairperson. His lack of skill and personal failings/biases may fail a meeting.
- **Expensive:** Meetings are expensive to arrange – they require a place, paperwork, prior communication, and travelling by the attendees.
- **Open to disruption:** A meeting is prone to being disrupted by an element that is opposed to its objective. There are times when one passenger’s refusal to adjust himself delays the entire flight. The same for meetings. The spirit of give-and-take may be missing in some participants. In this mechanical age, union is strength, and united work is done by means of meetings. It is estimated that worldwide, millions of meetings are conducted every day, and their number and usefulness is on the rise. That is why although many negative remarks are made about the use of meetings; on the whole we find that meeting is a useful device of collective decision-taking and action.

Meetings can also be classified as follows:-

1. Management Committee Meetings

Management Committee meetings are vital to the effective functioning of the committee and its ability to carry out its role. They are the means by which the Committee exercises its collective responsibility for leading the organisation.

2. Management Sub-Committee Meetings

Under management sub-committee meetings, some powers may be delegated to members, office bearers or to sub-committees. A sub-committee is a small group of people assigned to focus on a particular task or area, such as finance or personnel. A sub-committee generally makes recommendations to the Management Committee for decision.

3. General Meetings

A general meeting is a meeting of a company's shareholders (unlike a board meeting, which is a meeting of the directors). Companies Act 2013 2006 provides the statutory framework for the calling and conduct of general meetings.

4. Annual General Meetings

AGM’s are held once a year to assess the trading of the organization over the year. All shareholders are invited to attend the GM but they must be given 21 days notice.

5. Board Meeting

Board meetings are held as often as individual organizations require. They are attended by all directors and chaired by the Chairman of the board.

6. Statutory meeting

Statutory meetings are called so that the directors and shareholders can communicate and consider special reports companies are required by law to hold these statutory meetings.

7. Formal meetings

The rules of conduct of formal meetings are laid down in a company's Articles of Association and/or Constitution or Standing Orders. With such meetings, a quorum must be present, i.e. the minimum number of people who should be present to validate the meeting. A formal record of these meetings must be kept, usually by the company secretary.

8. Informal meetings

Informal meetings are not restricted by the same rules and regulations as formal meetings. Such meetings may take the form of brainstorming or discussion sessions where strict agendas may not be necessary and minutes may not be kept. However, it is usually considered good business practice for an agenda to be issued to all members before the meetings so that they can be prepared adequately to make valuable contribution. These meetings are attended by a group of managers who may need to discuss a specific matter, report of progress reports. For example, the marketing manager, sales manager, production manager, and research and development manager may meet to discuss the launch of a new product being launched soon.

9. Celebrations

A celebration is a special enjoyable event that people organize because something pleasant has happened or because it is someone's birthday or anniversary

10. Rituals/Services

A ritual is a sequence of activities involving gestures, words, actions, or objects, performed in a sequestered place and according to set sequence.

3.4 NOTICE

A notice of meeting is a document informing the members or directors of a company about an upcoming meeting. This document specifies the date, time and place of the meeting and the general nature of the business to be transacted at the meeting. When a meeting is to be convened, a notice is required to be sent to all who are to attend it. It should satisfy the following conditions:

- a) It should be under proper authority.

- b) It should state the name of the organization.
- c) It should state the day, date, time, and place. Also, sometimes, how to reach the place.
- d) It should be well in advance. Some require seven days notice, some 48 hours.
- e) It should state the purpose and, if possible, the agenda.
- f) It should carry the date of circulation and convener's/secretary's signature.
- g) It should go to all persons required at the meet.
- h) It should mention the TA/DA etc. payable and the arrangements for this.

In practice, it is necessary to ensure that the notice has reached in time. This may be done telephonically. Dispatch section and post are prone to delays. We often find that between the date of a letter from a major public organisation and the post mark on the letter, there is a gap of 10-12 days. A notice that should reach seven days before a meet should not reach seven days after the meet.

Example of format of Notice-

Address of the Company

Notice

Notice is hereby given that a meeting of the Board of Directors of the Company will be held at 3.30 P.M. on Thursday, the 30th day of October, 2008 at Corporate Office at 19, Gandhi Road, New Delhi 110001, India, to interalia consider the following business as under:

- i. To consider and approve the unaudited financial results for the quarter ended 30.09.2008 and submit to auditor of the company for limited review as per Clause 41 of the Listing Agreement.
- ii. Any other business with the permission of the chair which is incidental and ancillary to the business

Authority

Name and Signature of the

3.5 AGENDA

An agenda is a list of meeting activities in the order in which they are to be taken up, beginning with the call to order and ending with adjournment. It usually includes one or more specific items of business to be acted upon. It may, but is not required to, include specific times for one or more activities. An agenda may also be called a docket, schedule, or calendar. It may also contain a listing of an order of business. Agendas most often include: Informational items -

sharing out updates regarding a topic for the group. For example, a manager may provide an update on the year-end planning process. Action items - items that you expect the group will want to review during the meeting.

Types of Agenda

There are a variety of agenda formats; the purpose and type of meeting will determine which agenda format to use. Types of agendas typically include- Informal, formal, prioritized and timed. Familiarizing yourself with each agenda format will allow you to effectively choose the proper type for your needs.

Three Key Elements of Meeting Agendas

- Basic information like the location, names of expected participants, date, start time and end time of the meeting.
- The topic and the person responsible for it.
- An objective for each item, or for the meeting in general.

Contents of a Meeting Agenda

- Be short, simple, and clear.
- Be informative and practical.
- Have the date, time and location of the meeting.
- State which issues will be discussed and in what order.
- Be the outline for the meeting minutes.
- Help you predict the results of the meeting.

3.6 RESOLUTIONS

A resolution is the final form of a decision taken at a meeting by voting on a motion, with or without amendment. A Resolution must not be confused with a motion. A motion is considered at a meeting, a resolution is the outcome of the discussion. A resolution is binding on the organisation. It becomes effective when it is passed but minutes make the evidence of such resolution. Sometimes there is a legal formality, as we find in the Companies Act, to file a copy of a resolution with some appropriate authority (e.g., the Registrar of Companies) to make it effective.

Rules Regarding Resolution-

Every association has to function guided by the resolutions adopted at the meetings at different levels- resolutions passed at general meetings, at executive meetings and at committee meetings, if any. In an Assembly or in Parliament proposed Bills are passed in the forms of

resolutions which become the Acts subsequently. Therefore, the importance of resolutions is immense. Certain rules have to be strictly observed for passing resolutions.

- (1) The drafting of a resolution has to be carried out with great care so that the purpose or meaning of the resolution is easily and clearly understandable and there is no ambiguity (double meaning). The secretary, who is supposed to be an expert in the line, helps in the drafting process. The motion itself shall be drafted in such a manner that it can be adopted as a perfect resolution. This is particularly true for a formal resolution.
- (2) There are different styles and forms of drafting a resolution. Any one style can be followed. It is desirable that a formal resolution is drafted in a specialized style.
- (3) A resolution must be entered in the Minute Book in verbatim, i.e., word for word.
- (4) Once a resolution is passed it cannot be revoked or cancelled either at the same meeting or at any subsequent meeting by passing another resolution.

Types of Resolutions-

Broadly speaking, resolutions are of two types:

(1) Ordinary Resolution:

This type of resolution has the following characteristics:

- (a) This can be passed by a simple majority of votes and even by a margin of one vote. It can be passed (or lost) by the casting vote of the chairman.
- (b) This type of resolution is necessary to take decisions on ordinary matters of the association
- (c) This is the most common type of resolution.
- (d) Formalities for passing such a resolution (unlike a special resolution) are not so strict.

(2) Special Resolution:

This type of resolution has the following characteristics:

- (a) It needs a specific margin of votes to be passed. For example- two-third majority or three-fourth majority. Every association in its bye-laws mentions what shall be the margin. There may be statutory rules too. For example, the Companies Act states that there shall be three-fourths majority out of the members present (in person or by proxy) and voting. According to our Constitution, any Article of the Constitution can be altered by two-thirds majority of all the members of Parliament.
- (b) Such resolutions are necessary when any decision has to be taken affecting the very constitution of the organisation, e.g., altering the objects of the organisation

(c) This type of resolution is not commonly necessary.

(d) There may be strict formalities to be followed for the purpose (as found in the Companies Act).

Concept of types of resolutions comes mostly from the Companies Act. There are various types of resolutions mentioned in the Companies Act, mainly applicable to members' meetings.

Resolutions as found in the Companies Act:

(1) Ordinary Resolution:

According to Sec. 189(1), an ordinary resolution is that which can be passed at a general meeting by simple majority (including a casting vote of the chairman, if any), votes being cast by the members present either in person or by proxy and either by show of hands or by poll.

(2) Special Resolution:

According to Sec. 189(2), a special resolution is that which can be passed at a general meeting, votes being cast by the members present either in person or by proxy and either by show of hands or by poll, provided that (a) in the agenda it is mentioned that the resolution shall be passed as a special resolution, (b) a notice has been duly issued and (c) three-fourth of the votes cast are in favour of the resolution.

It has to be noted that at a Board meeting there is no question of any special resolution. But, sometimes to pass a particular type of resolution the consent of all the directors present is necessary. (In the past, special resolution was known as extraordinary resolution).

(3) Resolution with Special Notice:

According to the Companies Act, certain resolutions require a special notice for their validity. The resolution itself may be passed as an ordinary resolution. The notice for a members meeting is prepared and issued by the Board of Directors (the secretary does it in practice) and the agenda is included in the notice.

If any member who wants to move any motion at the meeting must be given the opportunity to do it and generally for that this Section has been provided. According to Sec. 190, certain resolutions, as wanted by the Act or as mentioned in the articles, require special notice.

It means that a member, intending to move a resolution, shall give a notice to the company at least fourteen days before the meeting and the company shall circulate the notice of the resolution to all the members at least seven days before the meeting.

Suppose, a director is to retire by rotation and his name has been mentioned in the notice as offering for re-election. A member wants to propose the name of another person. He must send the name of that person at least fourteen days before the meeting and the company shall circulate the name at least seven days before the meeting (Sec. 257).

(4) Resolution by Circulation:

The Board of Directors of a Company (or the members of a committee appointed out of the directors of a company) may pass a resolution without holding a meeting. This can be done by circulating a draft of the resolution together with necessary papers, if any, to all the directors (or the members of the committee) at their usual address in India, and who are in India.

3.7 MINUTES

Minutes, also known as minutes of meeting (abbreviation MoM), protocols or, informally, notes, are the instant written record of a meeting or hearing. They typically describe the events of the meeting and may include a list of attendees, a statement of the issues considered by the participants, and related responses or decisions for the issues.

The name "minutes" possibly derives from the Latin phrase *minuta scriptura* (literally "small writing") meaning "rough notes". Minutes may be created during the meeting by a typist or court reporter, which may use shorthand notation and then prepare the minutes and issue them to the participants afterwards. Alternatively, the meeting can be audio recorded, video recorded, or a group's appointed or informally assigned secretary may take notes, with minutes prepared later. Many government agencies use minutes recording software to record and prepare all minutes in real-time.

3.8 ABBREVIATIONS AND TERMS USED IN BUSINESS CORRESPONDENCE

acct. (account)	fwd. (forward)	n.d. (no date)
Assn. (Association)	FY (fiscal year)	oz. (ounces)
bal. (balance)	G.M. (general manager)	pd. (paid)
bldg. (building)	gr. (gross)	qty. (quantity)
CEO (chief executive officer)	hdlg. (handling)	recd. (received)
cont. (continued)	ins. (insurance)	sec. (secretary)
dis. (discount)	Ltd. (Limited)	treas. (treasury, treasurer)
dtd. (dated)	max. (maximum)	V.P. (vice-president)
ea. (each)	min. (minimum)	whsle. (wholesale)

3.9 POINTS TO REMEMBER

Requisites of a Meeting-

If the business transacted at a meeting is to be valid and legally binding, the meeting itself must be validly held. A meeting will be considered to be validly held, if:

- It is properly convened by proper authority.

- Proper notice must be served.
- Proper quorum must be present in the meeting.
- Proper chairman must preside the meeting.
- Business must be validly transacted at the meeting.
- Proper minutes of the meeting must be prepared.

3.10 GLOSSARY

- **Agenda-** The plan for a meeting, lists the items to be discussed in the order in which they will be discussed.
- **Amendment-** Proposed modification to a motion which is not in conflict with the general thrust of that motion. If the amendment is adopted it becomes part of the original motion (now called ‘motion as amended’ or ‘substantive motion’).
- **Apologies-** Formal notifications of inability to attend a meeting.
- **Brainstorming-** A technique used to gather ideas from a group; it involves the members of the group thinking of as many ideas as they can in a short period of time.
- **Business Arising-** Discussion on any matter recorded in the minutes of the previous meeting.
- **Chair-** The person who controls the conduct of the meeting, a sort of umpire.
- **Consensus-** A type of group decision making. It involves coming to a decision acceptable to all members of the group without a vote being taken.
- **Constitution-** A document setting out the fundamental principles governing the running of an organization. It normally includes such things as the goals of the organization, membership requirements, rights and fees, meeting times, voting rights and standing orders for meetings.
- **General Business-** The body of the meeting where the main objectives of the meeting are discussed.
- **Minutes-** The formal written record of a meeting. Copies are circulated to attendees and those who apologized (and sometimes to other interested parties), and formally confirmed at the next meeting as being a true record.
- **Motion-** A formal statement, usually involving some proposed action, put to a meeting for discussion and subsequent decision by vote.
- **Mover-** The proposer of a motion.

- **Motion of Dissent**- A formal statement involving some proposed action, put to a meeting for discussion and subsequent decision by vote.
- **Other Business**- An item on the agenda (usually the last) that provides an opportunity for those present to suggest additional matters for discussion.
- **Point of Order**- A formal complaint (to the chair person) at a meeting that a speaker is being irrelevant, unduly repetitive, exceeding prescribed time, speaking out of turn or in some way violating standing orders.
- **Procedural motion**- A motion aimed at changing the sequence or timing of events at a meeting, rather than one which addresses an agenda item.
- **Quorum**- Minimum number (or percentage of those invited) required being at a meeting for it to proceed legitimately.

3.11 CHECK YOUR PROGRESS

Descriptive type questions

- a) What are the essential elements of a notice?
- b) What do you understand by minutes?
- c) Define Resolution by Circulation.
- d) Discuss the types of meeting in detail.
- e) What do you understand by Agenda?

Objective type questions

- a) CEO means
 - [i] Chief Electricity Officer [ii] Central Electronics Organization
 - [iii] Chief Executive Officer [iv] Chief Examination officer
- b) What is not essential for a valid meeting?
 - [i] Notice [ii] Chairman [iii] Agenda [iv] Uniform

Answer (Objective type questions)

- [a] iii [b] iv

3.12 BIBLIOGRAPHY/ REFERENCES

- Meetings Suck by Kameron Herold
- Office Management and Secretarial Practice: Sahitya Bhawan Publication
- Company Act: Universal Publication

- Avtaar Singh: Introduction to Company Law
- Merriamwebster.com
- Dictionary.com
- Collinsdictionary.com

3.13 SUGGESTED READINGS

- Office Management and Secretarial Practice: Sahitya Bhawan Publication
- Amitava Banerjee: Company Meetings and Resolutions

UNIT- 4

MANAGEMENT INFORMATION SYSTEMS (MIS)

4.1 INTRODUCTION

4.2 OBJECTIVES

4.3 WHY MIS?

4.4 INFORMATION AS A STRATEGIC RESOURCE

4.5 USE OF INFORMATION FOR COMPETITIVE ADVANTAGE

4.6 INFORMATION MANAGEMENT

4.7 DECISION-MAKING

4.8 MODELS OF DECISION MAKING

4.9 POINTS TO REMEMBER

4.10 GLOSSARY

4.11 CHECK YOUR PROGRESS

4.12 BIBLIOGRAPHY/ REFERENCES

4.13 SUGGESTED READINGS

4.1 INTRODUCTION

A management information system (MIS) is a broadly used and applied term for a three-resource system required for effective organization management. The resources are people, information and technology, from inside and outside an organization, with top priority given to people. The system is a collection of information management methods involving computer automation (software and hardware) or otherwise supporting and improving the quality and efficiency of business operations and human decision making. As an area of study, MIS is sometimes referred to as information technology management (IT management) or information services (IS). Neither should be confused with computer science.

4.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Define management information system (MIS).
- Understand the need, importance and purpose of MIS.
- Understand the role of information management in decision making.
- Describe various decision-making models.

4.3 *WHY MIS?*

Managers make decisions and decision-making generally takes a four-fold path-

- Understanding the need for decision or the opportunity.
- Preparing the alternative course of actions.
- Evaluating all the alternative course of actions.
- Deciding the right path for implementation.

MIS is an information system that provides information in the form of standardized reports and displays for the managers. MIS is a broad class of information systems designed to provide information needed for effective decision making. Data and information created from an accounting information system and the reports generated thereon are used to provide accurate, timely and relevant information needed for effective decision making by managers. Management information systems provide information to support management decision making, with the following goals-

- Pre-specified and pre-planned reporting to managers.
- Interactive and ad-hoc support for decision making.
- Critical information for top management.
- MIS is of vital importance to any organization, because –

It emphasizes on the management decision making, not only processing of data generated by business operations.

It emphasizes on the systems framework that should be used for organizing information systems applications.

The purpose of using MIS-

- “A formal method of collecting timely information in a presentable form in order to facilitate effective decision making and implementation, in order to carryout organizational operations for the purpose of achieving the organizational goals”. Walter I. Kennevan defines MIS as “An MIS is a system designed to provide selected decision-oriented information needed by management to plan, control and evaluate the activities

of the corporation. It is designed within a framework that emphasizes profit planning, performance planning and control at all levels.”

- MIS is very useful for efficient and effective planning and control functions of the management. Management is the art of getting things done through others. MIS will be instrumental in getting the things done by providing quick and timely information to the management.
- Reports give an idea about the performance of men, materials, machinery, money and management. Reports throw light on the utilization of resources employed in the organization.
- MIS is helpful in controlling costs by giving information about idle time, labor turnover, wastages and losses and surplus capacity.
- By making comparison of actual performance with the standard and budgeted performance, variances are brought to the notice of the management by MIS which can be corrected by taking remedial steps.
- MIS brings to the notice of the management strength (i.e., strong points) of the organization, to take advantage of the opportunities available.
- MIS reports on production statistics regarding rejection, defective and spoilage and their effect on costs and quality of the products.

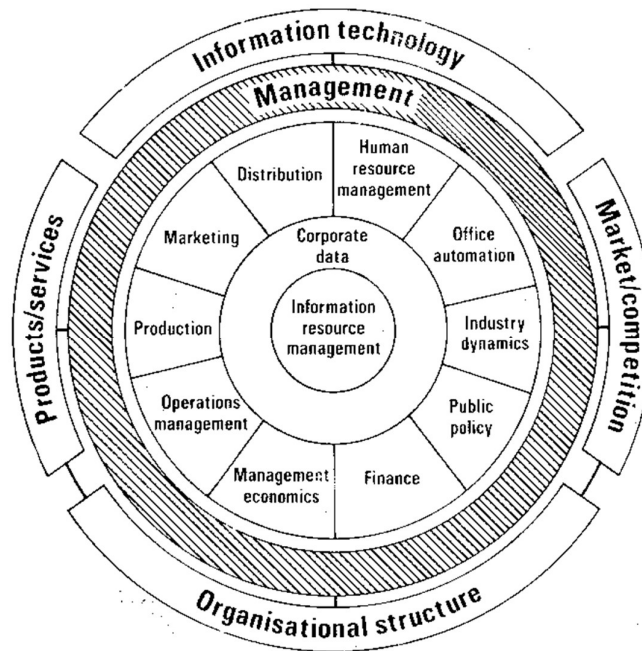
4.4 INFORMATION AS A STRATEGIC RESOURCE

It is impossible to neglect the impact of information and information technologies on the strategy of companies nowadays because of its important role in competition. Since competitiveness is getting stronger and stronger in most of the industries, new competitors are emerging, the environment is also changing and the expectations of clients are continuously altering, managers are those who should not allow themselves to stay indifferent in such situations.

Today, information can no longer be treated as a source of competitive advantage, but a competitive necessity. It penetrates in all aspects of an organization, crosses data processing and information systems department. The information potential can be realized by the means of appropriate management and knowledge of the organizational and cultural aspects. No automatic profits come from investments in information technologies since management has the responsibility for exploitation of the information technology potential. During the last two decades, companies have learned how to manage financial, human and material resources. The changes of the management of these resources depend on the access, processing and means of information. A receipt of information resource management is impossible to be given, neither

is desirable because the approach should be structured and flexible and managers are those who should possess it.

The managers of an organization should be well-informed of the profits of the appropriate information and information technology. The most important questions for them are: What information is needed so that the company can fulfil the set strategic aims? Which skills or products will be an advantage over competitors? What is the current strategy in order to beat competitors? And what information is needed to form it? Successful organizations are those



who are learning and adapting and have a flat simple structure and information is inseparable part of their activity. That is why managers should be trained how to use it effectively. Information Resource Management (IRM) defines the way in which the organization will accomplish its business when using different information resources in order to make its short-term strategies. This management is unique even for companies with identical products and/ or services. Information Resource Management includes the management of all kinds of data, numbers, texts, images and sounds available in making the proper strategy at a certain moment. This is why managers are responsible for the provisions of the appropriate information concerning the business and decision making.

Information impacts on all aspects of the organization: marketing, distribution, production, operations management, management economics, finance, public policy, industry dynamics, office automation, human resource management as shown on the figure above. The wheel is spinning round and in its centre is Information Resource Management. Information and communication technologies provide continuous information flow, which the organization should use in forming its corporate strategy and accomplishing its management activities in decision making. Of great importance for organizations is their flexible management style. That

is why a great quantity of information and its optimal use is needed especially by decision-makers in the processes of decision making. The more information is used the better for the company. The better the instrument of using this information, the better the decision will be. The better the decision will be the less the risks for the company are. For this reason, information is an important resource which should be managed appropriately and thus it increases the company's chances of success. The effective management is day to day even every minute because the environment is changing very fast and it should respond to its quick changes. Consequently, short run strategies are needed because of this and long run plans are no longer made. In this sense, the planning of information resources is of great value and should satisfy the needs of the organization.

Most of the strategies aim to increase production, to increase sales or to increase profit and these can be achieved by current use of information. For example, a number of the applications of information technologies lead to a great decrease in costs since mediators are eliminated. So distribution costs no longer exist, personnel costs are diminished exclusively and also the deadlines of delivery are lessened to a great extent. Consequently, the prices of the products/ services are decreased substantially which means that people are encouraged to buy more. This eventually increases sales and profit of the company and of course the quantity of production needed should be greater. When production is higher the costs per product or service is less and the profit is higher. The assimilation of information is a challenge for every manager because the participation of information in company management leads to a higher effectiveness and better results in forming the competitive strategy. Managers should pay attention to six basic problems concerning information and its use in organization:

- Information impacts different companies in different ways. This is the reason why management approaches and instruments and their use should be chosen appropriately.
- Coordination and control of information should be established.
- Education of the organization in using information in forming short run strategies.
- Decisions about building or buying of appropriate information technologies should be precisely made and information about them should be collected.

4.5 USE OF INFORMATION FOR COMPETITIVE ADVANTAGE

A company gains competitive advantage by providing a product or service in a way that customers gain more value than with a competitor. However, it is not information technology that gives a company a competitive advantage; it's the way they use information technology that makes the difference. Businesses need to use information technology innovatively.

Innovation is the process of devising ways to do things in new and creative ways. Using information technology to tackle a business problem the same way the other companies have been doing is probably not going to give a firm the competitive advantage. The company has to invent or develop creative ways to create something new their competitors don't have yet. Below listed points represents the use of Information Technology (IT) in Competitive Advantage as-

[1]The CEO's Attitude toward Information Technology-

The CEO's vision can influence how managers think about things within their company, including information technology. If the CEO understands that IT can be a powerful competitive weapon, a message is relayed to the entire organization; that coming up with creative IT ideas can lead to a company's growth and improved customer satisfaction. Company leadership is very important in determining its competitive advantage using information technology.

[2] To bridge the gap between business people and technical people-

Business people must understand the use of Information technology to gain competitive advantage. In this case, they work hand in hand with a technical team to achieve this goal. Designing an information system that gives the competitive advantage needs at least two things. First, it requires an understanding of the business problem you are trying to solve. Second, it requires knowledge of available technologies to use in designing a creative solution for the business problem. It's beneficial for business people to study management information systems (MIS). Doing so will help them better analyse technical issues if the need arises.

[3] To view business problems from another Perspective-

It is imperative to view a business problem from the perspective of your customers. These are the owners of your business, not you, because, without them, the business will not survive. IT can provide businesses with valuable information to better understand the needs and requirements of their customers and stakeholders. Being informed of limitations and inconveniences experienced by the customer should result in the more effective use of resources to resolve these issues.

[4] Use in Creative Designing-

Creative design of an IT system is one that solves the business problem in a new and highly effective way. One of the biggest mistakes most business people make when designing new information systems is to come up with a design that is typical, something very similar to what other companies are doing.

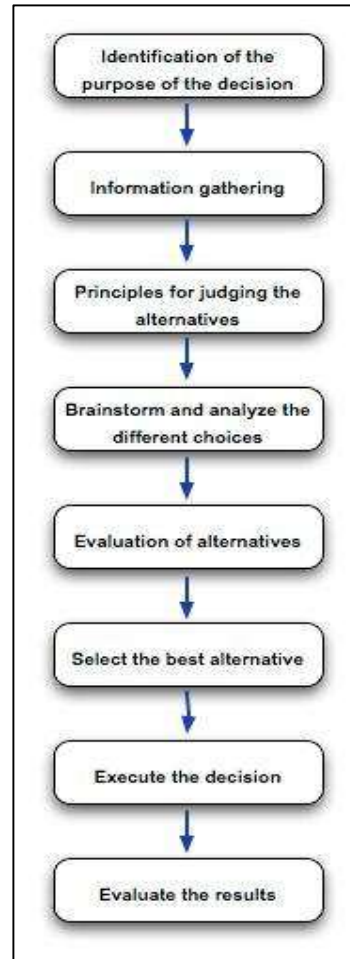
4.6 INFORMATION MANAGEMENT

Information management (IM) is the process of collecting, storing, managing and maintaining information in all its forms. Information management is a broad term that incorporates policies and procedures for centrally managing and sharing information among different individuals, organizations and/or information systems throughout the information life cycle. Information management may also be called information asset management.

Information management is generally an enterprise information system concept, where an organization produces, owns and manages a suite of information. The information can be in the form of physical data (such as papers, documents and books), or digital data assets. Information management deals with the level and control of an organization's governance over its information assets. Information management is typically achieved through purpose-built information management systems and by supporting business processes and guidelines. Moreover, IM also focuses on how that information is shared and delivered to various recipients, including individuals and different computing devices such as an organization's website, computers, servers, applications and/or mobile devices.

As per the definition given by Davis in 1997, Information management (IM) is the process by which relevant information

is provided to decision-makers in a timely manner. Information management has largely been defined from an information systems perspective and equated with the management of information technology. IM is a generic term that encompasses all the systems and processes within organisations for the creation and use of corporate information.



4.7 DECISION-MAKING

Decision-making is a cognitive process that results in the selection of a course of action among several alternative scenarios. Decision-making is a daily activity for any human being. There is no exception about that. When it comes to business organizations, decision-making is a habit and a process as well. Effective and successful decisions result in profits, while unsuccessful ones cause losses. Therefore, corporate decision-making is the most critical process in any organization.

In a decision-making process, we choose one course of action from a few possible alternatives. In the process of decision-making, we may use many tools, techniques, and perceptions. In addition, we may make our own private decisions or may prefer a collective decision. Usually, decision-making is hard. Majority of corporate decisions involve some level of dissatisfaction

or conflict with another party. Let's have a look at the decision-making process in detail. Following are the important steps of the decision-making process. Each step may be supported by different tools and techniques.

Step 1 – Identification of the Purpose of the Decision

In this step, the problem is thoroughly analysed. There are a couple of questions one should ask when it comes to identifying the purpose of the decision.

What exactly is the problem?

Why the problem should be solved?

Who are the affected parties of the problem?

Does the problem have a deadline or a specific time-line?

Step 2 – Information Gathering

A problem of an organization will have many stakeholders. In addition, there can be dozens of factors involved and affected by the problem.

In the process of solving the problem, you will have to gather as much as information related to the factors and stakeholders involved in the problem. For the process of information gathering, tools such as 'Check Sheets' can be effectively used.

Step 3 – Principles for Judging the Alternatives

In this step, the baseline criteria for judging the alternatives should be set up. When it comes to defining the criteria, organizational goals as well as the corporate culture should be taken into consideration.

As an example, profit is one of the main concerns in every decision-making process. Companies usually do not make decisions that reduce profits, unless it is an exceptional case. Likewise, baseline principles should be identified related to the problem in hand.

Step 4 – Brainstorm and Analyse the Choices

For this step, brainstorming to list down all the ideas is the best option. Before the idea generation step, it is vital to understand the causes of the problem and prioritization of causes.

For this, you can make use of Cause-and-Effect diagrams and Pareto Chart tool. Cause-and-Effect diagram helps you to identify all possible causes of the problem and Pareto chart helps you to prioritize and identify the causes with the highest effect.

Then, you can move on generating all possible solutions (alternatives) for the problem in hand.

Step 5 – Evaluation of Alternatives

Use your judgment principles and decision-making criteria to evaluate each alternative. In this step, experience and effectiveness of the judgment principles come into play. You need to compare each alternative for their positives and negatives.

Step 6 – Select the Best Alternative

Once you go through from Step 1 to Step 5, this step is easy. In addition, the selection of the best alternative is an informed decision since you have already followed a methodology to derive and select the best alternative.

Step 7 – Execute the decision

Convert your decision into a plan or a sequence of activities. Execute your plan by yourself or with the help of subordinates.

Step 8 – Evaluate the Results

Evaluate the outcome of your decision. See whether there is anything you should learn and then correct in future decision making. This is one of the best practices that will improve your decision-making skills.

4.8 MODELS OF DECISION MAKING

The decision-making process though a logical one is a difficult task. All decisions can be categorized into the following three basic models.

- The Rational/Classical Model.
- The Administrative or Bounded Rationality Model.
- Herbert Simon's Model.

All models are beneficial for understanding the nature of decision-making processes in enterprises or organisations. All models are based on certain assumptions on which the decisions are taken.

[1] The Rational/Classical Model

The rational model is the first attempt to know the decision-making-process. It is considered by some as the classical approach to understand the decision-making process. The classical model gave various steps in decision-making process which have been discussed earlier.

Features of Classical Model-

- Problems are clear.
- Objectives are clear.
- People agree on criteria and weights.
- All alternatives are known.

- All consequences can be anticipated.
- Decision makes are rational.

[2] The Administrative or Bounded Rationality Model

Decision-making involves the achievement of a goal. Rationality demands that the decision-maker should properly understand the alternative courses of action for reaching the goals. He should also have full information and the ability to analyse properly various alternative courses of action in the light of goals sought. There should also be a desire to select the best solutions by selecting the alternative which will satisfy the goal achievement.

Herbert A. Simon defines rationality in terms of objective and intelligent action. It is characterised by behavioural nexus between ends and means. If appropriate means are chosen to reach desired ends the decision is rational.

Bounded Rationality model is based on the concept developed by Herbert Simon. This model does not assume individual rationality in the decision process. Instead, it assumes that people, while they may seek the best solution, normally settle for much less, because the decisions they confront typically demand greater information, time, processing capabilities than they possess. They settle for “bounded rationality or limited rationality in decisions. This model is based on certain basic concepts.

Sequential Attention to alternative solution: Normally it is the tendency for people to examine possible solution one at a time instead of identifying all possible solutions and stop searching once an acceptable (though not necessarily the best) solution is found.

Heuristic: These are the assumptions that guide the search for alternatives into areas that have a high probability for yielding success.

Satisficing: Herbert Simon called this “satisficing” that is picking a course of action that is satisfactory or “good enough” under the circumstances. It is the tendency for decision makers to accept the first alternative that meets their minimally acceptable requirements rather than pushing them further for an alternative that produces the best results. Satisficing is preferred for decisions of small significance when time is the major constraint or where most of the alternatives are essentially similar. Thus, while the rational or classic model indicates how decisions should be made (i.e. it works as a prescriptive model), it falls somewhat short concerning how decisions are actually made (i.e. as a descriptive model).

[3] Herbert Simon's Model

This model is linked with the decision-making process which explains the core of the decision making and used as the base for explaining the decision-making process. According, the Herbert Simon Model, the process of the decision making consists of the following phases –

[i] The Intelligence Phase- In this phase, the various activities for finding out the problems related to the searching of the operating environment is involved. By this, the identification of the various conditions can be done which ultimately helps in taking the decisions at the different levels. Extensive and the comprehensive database is must for the intelligence phase, making this phase very suitable for searching or scanning of the environment.

In this phase, the type of the environment forms a very major factor and hence the types of the environment can be categorized as the follows-

[a] The Societal Environment: Mainly includes the economic, the legal and the social environment and it is this type of the environment in which the organization operates.

[b] The Competitive Environment: Includes the understanding and the analysing of the characteristics, the trends and the behaviour of or at the market place and also the various players of the market in which the organization operates.

[c] The Organizational Environment: Includes the various capabilities, the strengths, the weaknesses, the constraints and the various other factors that affect the ability of the organization to discharge or operate its various types of the activities.

[ii] The Design Phase- The inventing, developing and analysing of the various alternatives or the solutions to the particular problem forms a major part of this phase. Various steps to be followed in this phase can be summarized as the follows-

[a] Support in getting the in-depth knowledge of the problem.

[b] A correct model of the situation can be made and the assumptions of the model need to be tested.

[c] Support for the generation of the solutions can be obtained by- manipulation of the model for the development of the insights and creation of the database retrieval system.

[iii] The Choice Phase- The selection of a specific alternative or the course of the action from the ones which have been generated and considered during the design phase, takes place during this phase. The choice procedure and the implementation of the chosen alternative form a very major part of the choice phase. The flow of the activities takes place from the intelligence phase to the design phase and then finally to the choice phase. But, one very important point that must be remembered here is that at any phase there may be a return to a previous phase.

4.9 POINTS TO REMEMBER

- MIS is an information system that provides information in the form of standardized reports and displays for the managers.
- MIS is very useful for efficient and effective planning and control functions of the management.

- MIS is sometimes referred to as information technology management (IT management) or information services (IS).
- Data and information created from an accounting information system and the reports generated thereon are used to provide accurate, timely and relevant information needed for effective decision making by managers.
- Business people must understand the use of Information technology to gain competitive advantage.
- Information management is generally an enterprise information system concept, where an organization produces, owns and manages a suite of information.
- Information management is a generic term that encompasses all the systems and processes within organizations for the creation and use of corporate information.
- Information management has largely been defined from an information systems perspective and equated with the management of information technology.
- Decision-making is a cognitive process that results in the selection of a course of action among several alternative scenarios.
- In a decision-making process, we choose one course of action from a few possible alternatives.

4.10 GLOSSARY

- Management Information System- MIS is an information system that provides information in the form of standardized reports and displays for the managers. MIS is a broad class of information systems designed to provide information needed for effective decision making.
- Purpose of MIS - MIS is very useful for efficient and effective planning and control functions of the management. Management is the art of getting things done through others. MIS will be instrumental in getting the things done by providing quick and timely information to the management.
- Use of Information - A company gains competitive advantage by providing a product or service in a way that customers gain more value than with a competitor. However, it is not information technology that gives a company a competitive advantage; it's the way they use information technology that makes the difference. Businesses need to use information technology innovatively.
- Information Management - Information management is typically achieved through purpose-built information management systems and by supporting business processes and guidelines.

- Decision-Making - Decision-making is a daily activity for any human being. There is no exception about that. When it comes to business organizations, decision-making is a habit and a process as well. Effective and successful decisions result in profits, while unsuccessful ones cause losses. Therefore, corporate decision-making is the most critical process in any organization.
- Decision-Making Models - The decision-making process though a logical one is a difficult task. All decisions can be categorized into the following three basic models. Rational/Classical model, administrative or bounded rationality model and Herbert Simon's Models.

4.11 CHECK YOUR PROGRESS

Objective type questions-

- MIS stands for
- MIS is very useful for efficient and effective and functions of the management.
- MIS is sometimes referred to as management.
- Decision-making is a process that results in the selection of a course of action among several alternative scenarios.
- Business people must understand the use of Information technology to gain competitive advantage. (True / False)
- Information management is not a generic term that encompasses all the systems and processes within organizations for the creation and use of corporate information. (True / False)

Descriptive type questions-

- Explain the need and importance of management information system.
- How information plays an important role in the resource management?
- With the help of suitable example, explain the role of information in competitive advantage.
- Describe the term information management with respect to MIS.
- What is the importance of decision making in an organization?
- Compare any two decision making models.

Answer (Objective type questions)-

- | | |
|-----------------------------------|--------------------------|
| [a] Management information system | [b] Planning and Control |
| [c] Information technology | [d] Cognitive |
| [e] True | [f] False |

4.12 BIBLIOGRAPHY/REFERENCES

- Bourgeois, David T. (2014). Information Systems for Business and Beyond. The Saylor Academy. p. 5.
- "What is Management Information Systems?" Mays Business School. Archived from the original on May 9, 2015.
- "Leveraging People Processes and Technology". Saunders College of Business, Rochester Institute of Technology. 2017-04-28.
- "Management Information Systems". umassd.edu. University of Massachusetts Dartmouth. Retrieved 2018-04-11.
- Joshi, Girdhar (2013). Management Information Systems. New Delhi: Oxford University Press. p. 328. ISBN 9780198080992.
- Boykin, George (2017-09-26). "The History of Management Information Systems". bizfluent. Retrieved 2018-04-26.

4.13 SUGGESTED READINGS

- "Management Information Systems" by A O'Brien.
- "Management Information System" by W S Jawadekar.
- "Management Information Systems" by Laaudon and Ludon.

UNIT- 5

E-FILE MANAGEMENT

5.1	INTRODUCTION
5.2	OBJECTIVES
5.3	NEED OF ELECTRONIC FILE
5.4	BENEFITS OF ELECTRONIC FILES
5.5	TYPES OF EFILE SYSTEM
5.6	SOME COMMON EFILE MANAGEMENT SYSTEM
5.7	MIGRATING TO EFILE SYSTEM
5.8	REPORTS
5.9	POINTS TO REMEMBER
5.10	GLOSSARY
5.11	CHECK YOUR PROGRESS
5.12	BIBLIOGRAPHY/ REFERENCES
5.13	SUGGESTED READINGS

5.1 INTRODUCTION

E-File management or electronic file management is the term which describes the process of importing, storing and managing the documents and images in form of computer files. It also includes scanning and capturing of the documents which leads to the process of digitization and removal of hard copies. This system involves the usage of computers for the management of personal/official registers. It also maintains the details about the file(s)/letter(s) send or received to and from the office. Here we need the respective software(s) which are developed to perform office specific tasks.

This is a workflow-based process which incorporates all the existing features (as in manual file handling) efficiently in an electronic system. The E-File management system comprises of all the stages like creation of file, archiving of previous data etc. This electronic system of file

management allows the high level of transparency in an office management. It makes efficient decision making, which is quite easy to do from the records managed electronically. By using the system of electronic file management an organization can achieve high level of efficiency, transparency and accountability. This system makes the revolutionary change in the existing manual system of an organization. It implements for gaining some more objectives like paperless system etc. The government of India has also defined some standard guidelines and procedures for the designing of paperless office through its Department of Administrative Reforms & Public Grievances (DARPG).

5.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Understand the role of electronic file
- Know about the needs of electronic file
- Know about the types and merits of electronic file
- Know about reports and its role

5.3 NEED OF ELECTRONIC FILE

As we are already aware that ICT (Information Communication and Technology) has changed the working culture or style of the peoples over the time. Also, technology plays a vital role in our society which leads to the development of E-File system for the management of the day to day activities at office level. While, following manual system (as earlier we are doing) for keeping paper based records we needs a lots of time, efforts and high cost of maintenance which inturn effects the productivity and efficiency of an organization on day to day basis. Therefore, due to various hindrances the organizations are planning for a solution that allows them to capture and keep the documents in digital formats which makes there accessing fast and easy. Including to this, the digital data also allows us to manage related documents in a single folder, as well as easy noting on the files can be done easily. While sending records from one location to another location the digital format of data is very easily transferrable in comparison to manual format of the data.

Due to the inefficient behaviour of manual file system a need of computerized and centralized file system has been raised by various departments. While talking about manual system of office management one of the toughest jobs is to track files and letters and as a result the computerized system of office management may ensure the tracking of files and letters with in no more time. While taking about Indian context, NIC i.e. National Informatics Center has developed electronic office management software known as File Tracking System. This software was used most of the government organization in India for management of official tasks.

While talking about the contents, electronic files are same as of physical files. As per the reports received from various agencies, nowadays about 93 percent documents are created in electronic form. Also, about 70 percent files are never migrated/ converted to paper. Therefore here we are discussing some issues that lead to the challenges while discovering an effective electronic file management system.

The enormity of electronic files is more than paper enabled documents-

In today's world due to enormity of electronic documents the disks size grows constantly. Also most of the, the organizations are using tablets, laptops and desktops for making their company related tasks like accounting, personal information etc in digital mode.

Due to the gigantic growth in the data density of electronic files is much greater than paper enabled files or documents. A survey has been conducted to know about the enormity behaviour of electronic files, as per this a middle size organization have about 2 two million files. In general, a hard drive can contain about 1-2 million of files. Thus, it shows the high magnitude of data in electronic form.

Assortment of electronic archives is bigger than paper reports-

Paper archives can be records, staff documents, notes, updates, letters, articles, papers, pictures, and so forth this range of files exists likewise in electronic structure. Yet, at that point bookkeeping pages are far more mind boggling than record, for instance. They contain equations, may contain graphs, they can fill in as information bases, and so on Notwithstanding the extra data, for example diagrams, the electronic accounting page underpins experimentation with imagine a scenario in which form the pioneer might need to examine. To show the range conceivable in electronic records it is adequate to consider the most universal of them. An electronic file may consist of the following:

- A Spreadsheet- Especially used to perform calculative tasks such as all mathematical functions etc.
- Charts- They are used to represent the data graphically.
- Pictures- Use to represent images in our electronic file.
- Audio/Video components- These components are used to design audio/video enabled electronic files.
- Links to Web address- The electronic files are also used to associate our content with some web-enabled data; therefore, to do this link facility is used.

Electronic files consist of attributes which are lacking in physical form of files-

An electronic file consists of data about our records, also termed as "metadata, for example, an electronic file may contain name of the originator, date of creation, date of last access etc. But at the same time, it is very tough to mention all the constraints with a physical form of a file.

Also, the electronic files allowed us to choose various font names, sizes, and shades etc for our electronic files. This is quite very difficult while using physical form of files.

- Efficiency of electronic file is more than files in physical forms. File Efficiency can be measured through various factors like:
- Reduced Space- Files in electronic form needs less space in comparison to physical form of files.
- Easier to change- One can modify, update or merge the electronic files conveniently in comparison to physical files.
- Less Cost- Management of electronic files is quite convenient and less expensive due to easy maintenance.
- Fast Searching- Searching is one of the key measures which promotes the usage of electronic file system. Finding of data in required time duration is one of the key benefits of electronic file system.

5.4 BENEFITS OF EFILE MANAGEMENT SYSTEM

Some key points which show the benefits of E-File management system have been discussed below:

- **Reduced Time-** While using e-file management system one can access the files in very less time in comparison to a manual file system. By using this system one can indexed his/her content which makes its accessing and retrieval very fast.
- **Reduced Cost-** Using of paper based system needs a lot of papers, printing machines, cartridges, folders, pins etc for the implementation of manual system. This needs a huge amount of recurring expenses while usage of this system. Therefore, digitization of the system makes this cost reduced up to an extent level. Once a file or paper gets digitized it can be used multiple times, this makes our system very cost efficient.
- **Easy Accessing of File(s)-** Once the system/data get digitized, it makes our data easy to search and retrieve. According to the study by Price water house Cooper reveals that the average organization loses 1 out of 20 documents. It takes \$120 in labour searching for each lost document and wastes 25 hours in labour recreating each lost document.
- **Achieving High Level of Security-** While using electronic file management once can achieve high level of security. There are various steps through which we can attain the security; some of them are discussed below:
 - ✓ By using password protection- We can assign the password to our files through which only authorized person can access the file(s).
 - ✓ By using Read only/Write only mechanism- We can use the file on read/write mode by using electronic office management system.

- ✓ By using this system, we can assign file(s) to specific department or person.
- ✓ Auditing of data can be done reliably due to enhanced security features.
- **Consumption of Less Space/Area-** While using traditional file system we need a huge physical area for storing file(s)/data and it need to be increase on day-to-day basis.
- **Disaster Recovery-** While using a manual system, what happens if the locations (where we are storing our files) get destroyed, so we need to be very much careful while making the selection of location for storing the files/ folders while using a manual system. This selection of location is sometime very critical due to various geographical or catastrophic challenges like flood, fire etc. As a solution electronic file management system can resolve this issue up to a great extent. Here, we can save multiple copies of our data in digital format, which is very much helpful in making the recovery of our data while our original files get destroyed. We can also use a local backup facility at regular intervals which is one more solution in making a disaster recovery of our files.
- **Regulatory Solutions-** While using electronic file management system implementation of various regulatory standards can be done easily as in compare of manual office management system.
- **Easy Sharing-** While using electronic file management system it is easy to share the files between various departments located at distant locations, which saves time and money.

5.5 TYPES OF EFILE MANAGEMENT SYSTEM

An electronic file management system provides a technique for storing a large volume of digital data centrally. Most of these file management systems includes the features for retrieval of documents efficiently. Some of those file management systems are discussed below:

- **CMS (Content Management System)**

CMS (Content Management Systems) are use to organize and deliver a wider range of data and media content in web enabled infrastructure to its users. Some common CMS are Joomla, Word Press etc. CMS is use to manage or share the file(s) or data through web pages. One can deliver the information kept in form of file(s) through this system.
- **Record Management System**

In this system maintenance, creation and destruction of the records is done through a efficient and systematic process. This kind of system is mostly used by organizations i.e. government or at company level. There are some common activities performed under this system are as follows- (i) Identification of suitable content and capture it as a record. (ii) Implementation of policies and regulations (of an organization) while record creation. (iii) Coordination of record accessing by making confidentiality and privacy of the content.

- **Document Imaging System**

This is one of the important components of electronic file management system. This component is used to capture the files/information in the form of images i.e. by using the scanning facility. This system is incorporated with some devices like OCR (optical character recognition), scanner, image compression tools/devices, mass storage devices (i.e. external disks) etc. This component is also useful to convert our files or records in image form or vice versa.

- **Enterprise Content Management System**

This is a solution which is designed for the management of a respective organization's documents or records. It can manage the unstructured content which can be made available right in form of MS-Word, MS-Excel, PDFs documents and scanned content that can be made available to the authentic users at the right time and correct location.

- **Work Flow Management System**

A workflow management system (WFMS) is a system which provides an infrastructure to set-up the performance and monitoring system for a predefined sequence of tasks or processes.

5.6 ***SOME COMMONLY USED EFILE MANAGEMENT SYSTEM***

Here, we will review some commonly used electronic file system and their features. These are the systems having their global acceptance with various characteristics.

- **pCloud**

This is an electronic file system having the functionalities for the file management, sharing of the data, securing the data, file versioning, file backup, and digital asset management services. This system also maintains the log of activities performed in the system.

- **Hub Spot**

This is an electronic file system which is especially designed for tracking the sales and other utilities related to sales and accounts. This system can also be merged with Gmail and Outlook services offered by the companies. Some common features supported by the system are email tracking, email scheduling and sales automation.

- **Knowledge Tree**

This is an open-source system used by organizations. This system supports common interface file system (CIFS) which allows its usage with UNIX operating system also. Some common features like web content management, record & image management etc. Sometimes this system also provides the back-end support for managing the files.

- **Seed DMS**

This is an open-source electronic office management system. This system is particularly based on PHP/ MySQL and SQL lite. This system is especially designed for accessing/retrieving or storing of files. One important feature about this system is its availability for HTML files.
- **Worldox**

Worldox is an electronic file management system which is used for managing documents and emails. It is a commercial and comprehensive system which is used to integrate the applications with various operating systems like Windows, Android, Mac, IOS, and Cloud.
- **CaseBox**

This is a system especially designed for HRM (**H**uman **R**esource **M**anagement) of an organization. It allows the conditional logic for making the record management. It also provides an effective level of encryption based on SSL technique.
- **Dokmee**

It is a cloud based electronic file management tool which provides an efficiency and security of our files or documents. This system provides a user-friendly environment for its users. In addition, it provides document-imaging and various tracking tools for the users to track their operations.
- **Feng Office**

It is an open-source file management system incorporated with various web-based tools. It has some additional features like Gantt chart and various task management tools which are quite helpful in day-to-day operations of e-file management. Through this system tracking of emails of multiple users can be done in an effective way.
- **Logical Doc**

It is a Java enabled open-source system which is accessible through a web-browser. This helps in improving productivity and collaboration of various files. It also allows itself to integrate with various third-party applications through an API.
- **Nuxeo**

It is an open-source system which reduces the time consumption required for searching and retrieving the contents. But due to its complex implementation and typical customization process it is not user-friendly for beginners. Audit logging is another feature with this system.

5.7 MIGRATING TO EFILE SYSTEM

In the time of electronic era, it's stunning that 75 percent of users actually depend upon the collection of information manually. While it might also be very tough to physically regulate

quality and wellbeing contents on the paper, also it isn't productive and leaves a lot of space for blunder. At the time when information collection isn't done appropriately, records can be change or lost, which also makes it hard to recover the data. Therefore, migrating from an existing system to electronic system is done under certain steps. So, while making the migration the following steps need to be followed by the users.

- **Standard Naming Conventions to be followed**

Naming conventions are need to be followed strictly while migrating the manual system to digital system. We need to follow various testing protocols, specifications and naming concerns which need to be strictly followed in manual system so that while migration, the system can accomplish the task easily.

This helps us in easy recovery and searching of records while using digital systems. While going through the naming concerns we have found some ideas that need to be followed by the users.

- Keep name of file short and meaningful.
- Strictly avoid repetition of names in files and path.
- Never use –(dash) or any special characters in files names.

- **Selection of Deployment Model**

Selection of data collection software is another crucial step while migrating the manual system to digital system. Preferably, if we are digitizing the system spreaded in multiple location, cloud can be a favourable technology whereas incase of single location some on-premises solution could be finded out. In addition to above, the cost and maintenance are some other factors that also needed to be focused while selection of deployment model.

- **Digitization of Record**

Changing over the current paper structures to electronic, organizations can be seen as an overwhelming assignment, yet working intimately with the product supplier's architects can significantly diminish the exertion. Depending on their experience to productively actualize a best-practice, arrangement will give your most obvious opportunity to extreme achievements.

- **Instill Change Management**

While migrating the system, agile concept of software development can be used. This allows to complete our task in timely manner.

5.8 E- REPORTS

Electronic reports are use to configure the electronic files (e-file) as per the norms of various countries and regions. These are use to design the standards as per the norms. Various regulatory issues can be resolve by using this format. Reports in electronic form can be

implemented with some common formats like text, word etc. This feature of reporting can be use to develop our own archive of reports that can be saved for future usage.

5.9 POINTS TO REMEMBER

- E-File management or electronic file management is the term which describes the documents and images in form of computer files.
- The E-File management system comprises of all the stages like creation of file, archiving of previous data etc.
- NIC i.e. National Informatics Center has developed electronic office management software known as File Tracking System.
- About 70 percent files are never migrated/ converted to paper.
- In the time of electronic era, it's stunning that 75 percent of users actually depend upon the collection of information manually.
- Common Interface File System (CIFS) allows its usage with UNIX operating system.
- CMS (Content Management Systems) are use to organize and deliver a wider range of data and media content in web enabled infrastructure to its users.

5.10 GLOSSARY

- NIC- National Informatics Center is an government department, which provides IT and various other online supports.
- CMS- Content Management System: Use to design various web applications in easiest mode for e.g. word press, Joomla etc.
- EFile- Electronic File: File(s)/content in digital format.
- CIFS-Common Interface File System: a Unix based file system.
- WFMS- Workflow Management System
- DARPG-Department of Administrative Reforms & Public Grievances
- OCR-Optical Character recognition

5.11 CHECK YOUR PROGRESS

Descriptive type questions-

- a) What is Electronic File? Define Electronic File management System?
- b) Discuss the need of Electronic File System? Explain in detail
- c) Define the merits and demerits of Electronic File System.
- d) Explain any Five Electronics management system?
- e) Define Migration. Explain the process of migration from manual to electronic system?
- f) Define Reports and its types.

Objective type questions-

- a) Electronic File System increases the time to search the file/data. [T/F]

- b) OCR is a Software. [T/F]
- c) We cannot migrate from manual system to online system. [T/F]
- d) CaseBox is a hardware for E-File management. [T/F]
- e) CISF is an based system.
- f) Joomla! is an based software.

Answer (Objective Type Question)-

- [a] False [b] False [c] False
 [d] False [e] Unix [f] CMS

5.12 BIBLIOGRAPHY/ REFERENCES

- [https://powerobjects.com/dynamics-365-finance-operations/electronic-reporting-in-dynamics-365-for-finance-and-operations/#:~:text=Generic%20Electronic%20Reporting%20\(GER\)%20aka,these%20formats%20during%20their%20lifecycle.](https://powerobjects.com/dynamics-365-finance-operations/electronic-reporting-in-dynamics-365-for-finance-and-operations/#:~:text=Generic%20Electronic%20Reporting%20(GER)%20aka,these%20formats%20during%20their%20lifecycle.)
- <https://ax.docentric.com/tag/electronic-reporting.>
- <https://www.lawinsider.com/dictionary/electronic-file.>
- https://en.wikipedia.org/wiki/Electronic_document.
- <https://www.m-files.com/en/electronic-filing-document-storage.>

5.13 SUGGESTED READINGS

- <https://www.thebalancesmb.com/computer-file-management-tips-2948083>
- <https://www.hyland.com/en/resources/terminology/document-management/electronic-file-management>
- <https://www.tutorialspoint.com.>

UNIT-

E-GOVERNANCE

6.1	INTRODUCTION
6.2	OBJECTIVES
6.3	E-GOVERNANCE: AN OVERVIEW
6.4	IMPORTANCE AND BENEFITS OF E-GOVERNANCE
6.5	TYPES OF INTERACTIONS IN E-GOVERNANCE
6.6	E-GOVERNANCE PROJECTS IN INDIA
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6.12	SUGGESTED READINGS

6.1 INTRODUCTION

E-governance because of its scope and aims is highly relevant in today's era. In simple terms, it is the use of information communication technologies (ICTs) to carry out public services, that is to say, the use of the internet to ensure that services are delivered in a much more convenient, customer-oriented, and cost-effective manner. In other words, the e-governance is the application of Information Technology to the processes of government functioning in order to achieve a Simple, Moral, Accountable, Responsive, and Transparent (SMART) Governance.

In the overall perspective, the e-governance is simply the use of ICTs in the operations of government businesses, put in another way, it is the shift from the traditional method of carrying out government activities which is mainly hierarchical, linear, and one-way to the use of internet which enables the public to seek information at their own convenience and not really having to visit the office in person or when government office is open.

The major objectives of e-governance are to improve government processes (e-administration), connect citizens (e-citizens and e-services), and build external interactions (e-society). Despite

these objectives, making and implementing decisions, proper leadership, putting in place organizational arrangements, ensuring resources and funding, establishing accountability and measuring success, telecommunications network, internal agency systems, cross-government systems, service delivery network access points, internet access, and skilled staff, better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, and more efficient government management are the factors that must be taken into consideration for the success of e-governance implementation.

6.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Understand the role of e-governance for smart administration.
- Define the importance of e-governance.
- Explore e-governance projects in India.
- Define the types and applications of e-governance.
- Know the challenges of e-governance in India.

6.3 E-GOVERNANCE: AN OVERVIEW

The ‘e’ in e-Governance stands for ‘electronic’. Thus, e-Governance is basically associated with carrying out the functions and achieving the results of governance through the utilization of Information and Communications Technology (ICT). Why countries around the world are increasingly opting for ‘e-Governance’? In the last few decades, the expectations of citizens from the government have increased manifold. ICT facilitates efficient storing and retrieval of information, instantaneous transmission of information, processing information & data faster than the earlier manual systems, speeding up governmental processes, taking decisions expeditiously & judiciously, increasing transparency, and enforcing accountability.

The primary purpose of governance is the welfare of citizens. While one aspect of governance relates to safeguarding the legal rights of all citizens, an equally important aspect is concerned with ensuring equitable access to public services and the benefits of economic growth to all. It is expected that e-governance would enable the government to discharge its functions more effectively and can be able to work with more transparency.

In India, during the initial stage of introduction of ICT in governance there was some resistance. There were also serious doubts about whether government employees at all levels would be able to handle computers. As time passes, all goes beyond and fortunately all these misgivings have proved wrong.

Today, new technology makes the machine-human interface very user-friendly. The Information Technology (IT) and Information Technology Enabled Services (ITES) sectors have created millions of jobs besides improving vastly on the services provided by government undertakings like Banks, Airlines, Railways, etc.

As a country like India, with 1.3 billion population, more than 600,000 villages, growing economy coupled with increasing aspirations of the citizens for a better quality of life – use of Information Technology in improving government processes is not just become vital but essential and without which it would be extremely difficult, if not impossible, to serve its citizens efficiently and transparently and ensure participation of a larger number of people in decision making at all levels of government– Centre, State and local.

The National e-Governance Division (NeGD) is providing strategic direction in terms of framing policies and implementation strategy for the Digital India Programme in different domains of e-Governance. And also provides, proactive support to Central and State Governments for Mission Mode Projects (MMPs) and other e-Governance projects acting as a facilitator and catalyst for the implementation of the Digital India Program by various Ministries and State Governments.

The NeGD also ensures effective citizen engagement and communication with all stakeholders using offline and Social Media channels. The role of NeGD in training and development initiatives, including- development of competency frameworks, training guidelines, case studies, etc. and developing online and web-based training and setting up of Learning Management System, knowledge management and sharing through workshops, development of case studies, sharing best practises, creation of knowledge repositories, etc.

The e-governance is, in essence, the application of Information and Communications Technology to government functioning to create ‘Simple, Moral, Accountable, Responsive, and Transparent (SMART) governance. The e-governance involves the use of ICTs by government agencies for any or all of the following reasons, as-

- Exchange of information with citizens, businesses, or other government departments.
- Speedier and more efficient delivery of public services.
- Improving internal efficiency.
- Reducing costs/increasing revenue.
- Re-structuring of administrative processes and improving the quality of services.

The e-governance aims to make the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) more friendly, convenient, transparent, and inexpensive. The goals of e-Governance are-

- Better service delivery to citizens.

- Ushering in transparency and accountability.
- Empowering people through information.
- Improved efficiency within Governments.
- Improve interface with business and industry.

6.4 IMPORTANCE AND BENEFITS OF E-GOVERNANCE

E-governance is about reforms in governance, facilitated by the creative use of Information and Communications Technology (ICT). The importance and benefits of e-governance are not limited in respect to good governance, and citizen empowerment, few of them are as follows-

- E-Governance brings governments closer to the citizens.
- Provide simplicity, efficiency, and accountability in the government- Applications of ICT to governance combined with detailed business process re-engineering would lead to simplification of complicated processes, weeding out of redundant processes, simplification in structures & changes in statutes, and regulations. The end result would be the simplification of the functioning of government, enhanced decision-making abilities, and increased efficiency across government- all contributing to an overall environment of more accountable government machinery. This, in turn, would result in enhanced productivity and efficiency in all sectors of government functioning.
- E-governance empowers people to gather information regarding any department of government and get involved in the process of government decision making.
- E-Governance strengthens democracy by ensuring greater citizen participation at all levels of governance.
- E-Governance leads to automation of services, ensuring that information regarding every work of public welfare is easily available to all citizens.
- E-Governance revolutionizes the way governments function, ensuring much more transparency in the functioning, thereby eliminating corruption.
- If the information regarding every activity of government is easily available, it would make every government department responsible as they know that every action of theirs is closely monitored.
- Expanded reach of governance- Rapid growth of communications technology and its adoption in governance would help in bringing government machinery to the doorsteps of the citizens. Expansion of telephone network, rapid strides in mobile telephony, the spread of internet, and strengthening of other communications infrastructure would facilitate the delivery of a large number of services provided by the government.

- Proper implementation of e-Governance practices makes it possible for people to get their work done online thereby sparing themselves of unnecessary hassles of travelling to the respective offices.
- Successful implementation of e-Governance practices offers better delivery of services to citizens, improved interactions with businesses, and industries.
- E-governance helps citizen empowerment through access to information, better management, greater convenience, revenue growth, cost reductions, etc.
- Enabling Environment for Promoting Economic development- Technology enables governments to create positive business climates by simplifying relationships with businesses and reducing the administrative steps needed to comply with regulatory obligations. There is a direct impact on the economy, as e-procurement creates wider competition and more participants in the public sector marketplace.

6.5 TYPES OF INTERACTIONS IN E-GOVERNANCE

The e-governance facilitates interaction between different stakeholders in governance using ICT, such types of interactions are grouped into the following, as-

Government to Government Model (G2G)-

The G2G refers to the online communications between government organizations, departments, and agencies based on a super-government database. Moreover, it refers to the relationship between governments. G2G model of e-governance aims to enhance and improve inter-government organizational processes by streamlining cooperation and coordination among various government departments/organizations. The efficiency and efficacy of processes are enhanced by the use of online communication and cooperation which allows for the sharing of databases and resources and the fusion of skills and capabilities.

Government-to-Business (G2B)-

Government to business is another type of e-governance model which enables significant efficiencies to both governments and businesses. G2B includes various services exchanged between government and the business sector services. The business services offered include obtaining current business information, new regulations, downloading application forms, lodging taxes, renewing licenses, registering businesses, obtaining permits, and many more. Nowadays, the government-to-business (G2B) model has been receiving a significant amount of attention.

Government-to-Citizens (G2C)-

Government-to-Citizens (G2C) model of governance has been designed to facilitate citizen interaction with the government. It allows citizens to access government information and

services instantly, conveniently, from everywhere. The government-to-citizen model of governance focuses on customer-centric and integrated electronic services where public services can be provided based on a 'one-stop solution' concept. This implies that every citizen can get single window access to government services. G2C model of governance facilitates several services to the citizens, e.g. certifications, paying governmental fees, and applying for benefits schemes of government, etc.

Government-to-Employees (G2E)-

Government is by far the biggest employer and like any organization, it has to interact with its employees on a regular basis. This interaction is a two-way process between the organization and the employee. Use of ICT tools helps in making these interactions fast and efficient on the one hand and increase satisfaction levels of employees on the other so that the G2E model of governance is a valuable model of smart administration.

6.6 E-GOVERNANCE PROJECTS IN INDIA

The Government of India (GoI) established the Department of Electronics in 1970. The subsequent establishment of the National Informatics Centre (NIC) in the year 1977 was the first major step towards e-Governance in India. In the early 1980s, the use of computers was confined to very few organizations. The advent of personal computers brought the storage, retrieval, and processing capacities of computers to Government offices. By the late 1980s gradually, with the introduction of common use software such as word processing and other kinds of software, the computers were put to other uses like managing databases and processing information, etc.

Advances in communications technology further improved the versatility and reach of computers, and many government departments started using ICT for a number of applications like tracking movement of papers and files, monitoring of development programmes, processing of employees payrolls, generation of reports, etc.

The main thrust for e-governance was provided by the launching of the National Informatics Centre Network (NICNET) in 1987, the national satellite-based computer network. This was followed by the launch of the District Information System of the National Informatics Centre (DISNIC) programme to computerize all district offices in the country for which free hardware and software was offered to the State Governments.

A National Task Force on Information Technology and Software Development was constituted in May 1998, while recognizing Information Technology as a frontier area of knowledge per se, it focused on utilizing it as an enabling tool for assimilating and processing all other spheres of knowledge. It recommended the launching of an 'Operation Knowledge' aimed at universalizing computer literacy and spreading the use of computers and IT in education.

In the year 1999, the Union Ministry of Information Technology was created. By the year 2000, a 12-point minimum agenda for e-Governance was identified by the Government of India for implementation in all the Union Government Ministries/Departments. Some glimpse of the agenda-

- Each Ministry/Department must provide Personal Computers (PCs) with necessary software up to the Section Officer level. Besides, Local Area Network (LAN) must also be set up.
- It should be ensured that all staff with access and need to use computer for their office work are provided with adequate training. To facilitate this, inter alia, Ministries/Departments should set up their own or share other's Learning Centres for decentralized training in computers as per the guidelines issued by the ministry.
- Each Ministry/Department should start using the Office Procedure Automation software developed by NIC to keep a record of receipt of 'dak', issue of letters, as well as the movement of files in the department.
- Payroll accounting and other house-keeping software should be put to use in day-to-day operations.

Emergence of the National e-Governance Plan (NeGP)-

About the future of e-governance, the lighting words by the great visionary Dr. APJ Abdul Kalam, former President of India, in his inaugural address at IIT Delhi (India) during 2003 at International Conference on 'e-governance' can be summarized as- "E-governance has to be citizen-friendly. Delivery of services to citizens is considered a primary function of the government. In a democratic nation of over one billion people like India, e-governance should enable seamless access to information and seamless flow of information across the state and central government in the federal set up. No country has so far implemented an e-governance system for one billion people. It is a big challenge before us."

About National e-Governance Division (NeGD)-

In the year 2009, National e-Governance Division was established by the Ministry of Electronics & Information Technology (MeitY) as an Independent Business Division under the Digital India Corporation. NeGD has played a pivotal role in executing e-governance Projects and initiatives undertaken by Ministries/ Departments, both at Central and State levels. The roles and responsibilities of NeGD are-

- a) Providing strategic direction in terms of framing policies and implementation strategy for the Digital India Programme in different domains of e-Governance.
- b) Proactive support to Central and State Governments for Mission Mode Projects (MMPs) and other e-governance projects.

- c) Acting as a facilitator and catalyst for the implementation of the Digital India Program by various Ministries and State Governments.
- d) Providing technical assistance to Central Ministries/ State Line Departments in their e-governance projects either directly or in collaboration with professional consultants.
- e) Undertaking technical appraisal of e-governance projects for examining issues like overall technology, architecture, framework standards, security policy, service delivery mechanism, sharing of common infrastructure, etc.
- f) Developing generic / model Expression of Interest (EoI), Request for Proposal (RFP), Standard Contracts, PPP Models, and other related documents for various stages and requirements of projects for the use of States.
- g) Ensuring effective citizen engagement and communication with all stakeholders using offline and Social Media channels
- h) Impact assessment and e-Readiness measurement of e-Governance projects of all States / UTs.
- i) Recruitment, deployment and HR management of specialised resources in the State e-Governance Mission Teams (SeMTs) in all States and UTs
- j) Training and development initiatives, including- (i) Development of competency frameworks, training guidelines, case studies, etc. (ii) Developing Online and Web-based Training and set up Learning Management System (iii) Knowledge management and sharing through workshops, development of case studies, sharing best practises and creation of knowledge repositories, etc

Implementation Strategy for E-governance-

The approach and methodology adopted for NeGP contains the following elements-

- Common Support Infrastructure.
- Governance- Suitable arrangements for monitoring and coordinating the implementation of NeGP under the direction of the competent authorities have been set up.
- Centralized Initiative, Decentralized Implementation.
- Public-Private Partnerships (PPP) model is to be adopted wherever feasible to enlarge the resource pool without compromising on the security aspects.
- Programme Approach at the National and State levels.
- Ownership of Ministries- Under the NeGP, various Mission Mode Projects (MMPs) are owned and spearheaded by the concerned line ministries.

Some Mission Mode Projects implemented by NeGD-

[1] Unified Mobile Application for New-age Governance (UMANG)-

UMANG is envisaged to make e-governance. It provides a single platform for all Indian citizens to access pan India e-Gov services ranging from central to local government bodies and other citizen-centric services. UMANG intends to provide major services offered by central and state government departments, local bodies, and other utility services from private organizations. It provides a unified approach where citizens can install one application to avail multiple government services. UMANG service has been made available on multiple channels like mobile application, web, IVR, and SMS which can be accessed through smartphones, feature phones, tablets, and desktops.

Note- Download UMANG App by giving us missed call on 97183-97183 or Visit- <https://web.umang.gov.in/web/#/>

[2] DigiLocker-

DigiLocker system is a flagship initiative of the Ministry of Electronics & IT under the Digital India Programme. Targeted at the idea of paperless governance, DigiLocker aims to provide a digital wallet to every citizen of the country so that all lifelong documents/certificates can be electronically held under a single secure digital wallet. DigiLocker is a platform for issuance and verification of documents & certificates digitally, eliminating the use of physical documents. Indian citizens who sign up for a DigiLocker account get a dedicated cloud storage space that is linked to their Aadhaar (UIDAI) number.

Note- To access Digilocker visit at- <https://digilocker.gov.in>

[3] National Centre of Geo-informatics (NCoG)-

NCoG is a single source Geographic Information System (GIS) platform for sharing, collaboration, location-based analytics, and decision support system, catering to central and state ministries/departments/agencies across the country. Under this project, location-based datasets such as data related to central government land banks, mining, forests, industrial parks, water resources, etc. are collated with attribute related data to bring out insights that are useful to support decision making. User departments can now pinpoint their operations, assets on a map, and plan better. NCoG has provided mobile applications for geo-tagging and creating evidence of completed operations under the Government schemes.

Note- To access NCoG visit at- <https://ncog.gov.in/>

[4]- Rapid Assessment System (RAS)

RAS is online instant feedback for e-services (online as well as offline through counters) delivered by the Government of India and State Governments. The main objective of RAS is to continuously assess the quality of e-Services, through feedback, under each e-governance project and realign processes to achieve targeted benefits. RAS interface prompts the citizens

to provide feedback about the quality of service immediately after the citizen avails an e-service of the Government. The analytic features of RAS help integrated departments in system improvement and better delivery of services.

Note- To access RAS visit at- <https://ras.gov.in/>

[5]- Program Management Information System (PMIS)-

PMIS build using open-source technologies is used to track and monitor project initiation, planning, execution, and management. It can be utilized for Central/State/Integrated MMPs, Departmental and Adhoc projects under the Digital India programme.

Note- To access PMIS visit at- <https://pmis.negd.gov.in/>

[6]- OpenForge platform-

The objective of the OpenForge platform is to promote sharing and reuse of e-governance application source code. In 2015, the Ministry of Electronics & IT, Government of India rolled out the 'Policy on Collaborative Application Development by Opening the Source Code of Government Applications', which provides a framework for archiving government custom-developed source code in repositories and opening these repositories for promoting reuse, sharing and remixing. By opening the source code, the Government wants to encourage collaborative development between Government departments/agencies and private organizations, citizens, and developers to spur the creation of innovative e-governance applications and services.

The scope of the project includes the development of a Collaboration Platform under the 'Source Open Policy'. Further, it includes the creation of a project team, development and maintenance of the platform, on-boarding of departments, promotion of the platform, and community management. The community to be created and managed through the platform will be a key driver in bringing agility and quality to the application development process. It will also lead to further reuse and value addition to the e-governance software landscape.

Note- To access OpenForge visit at- <https://openforge.gov.in/>

[7]- Learning Management System (LMS)-

LMS is a software application that automates the administration, tracking, and reporting of training events. LMS is a pioneer project under e-Kranti (an e-governance plan initiated by the Government of India). It is widely recognised that there is a tremendous need to enhance the skill sets and to develop an adequate number of appropriately trained resources for handling a variety of tasks including those who are expected to design and deliver Government services to the citizens.

Note- To access LMS visit at- <https://lms.gov.in/>

[8]- Miscellaneous e-governance Projects in India-

- Passport Seva Project.
- Immigration, Visa and Foreigners Registration & Tracking (IVFRT).
- Insurance (Department of Banking)
- Income Tax (Ministry of Finance/Central Board of Direct Taxes)
- National Citizen Database/UID (Ministry of Home Affairs/Registrar General of India (RGI)/ Planning Commission, Now NITI Aayog).
- Central Excise (Department of Revenue/Central Board of Excise & Customs)
- Pensions (Department of Pensions & Pensioners Welfare and Department of Expenditure)
- Banking (Department of Banking)
- Land Records (Ministry of Rural Development)
- Road Transport (Ministry of Road Transport & Highways)
- Treasuries (Ministry of Finance)
- E-District (Department of Information Technology)
- Common Services Centres (Department of Information Technology)
- e-Courts (Department of Justice, Ministry of Home Affairs)
- e-Procurement (Ministry of Commerce & Industry/ DGS&D)
- And many more.

6.7 CHALLENGES OF E-GOVERNANCE IN INDIA

- Lack of motivation and awareness towards the role and importance of e-governance.
- Lack of citizen-centric nature of applications and poor cooperation among bureaucrats and people at the local level of governance.
- Lack of trust, poor technical designs which leads to lack of interoperability among distinct e-governance applications, and underutilization of ICT infrastructure resources.
- One of the challenges to attain the ability of high level of data abstraction is to maintain the privacy of data in designing e-governance applications.
- Authentication is very important to know the right user of the services or it may be misused by private competitors. Meanwhile, the digital signature plays a major role in providing authenticity. In fact, it is expensive and causes for frequent maintenance.
- Maintenance should be given due importance because IT ministry has been continuously developing new software to fill the current needs of citizens.
- Digital divide- Even in the era of science and technology, a huge gap exists between users and non-users of e-governance services. In India, majority of the masses, living below

poverty line are deprived of government services. This gap needs to be made narrow, and then only the benefits of e-governance would be utilized equally.

- Infrastructure is essentially required for the implementation of e-governance as much as possible in India. Electricity, Internet, and poor adaptability of technology will retard the progress of e-governance. In the context of developing countries, there should be enough basic facilities to give an impetus to e-governance.

6.8 POINTS TO REMEMBER

- E-governance is simply the use of information communication technologies (ICTs) to carry out public services, that is to say, the use of the internet to ensure that services are delivered in a much more convenient, customer-oriented, and cost-effective manner.
- E-governance is the application of Information Technology to the process of government functioning to achieve a Simple, Moral, Accountable, Responsive, and Transparent (SMART) Governance.
- The major objectives of e-governance are to improve government processes (e-administration), connect citizens (e-citizens and e-services), and build external interactions (e-society).
- It is expected that e-governance would enable government to discharge its functions more effectively and can be able to work with more transparency.
- The National e-Governance Division (NeGD) is providing strategic direction in terms of framing policies and implementation strategy for the Digital India Programme in different domains of e-Governance.
- E-governance strengthens the democracy by ensuring greater citizen participation at all levels of governance.
- E-governance revolutionizes the way government's function, ensuring much more transparency in the functioning thereby eliminating corruption.
- The rapid growth of communications technology and its adoption in governance would help in bringing government machinery to the doorsteps of the citizens.
- E-governance helps citizen empowerment through access to information, better management, greater convenience, revenue growth, cost reductions, etc.

6.9 GLOSSARY

- CSC- Common Service Center.
- ERP- Enterprise Resource Planning.
- G2B- Government to Business.

- G2C- Government to Citizen.
- G2E- Government to Employee.
- G2G- Government to Government.
- GPS- Global Positioning System.
- ITeS- Information Technology enabled Services.
- MCA- Ministry of Corporate Affairs.
- NeGD- National e-Governance Division.
- NeGP- National e-Governance Plan.
- NISG- National Institute for Smart Government.
- PPP- Public Private Partnership.
- SMART- Simple, Moral, Accountable, Responsive, Transparent.
- SWAN- State Wide Area Network.

6.10 CHECK YOUR PROGRESS

Descriptive type questions-

- g) What are the benefits of e-governance?
- h) Explain the summarized view of e-governance in India.
- i) List five major challenges of implementing e-governance in India.
- j) Define in short, the various e-governance models.
- k) Define briefly the role and responsibilities of the National e-Governance Division (NeGD).
- l) List the name of ten miscellaneous e-governance projects in India.

Objective type questions-

- g) Infrastructure is essentially required for the implementation of successful e-governance projects. (True/False)
- h) One of the major challenges in implementing successful e-governance projects is a lack of motivation and awareness. (True/False)
- i) The National e-Governance Division (NeGD) is providing strategic direction in terms of framing policies and implementation strategy for the Digital India Programme in different domains of e-Governance. (True/False)
- j) PMIS stands for Prime Minister Information System. (True/False)

- k) DigiLocker aims to provide a digital wallet to every citizen of the country where we can deposit the money. (True/False)
- l) National e-Governance Division was established by the Ministry of
- m) Government-to-Citizens (G2C) model of governance has been designed to facilitate citizen interaction with

Answer (objective type question)-

- [a] True [b] True [c] True [d] False [e] False
 [f] Electronics & Information Technology [g] Government

6.11 BIBLIOGRAPHY/ REFERENCES

- E-GOVERNMENT: ITS ROLE, IMPORTANCE AND CHALLENGES, By GetrudeNtulo and Japhet Otike, School of Information Sciences, Moi University Eldoret, Kenya.
- Fakeeh K. A. (2016). The E-Governance (E-GOV) Information Management Models. International Journal of Applied Information Systems (IJ AIS). Vol. 11(1), ISSN- 2249-0868.
- E-Governance Project Lifecycle (Reading Supplement Handbook). Published by National Institute for Smart Government, on behalf of the Department of Electronics & Information Technology, Government of India.
- <https://negd.gov.in>
- K Nagaraja (2016). E-Governance in India: Issues and Challenges. IOSR Journal of Economics and Finance (IOSR-JEF). Vol. 7(5), pp. 50-54, ISSN: 2321-5933 (online), ISSN: 2321-5925 (print).
- Mittal Pardeep, Kaur Amandeep (2013). E-Governance- A challenge for India. International Journal of Advanced Research in Computer Engineering & Technology (IJARCET). Vol. 2(3).

6.12 SUGGESTED READINGS

- E-Governance Project Lifecycle (Reading Supplement Handbook). Published by National Institute for Smart Government, on behalf of the Department of Electronics & Information Technology, Government of India.
- <https://negd.gov.in>

UNIT- 7

ONLINE OFFICE DOCUMENTS

7.1	INTRODUCTION
7.2	OBJECTIVES
7.3	GOOGLE FORMS: AN OVERVIEW
7.4	CREATE YOUR FIRST GOOGLE FORM OR QUIZ
7.5	CHOOSE FORM SETTINGS AND PREVIEW
7.6	CUSTOMIZE YOUR GOOGLE FORM
7.7	ADDING MORE QUESTIONS TO GOOGLE FORM
7.8	CHANGING QUESTION TYPES IN GOOGLE FORM
7.9	SHARE GOOGLE FORM OR QUIZ
7.10	ANALYZE OR GRADE RESPONSES
7.11	PRINT A FORM OR QUIZ
7.12	SHARE PRE-FILLED LINK
7.13	POINTS TO REMEMBER
7.14	GLOSSARY
7.15	CHECK YOUR PROGRESS
7.16	BIBLIOGRAPHY/ REFERENCES
7.17	SUGGESTED READINGS

7.1 INTRODUCTION

In the current era of Internet, the demand of online office documents increased rapidly. Persons always prefers to save their data on an online storage or database, so that whenever they have Internet, there documents are always with them. In the present market, there are a lot of online, web-based office tools available. Some most famous examples of online office documents are Google Docs, Microsoft Office 365 and Zoho Office etc.

Online office tools provide a lot of facilities to its users. The first advantage is its availability across multiple devices and accessibility across the Internet. Until and unless you have internet, your documents are in your pocket always. With online office tools, it becomes very easy to collaborate with other team members. Online office tools also provide enhanced security to protect user's data and privacy. All the documents can be kept at one place when we are using online documents. They can be accessed without downloading any other software. For accessing online documents, people just need a web browser to access online documents. They are portable and can be accessed on any device, any platform and anytime.

7.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Understand the advantages of Online Office Tools.
- Familiar with Google Forms.
- Explore various features that Google Forms provides.
- Able to Create quiz on Google Forms.
- Share your Google Forms to your Intended users.
- View and analyse received responses.

7.3 GOOGLE FORMS: AN OVERVIEW

Google Forms is a free utility tool provided by Google, heavily used for survey. It is a web-based form creator and editor, included with other Google Docs products like Google Sheets, Google Docs, and Google Slides etc. Google Forms allows users to create web-based surveys, in collaboration with other users.

Google Forms lets its users to collect information from other persons via a large number of personalized tools, like quizzes and surveys. The quizzes and surveys that Google Forms provides, have a large number of response validation tools, various type of questions like Single Choice, Multiple Choice, Subjective, File Upload & Range Based questions. Google Forms can be used to collect RSVP's and also be used to take Online Examinations. It provides the facility to share the forms via email, social media or direct links.

Because of its web-based interface and online availability, it can be collaborated with multiple people on the same time. The main features of Google Forms are following:

- Online availability 24*7.
- Can be used for Surveys and custom forms.
- Drag and Drop facility available.
- Easy questions reordering.
- Addition of images, videos and custom logics in forms.
- Automatic response summaries.

- Real time response availability.
- Quick input validation & custom input validation

7.4 CREATE YOUR FIRST GOOGLE FORM OR QUIZ

Before creating your first Google Form, it is required to have a google account and you must be signed on google. If you don't have a google account, you can create your own google account by visiting <https://accounts.google.com>. On the page, click on Create Account first then on for myself.

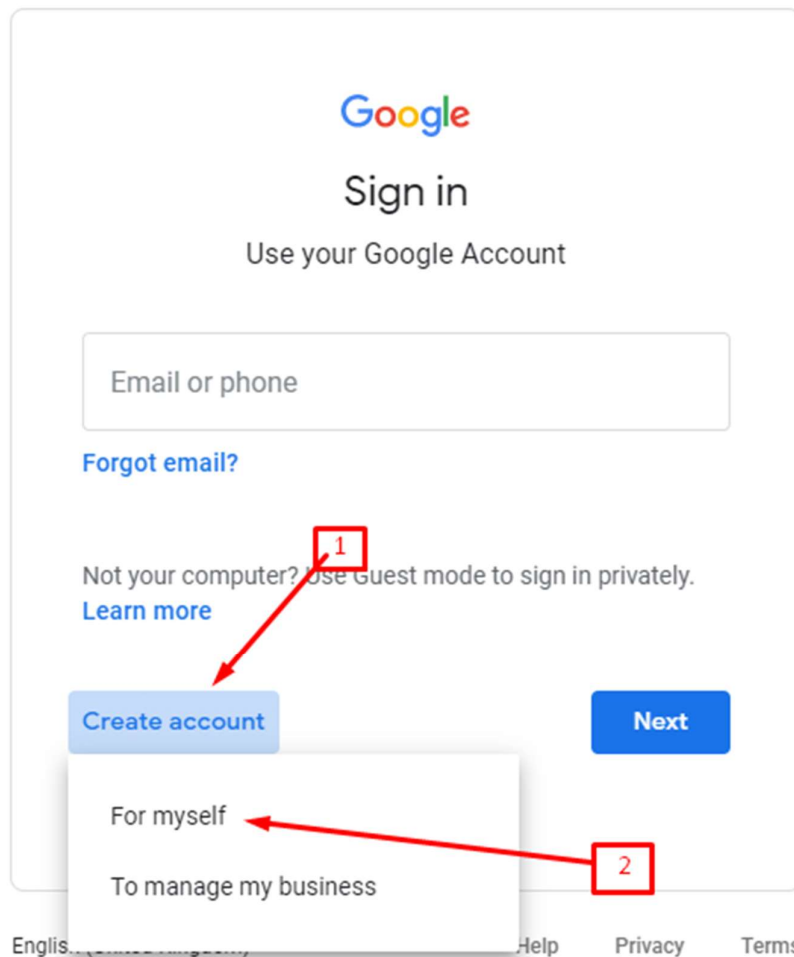


Figure 8.1 Google Account Page

On the next page, you need to provide some basic info about yourself like- first name, last name, username and password etc.

Figure 8.2 Google Account Signup Page

After successfully creating your account, you will need to visit <https://docs.google.com/forms> for creating your Google Form.

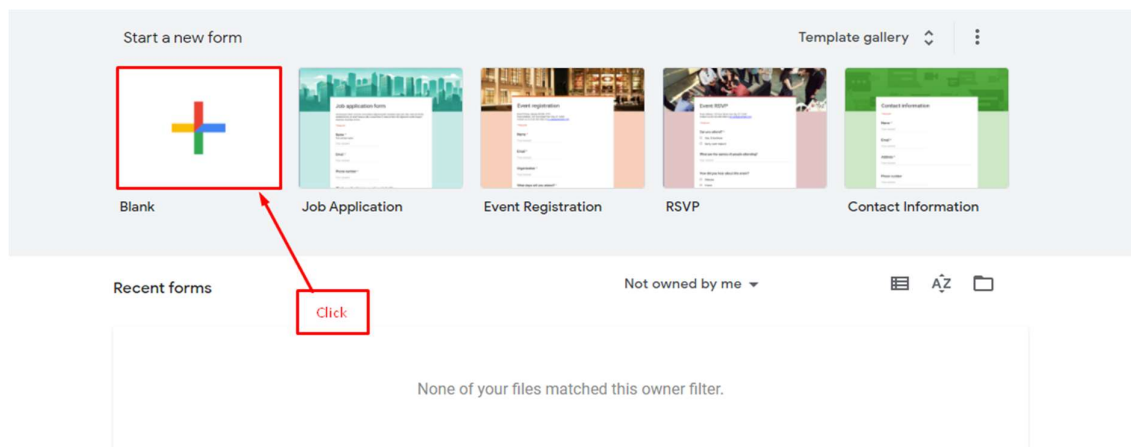


Figure 8.3 Create new Google Form

On visiting the above link, a web page will be opened like above. On that page, you will need to click on + icon to create a blank Google Form. After clicking on +, a blank form will be opened like below, which can be customized as per the requirement.

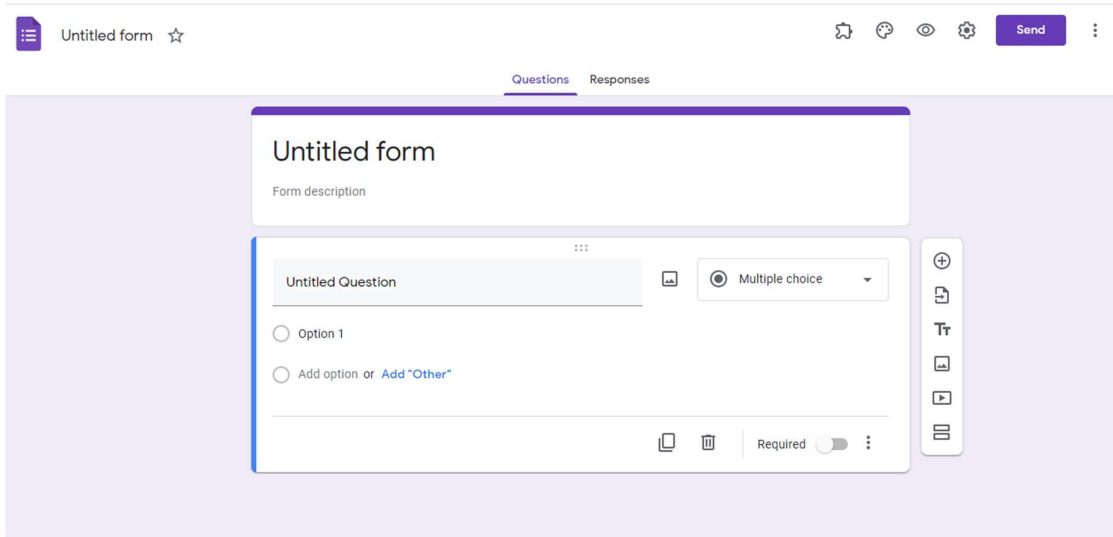


Figure 8.4 Blank Google Form

7.5 CHOOSE FORM SETTINGS AND PREVIEW

For changing the Google Form settings, we can click on Settings icon available at the top right corner of the screen.

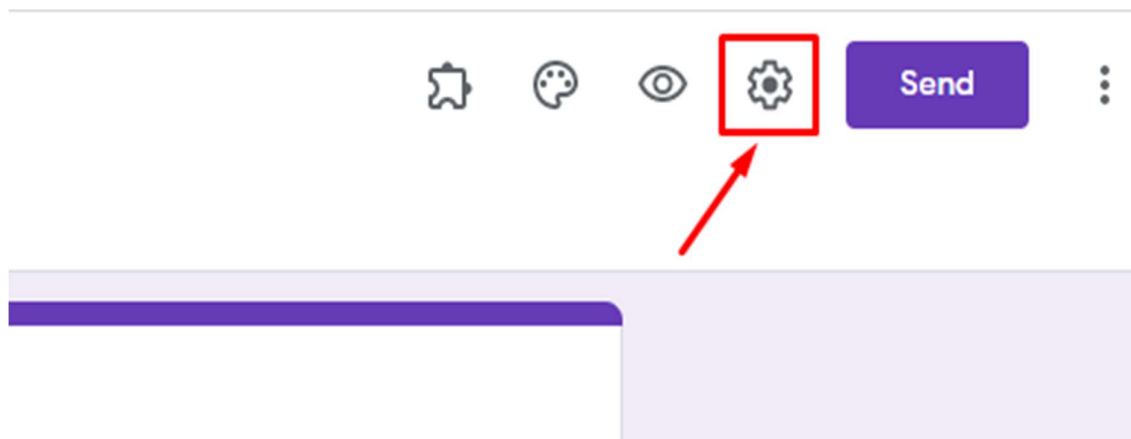
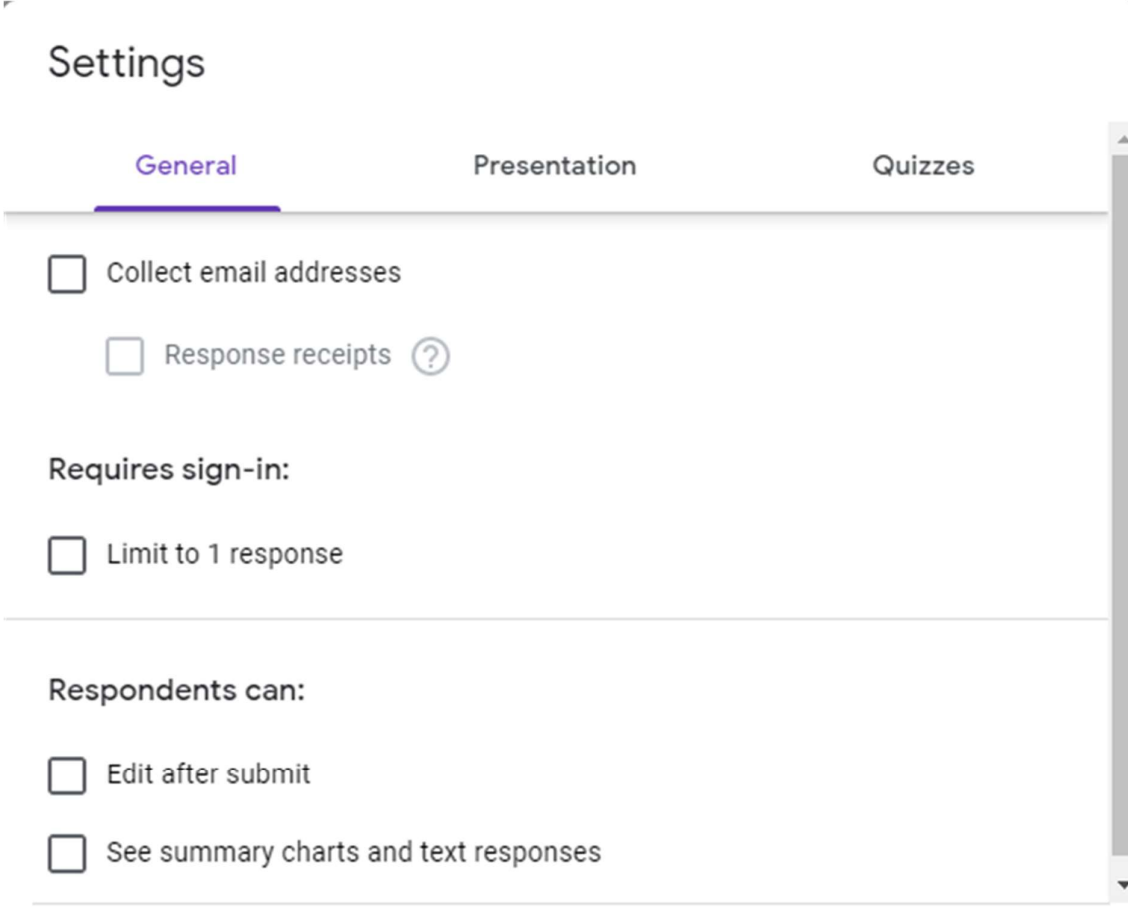


Figure 8.5 Google Account Settings

After clicking on the settings icon, a popup window will be available in front of you which will be used to change the settings of Google Form opened currently.



The image shows the 'Settings' interface for Google Forms, specifically the 'General' tab. The interface is clean and modern, with a white background and grey accents. At the top, the word 'Settings' is displayed in a large, dark font. Below it, three tabs are visible: 'General' (which is selected and highlighted with a purple underline), 'Presentation', and 'Quizzes'. The 'General' tab contains several settings, each with a checkbox and a label. The settings are: 'Collect email addresses' (unchecked), 'Response receipts' (unchecked) with a help icon, 'Requires sign-in:' (a section header), 'Limit to 1 response' (unchecked), 'Respondents can:' (a section header), 'Edit after submit' (unchecked), and 'See summary charts and text responses' (unchecked). At the bottom right of the settings area, there are two buttons: 'Cancel' and 'Save' (which is highlighted in purple). A vertical scrollbar is visible on the right side of the settings area.

Settings

General Presentation Quizzes

Collect email addresses

Response receipts ?

Requires sign-in:

Limit to 1 response

Respondents can:

Edit after submit

See summary charts and text responses

Cancel Save

Figure 8.6 Google Forms General Settings

There are a lot of customization settings available like Email collection, limiting per user responses and editing form after submitting etc. Within these settings, on the third tab **Quizzes**, is available which will be used to convert a form as Quiz like below:

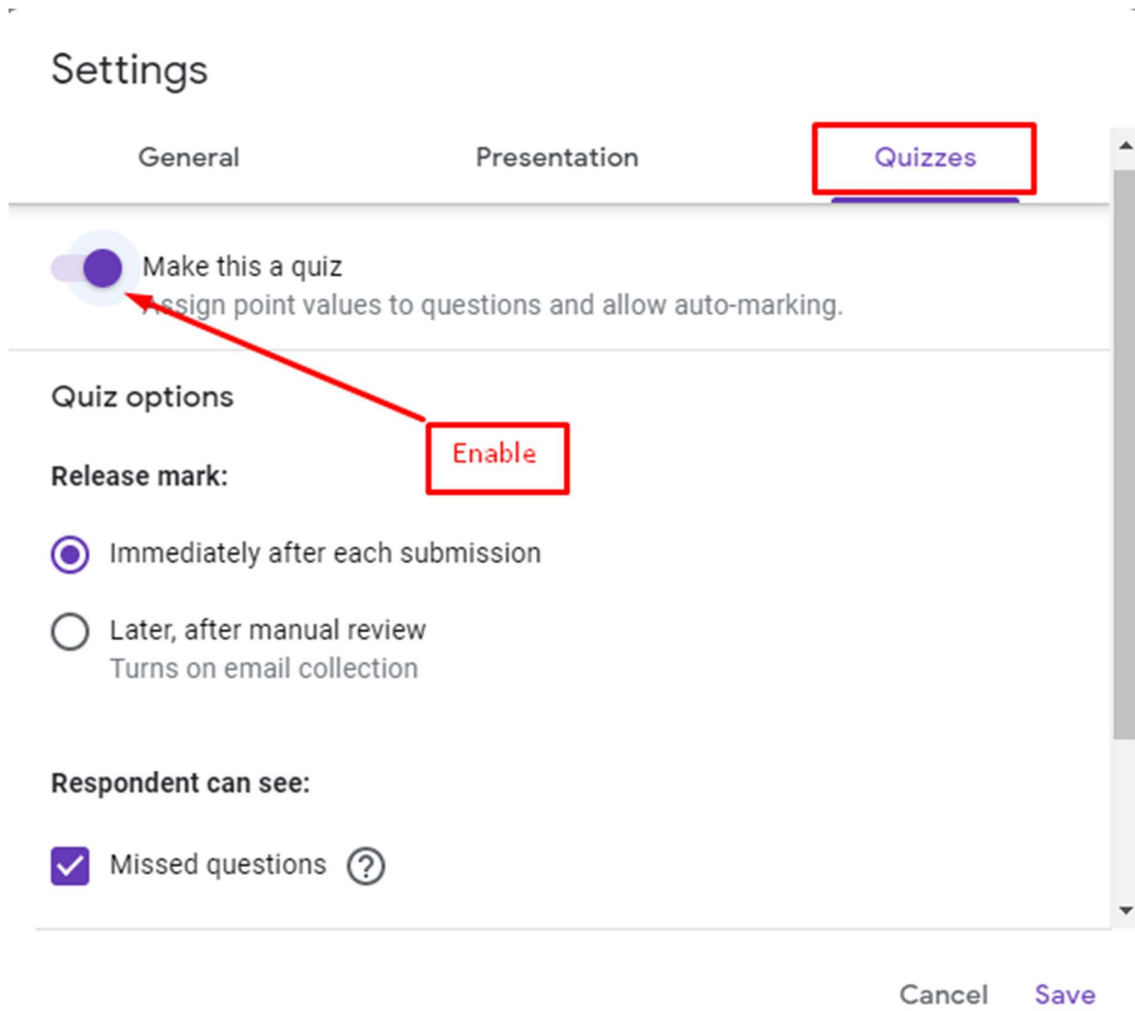


Figure 8.7 Google Account Quiz Settings

By enabling the Quiz option, Google Form will be converted to a Quiz, in which you can assign points or grades for each question. Also you can shuffle questions order with these settings.

To Preview the form as a responder, you need to click on the preview button available at the top right corner of the form like below:

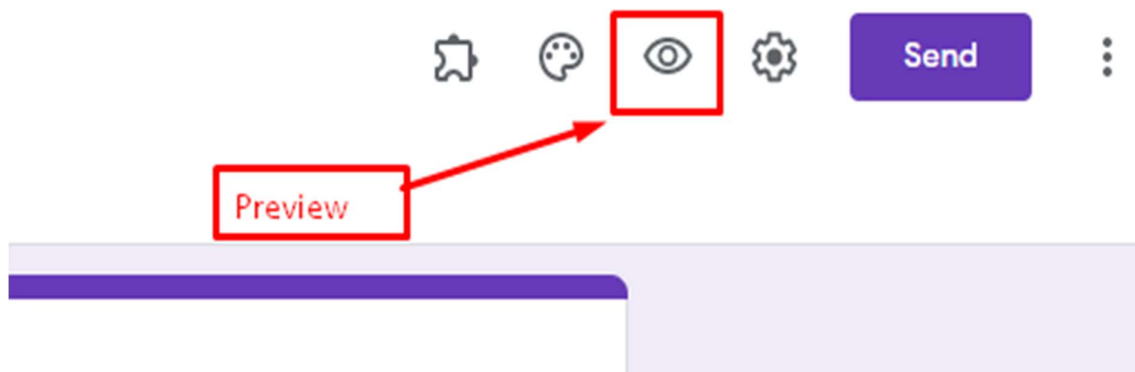


Figure 8.8 Google Forms Preview

After clicking on the preview button, the Google Form will be opened in a new tab or window of browser. Here the form will be shown same as will be visible to a respondent.

7.6 CUSTOMIZE YOUR GOOGLE FORM

Google form also provides the facility to customize the forms as per your choice. There are a lot of customization options available with google forms shown in the image below:

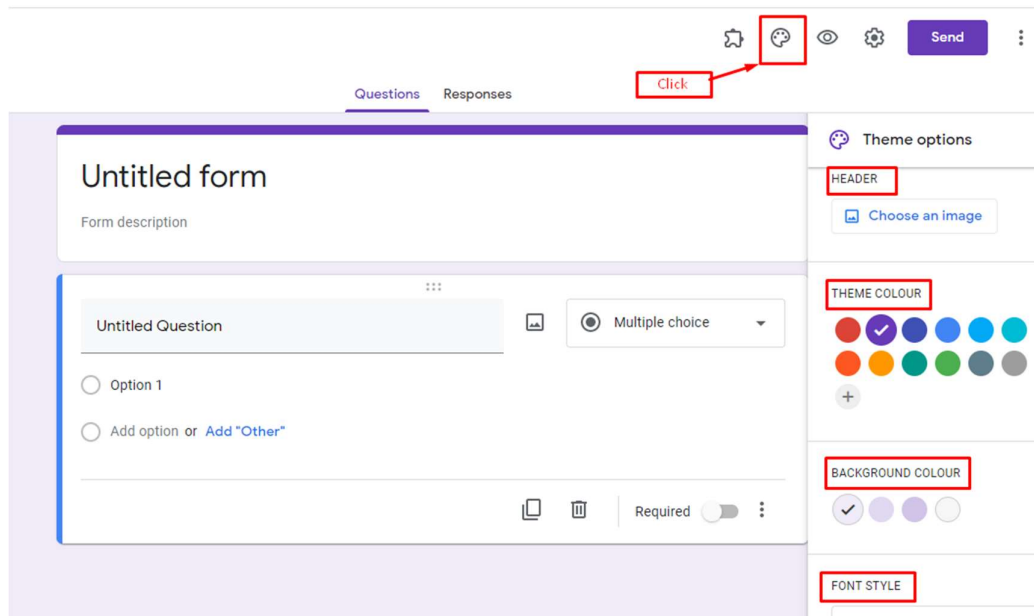


Figure 8.9 Google Forms Customization

With customization options, you can add header images to your google form, can choose colour theme, change font and also the background colour of the form which will be visible to your users.

7.7 ADDING MORE QUESTIONS TO GOOGLE FORM

If you are going to create a google form, you will need to add multiple questions in your google form. For adding new question, click on (+) sign as in the image below:

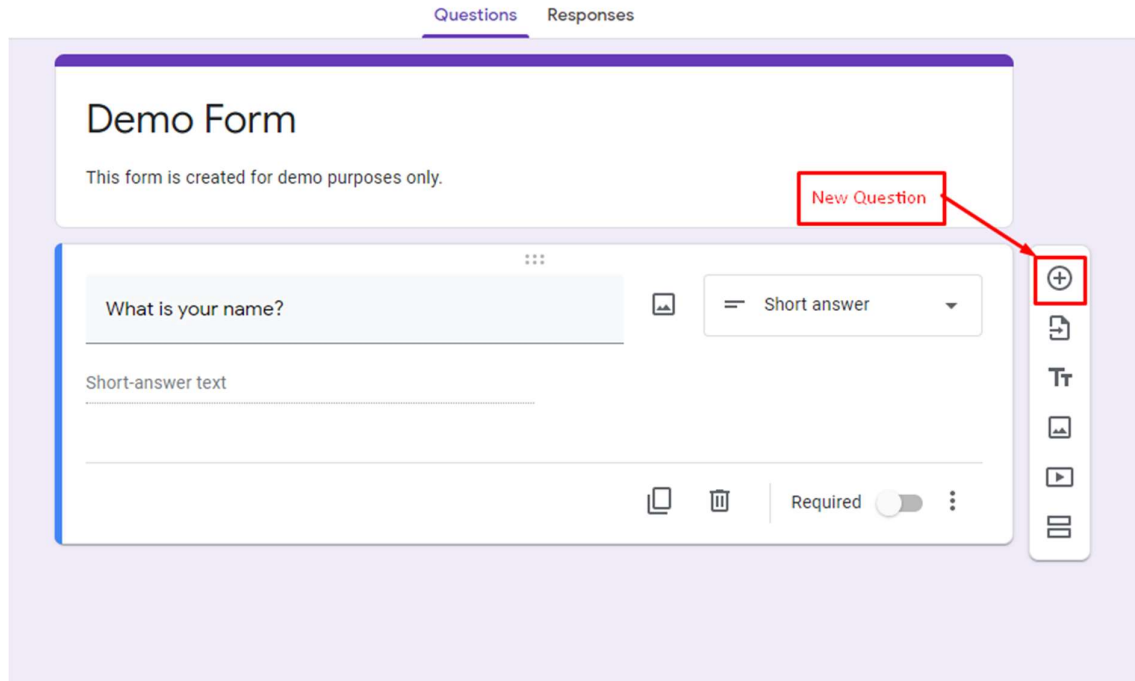


Figure 8.10 Google Forms, Create New Question

After clicking on (+), a new question will be available there, which can be edited easily.

Google Form also provides facility to add new section to the form, for adding new section, we have to click on the icon having two rectangles.

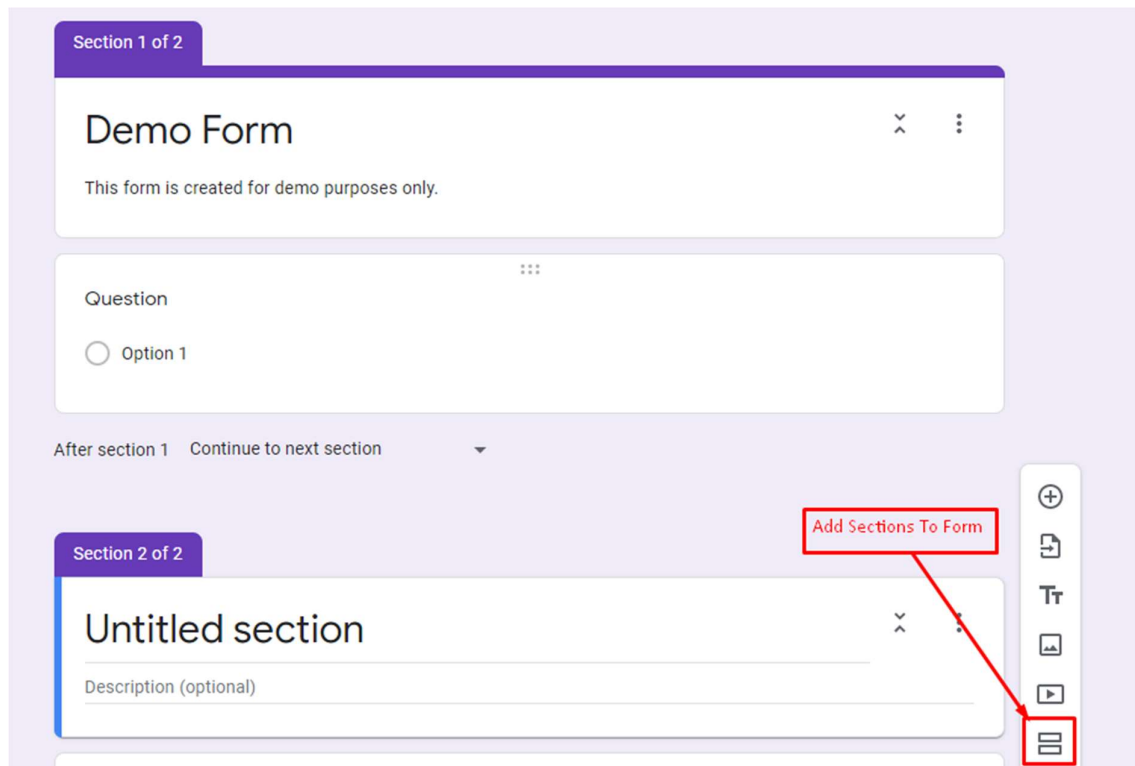


Figure 8.11 Google Forms, Add New Section

After clicking on section Icon, a new section of questions will be generated, which can be used to divide the form into multiple sections. Sections are mostly used whenever you have to group similar questions into one.

7.8 CHANGING QUESTION TYPES IN GOOGLE FORM

While creating a question, you can choose the question type from various options available there on Google form as shown in the image below:

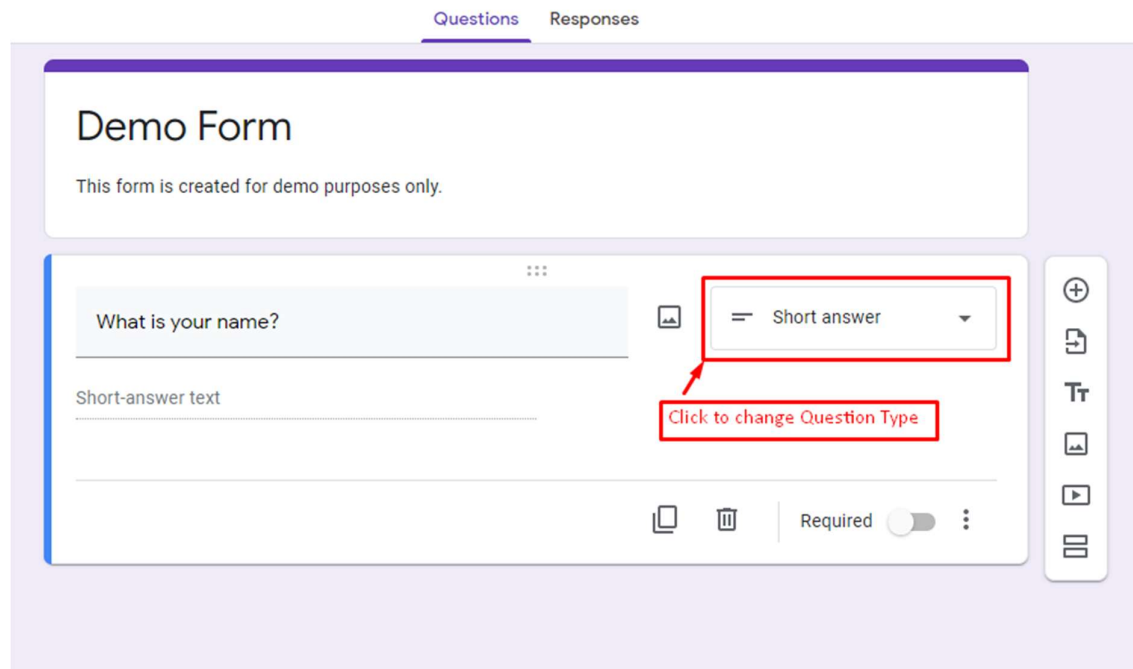


Figure 8.12 Change Question Type in Google Forms

After clicking on the dropdown above, a list of available question type will be opened. You are free to choose a question type from there.

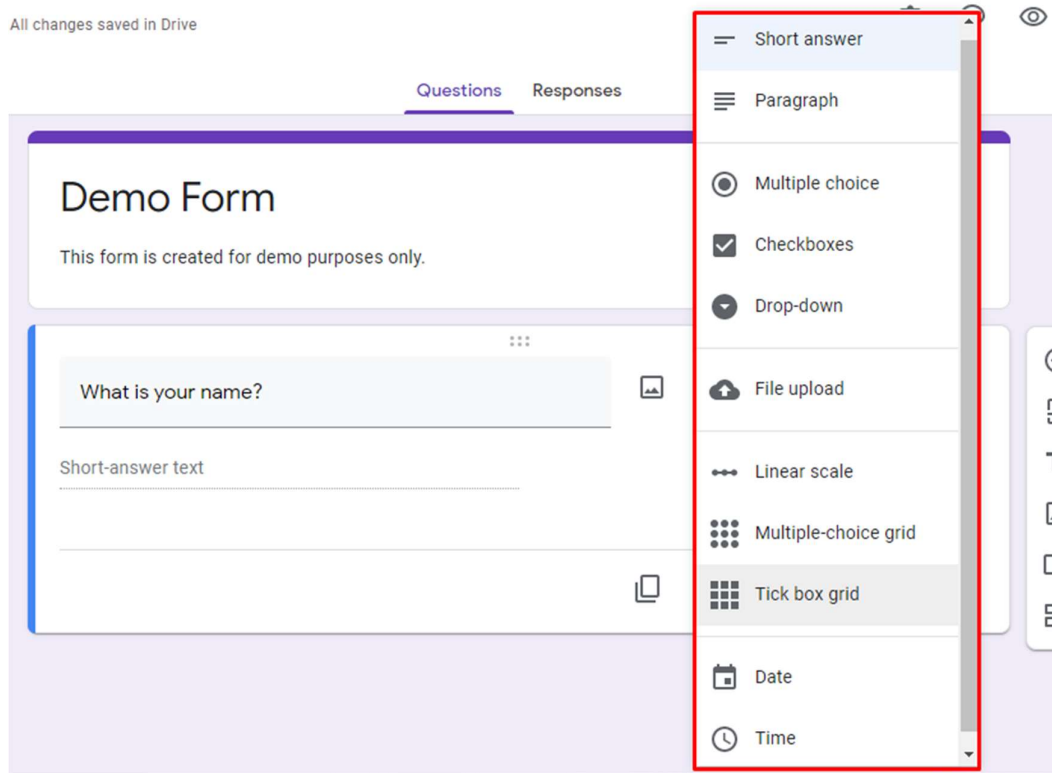


Figure 8.13 Question Types Available in Google Form

By selecting any of the above question type, the question will be automatically converted to that type. The choices for the question types are following:

Short Answer: Questions require only a few words. Good choice for email addresses or mobile numbers.

Paragraph: These types of responses require long-form answers of one or more paragraphs. Data input validation is available for this type of responses.

Multiple Choice: Respondents can choose between a set of options available there, but only one for a question. You can also include “Other” and an option so people can input a short answer.

Checkboxes: Responders can choose multiple options for a single, including the “Other” option for a short answer.

Drop-down: People can choose their answer from a set of options in a drop-down menu available, but only a single option for a question.

File Upload: It allows the user to upload a file in response to a question. Uploaded files are saved in Google Drive of the owner. You can specify the size and type of files people can upload like 5 MB, 10 MB etc.

Linear Scale: Responders can rate your question on a scale that starts at 0 or 1, and ends on a whole number from 2 to 10.

Time: Responder can choose the time of day or a duration of time.

Date: Responder can choose the date as an answer to the question. The default is day, month, and year. You can also include the time in answers.

Multiple Choice Grid: This option creates a grid from which you can select one answer per row. You can limit answers to one choice per column and can also shuffle the row order.

Checkbox Grid: This option creates a grid in which people can select one or more answer per row.

7.9 SHARE GOOGLE FORM OR QUIZ

Google Form allows its users to collaborate with others. You can share your google form with others, so that they can edit the form or can respond to that form. This feature makes the task easier while working on a group. There is no limit on number of persons with the forms is to be shared. To share your google form with your collaborators, you can tap on the Three Dots, available at the top right corner of the screen.

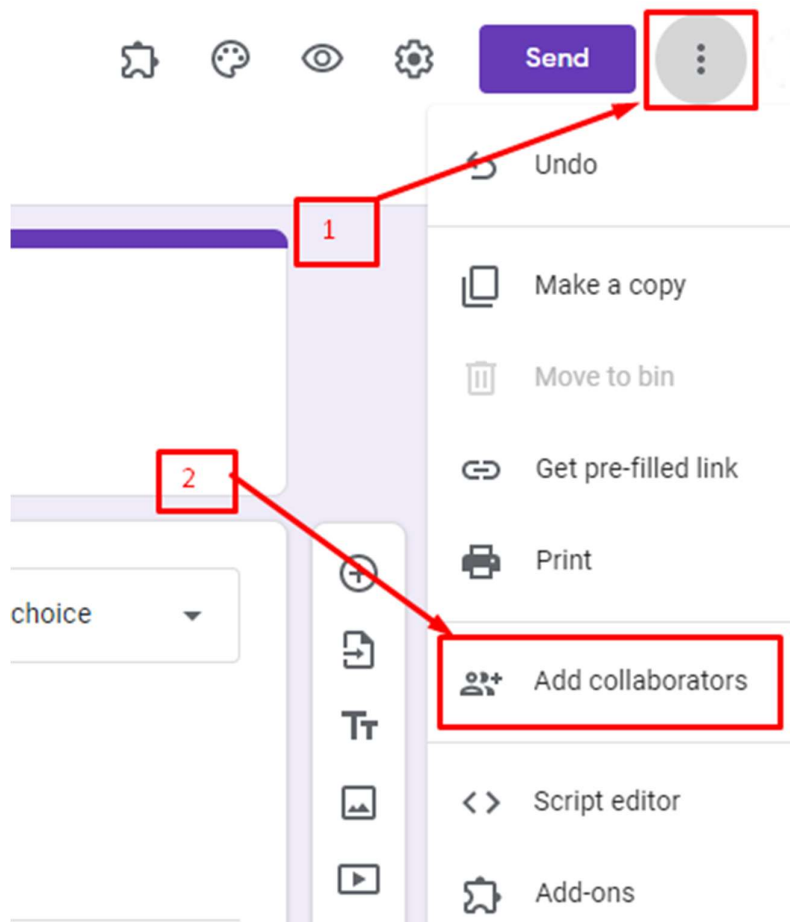


Figure 8.14 Google Forms, add collaborators

After clicking on Add Collaborators, a popup window will be opened like below:

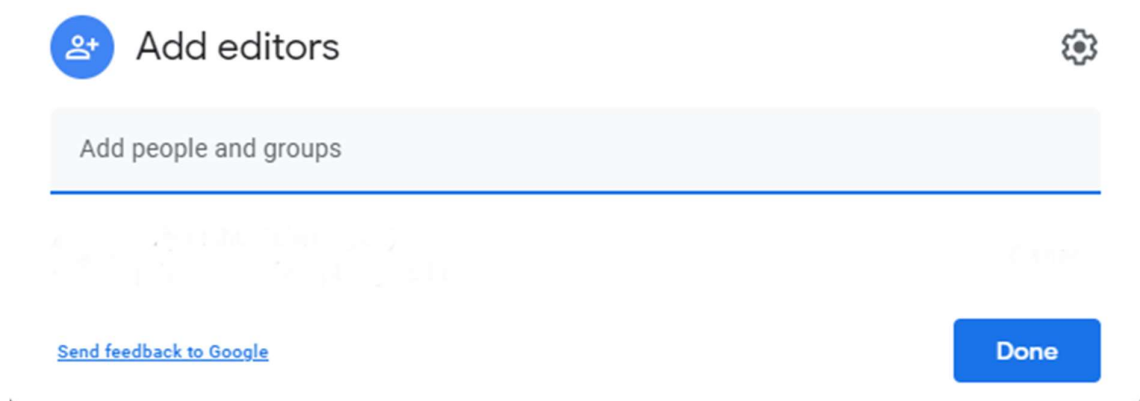


Figure 8.15 Google Forms, add collaborators using email

By the above window, you can easily add your collaborators on the same Google Form. To share google form with your respondents, you can use the **Send** button available at the top right corner. With this Send button, you can share the link of your form. You can also generate a short link for your google form here.

7.10 ANALYZE OR GRADE RESPONSES

With Google Forms, you can easily analyse responses in real time. To view responses of your Google Form, you need to click on **Response** tab, Response Tab also shows the count of the responses that have been received till now.

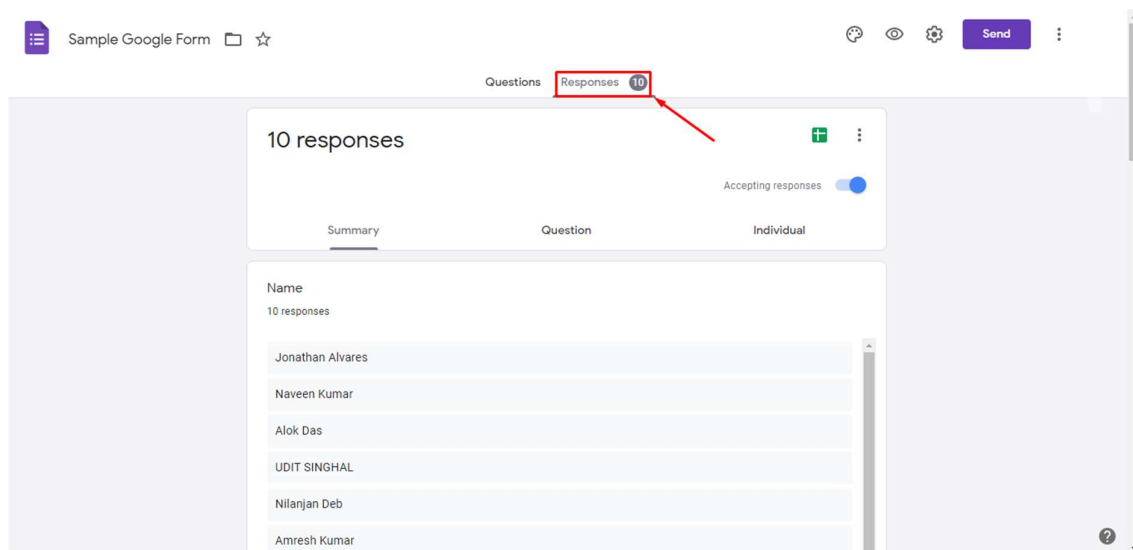


Figure 8.16 Google Forms, view responses

It also shows your data in the form of Pie Charts for Single Choice Type Questions as below:

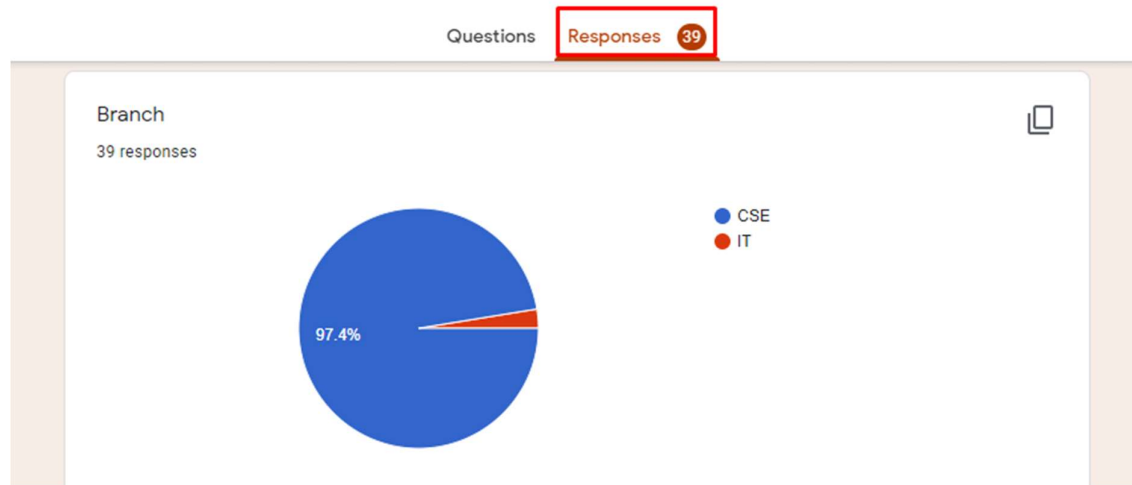


Figure 8.17 Google Forms, responses using graphs

Google Forms stores the responses in form automatically. We can also transfer form responses easily to a spreadsheet. To send your response to spreadsheet, select the “Responses” tab, and then click the green Sheets icon.

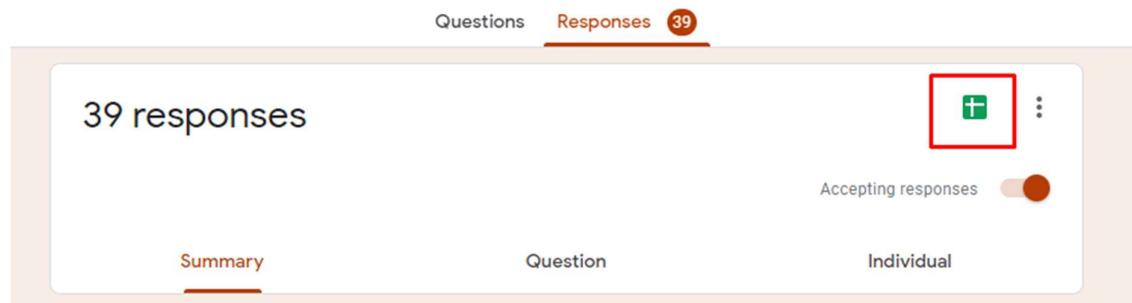


Figure 8.18 Google Forms, add spreadsheet

After clicking on Spreadsheet icon, you need to select the response destination. For storing responses, you can send responses to a new Spreadsheet or you can also select an existing

spreadsheet.

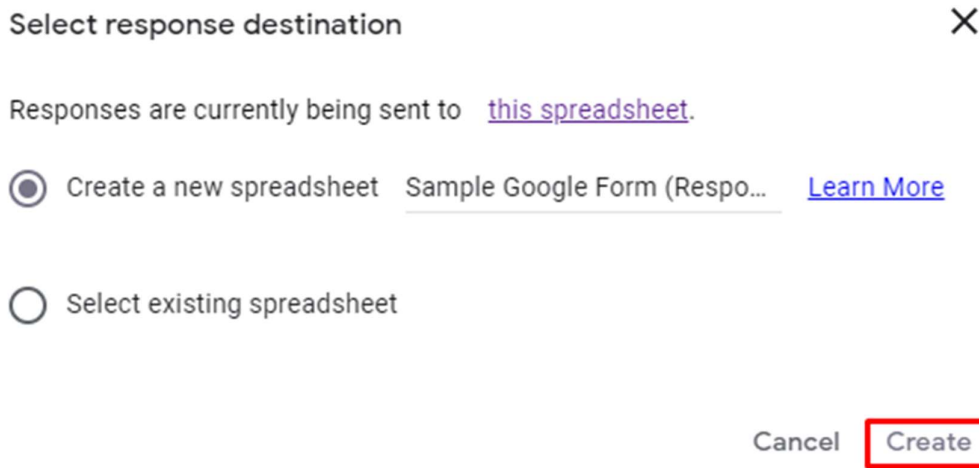


Figure 8.19 Google Forms, link spreadsheet

7.11 PRINT A FORM OR QUIZ

You can also print an individual response using Google Forms. To print a response, you need to view the responses individually.

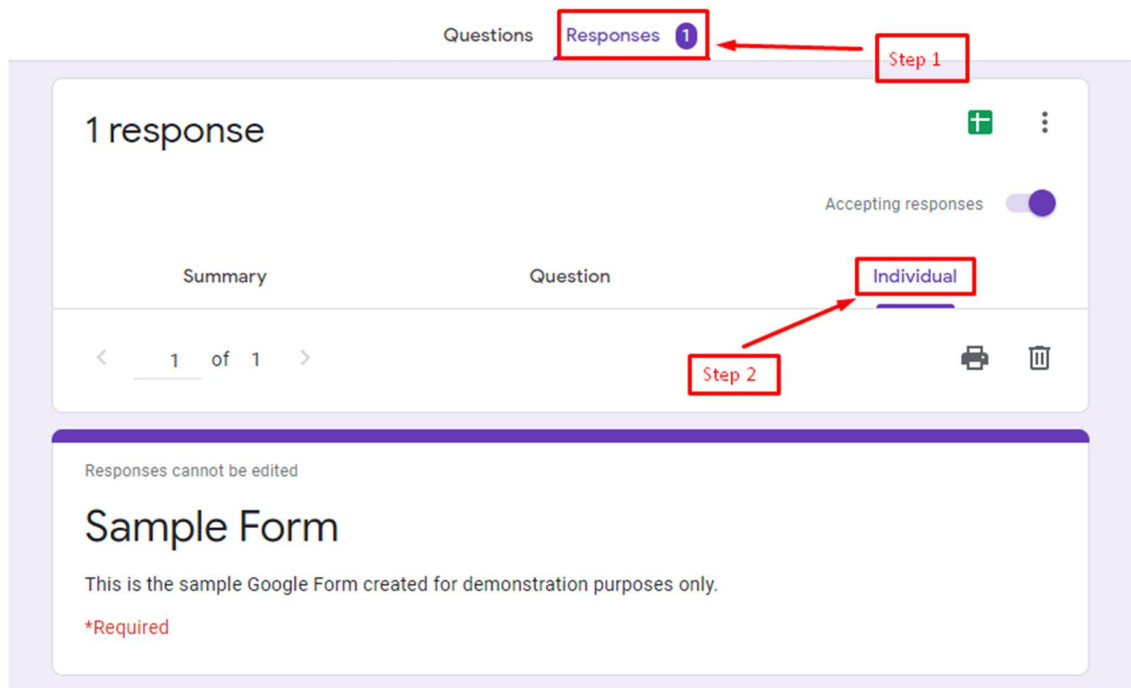


Figure 8.20 Google Forms, print a response

On the individual tab, an option to print the response will be available with **Printer** icon. By Clicking on the print button, the response will be printed and will be available in the PDF form to you.

7.12 SHARE PRE-FILLED LINK

With Google Forms, you can also share pre-filled link with your responders, in which some of the fields that you have specified are already filled. To create a pre-filled, google form, you need to click on three dots at top right corner:

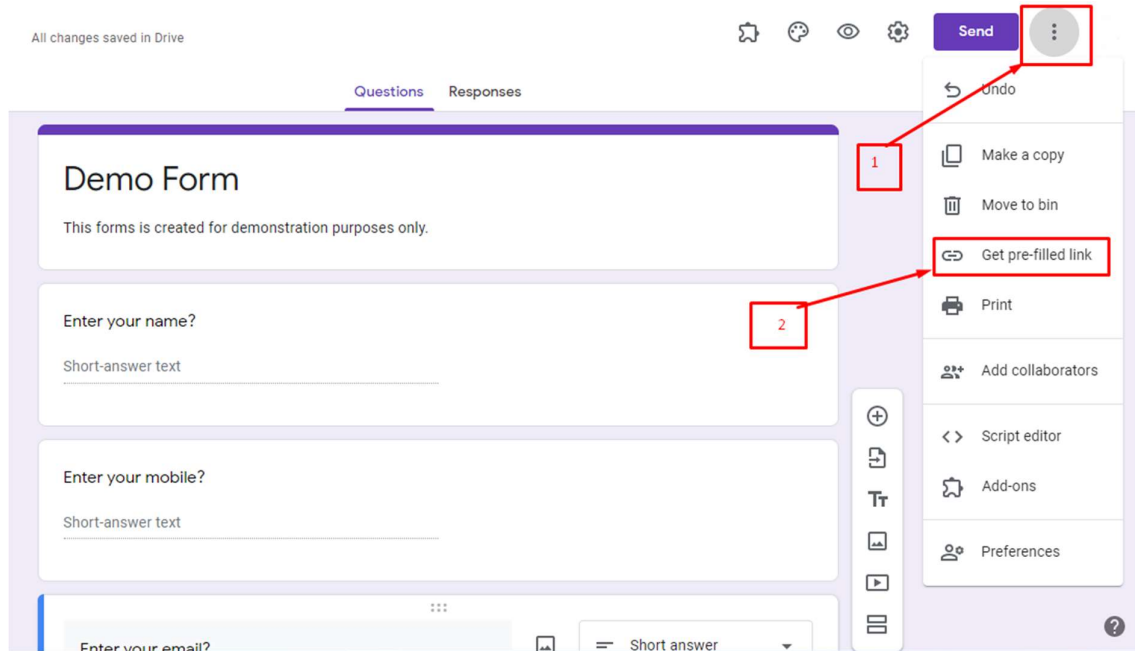


Figure 8.21 Google Forms, get pre-filled link

After clicking on **Get pre-filled link**, a page will be opened on next tab. You can fill the fields, which you want to pre-fill.

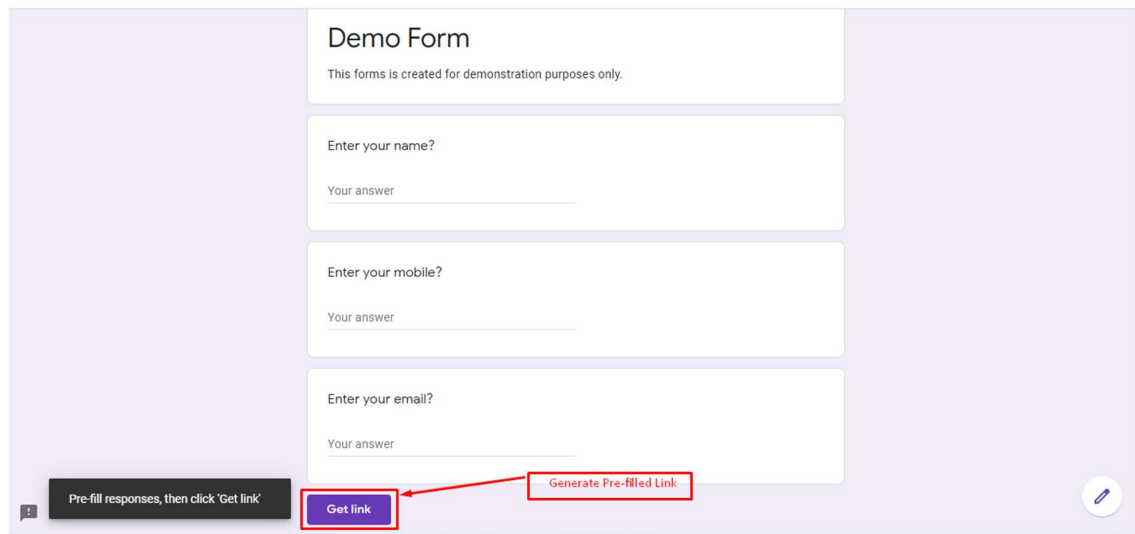


Figure 8.22 Google Forms, create pre-filled link

After filling the pre-specified fields, you can click on **Get Link** button to generate, pre-filled link of your google form.

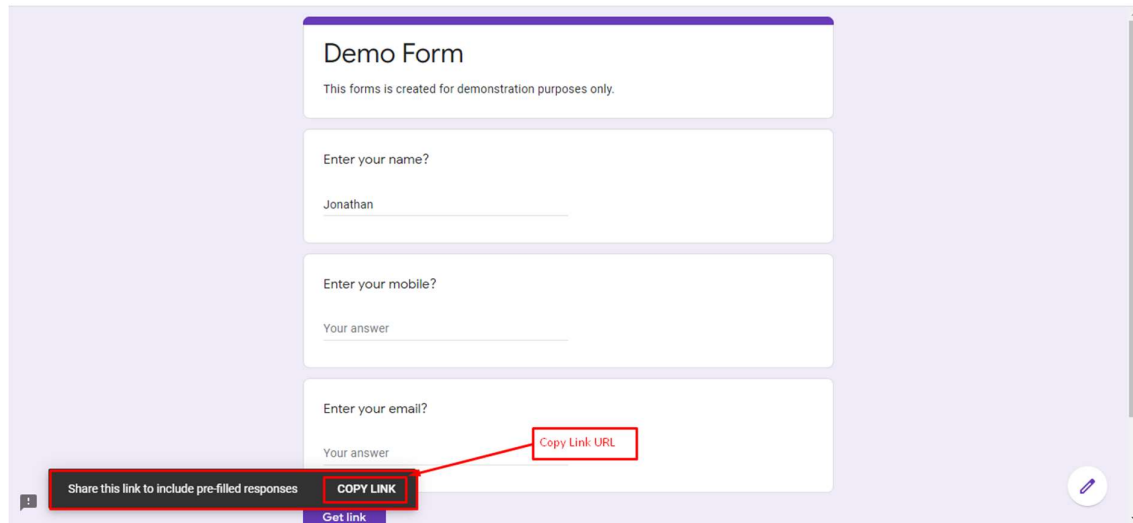
The image shows a Google Form titled "Demo Form" with the subtitle "This form is created for demonstration purposes only." The form contains three text input fields. The first field is labeled "Enter your name?" and contains the text "Jonathan". The second field is labeled "Enter your mobile?" and contains the text "Your answer". The third field is labeled "Enter your email?" and contains the text "Your answer". At the bottom of the form, there is a "Get link" button. A red box highlights the "COPY LINK" button, and a red arrow points from it to a "Copy Link URL" box. A tooltip is visible over the "COPY LINK" button, containing the text "Share this link to include pre-filled responses".

Figure 8.23 Google Forms, copy pre-filled link

After clicking on Copy Link, URL of pre-filled form will be copied to your clipboard. Any person having the pre-filled will find the fields be filled automatically.

7.13 POINTS TO REMEMBER

- Google Forms are used to create quizzes, surveys and for collecting information from people.
- Google Forms are web based forms. You can access it with your Internet anytime, anywhere.
- To create Google Forms, you need to have a google account compulsorily, however for responding, google account is not required until the form creator have specified to sign in before response submission.
- Google Forms can also be converted to quizzes easily by the settings. For each question, you can assign weightage for it.
- Google Forms supports Multiple Choice, Checkboxes, Drop Down, File Upload, Linear Scale, Date, Time, Linear Scale, and Grid based questions.
- To personalize look and feel of google form, theme icon is available at top right corner. It can be used to change header image, theme colour, background colour and font of the form.
- Responses of google forms are automatically saved to forms. To send them into an excel sheet, you need to create and excel sheet or link an existing excel sheet.

7.14 GLOSSARY



Google Forms

Google Forms are used to create quizzes, take feedbacks and also for surveys. They can also be used to create a poll and sending surveys in the class.



Google Drive

Google Drive is a file storage service, provided by Google LLC. It is used to store personal data like documents, forms, images etc.



Google Docs

Google Docs are used to create and manage office documents like word, spreadsheets and slides etc.



Google Sites

Using Google Sites, we can create sites for learning, announcements and postings.



Google Calendar

Google calendar is used to create and manage events. It is also used to view and create upcoming assignments.



Google Classroom

Google Classroom is used to simplify creating, distributing and grading assignments. The aim of Google Classroom is to connect teachers and students with each other.

7.15 CHECK YOUR PROGRESS

Descriptive Type Questions-

- What are the online office documents?
- What is Google Form and why it is used?
- List five advantages of using online documents editors instead of offline editors?
- Define briefly how can you create a google form and share it with other users?

- e) What are the supported questions types in Google Forms? Explain each one briefly?

Objective Type Questions-

- a) Online office documents requires internet connectivity to run themselves. (True/False)
 b) Google forms are used to send emails to other users. (True/False)
 c) A google account is required to create a new google form. (True/False)
 d) Google Forms only supports 5 collaborators at a particular time. (True/False)
 e) Google Forms responses are automatically saved to a spreadsheet on your google account. (True/False)
 f) Google Forms can grade the quizzes automatically. (True/False)
 g) You can restrict your google form to limit response per person.
 h) The theme icon is available to personalize google form at ... position

Answer (Objective Type Question)-

- a) True b) False c) True d) False e) False
 f) True g) 1 h) Right – Top

7.16 BIBLIOGRAPHY/ REFERENCES

- Online office suite, Wikipedia https://en.wikipedia.org/wiki/Online_office_suite
- Google Forms, Wikipedia, https://en.wikipedia.org/wiki/Google_Forms
- Google Docs, An Introduction
https://docs.google.com/document/edit?id=1MZ7Vqub8LrD5kvRaU1fsf_i4DvVG2ea7VHebIGdQong
- Beginner's Guide to Google Forms, 8th edition, Barrie Roberts, 2016
- Instructional Manual for Using Google Forms: A Step-by-Step Guide to Creating Quality Google Forms, Promise Ekewuba.
- More ways to build and share Google Forms. September 29, 2014. Retrieved January 16, 2021. <https://workspaceupdates.googleblog.com/2014/09/more-ways-to-build-and-share-google.html>

7.17 SUGGESTED READINGS

- Create a survey using Google Forms. Google Inc. Retrieved January 16, 2021. https://support.google.com/docs/answer/6281888?visit_id=637463828952944377-4150094501&rd=1
- Custom themes in Google Forms. September 2, 2014. Retrieved January 16, 2021. <https://workspaceupdates.googleblog.com/2014/09/custom-themes-in-google-forms.html>

- Add-ons for Google Forms. G Suite Updates. October 23, 2014. Retrieved January 16, 2021. <https://workspaceupdates.googleblog.com/2014/10/add-ons-for-google-forms.html>

UNIT- 8

COLLABORATION AND MESSAGING SERVICES

8.1	INTRODUCTION
8.2	OBJECTIVES
8.3	BRIEF OVERVIEW OF MESSAGING SERVICES
8.4	ONLINE DISCUSSION FORUM
8.5	SHARED CALENDAR/SCHEDULER/OPEN-SOURCE TOOLS OF TO-DO LIST
8.6	APPLICATIONS OF GOOGLE CALENDAR
8.7	APPLICATIONS OF GOOGLE MEET (HOW TO USE?)
8.8	POINTS TO REMEMBER
8.9	GLOSSARY
8.10	CHECK YOUR PROGRESS
8.11	BIBLIOGRAPHY/ REFERENCES
8.12	SUGGESTED READINGS

8.1 INTRODUCTION

Recent technological developments and increasing use of computer, internet and mobile technologies has created a collaborative work environment of business world to a great extent. The evolution of various messaging and collaboration services is one of the changes experienced by corporate world during last few years. These online collaboration services have made it easy to manage the business even if its employees are located at different location within the country or across the world. These messaging and collaboration services help in reducing the cost of communication and travelling along with increasing employee satisfaction and accessibility to information.

8.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Explore Discussion Forum.

- Define online messaging services.
- Explore scheduler and to do list tools.

8.3 BRIEF OVERVIEW OF MESSAGING SERVICES

Some of the popular messaging and collaboration services are briefly discussed here under to help you know them more closely to find the most suitable for your business.

G Suite-

It is a good web communication tool that can be used for collaborating with the teams of professionals but also for messaging instantly. It is one of the communication apps introduced by Google for especially for corporate world. It can be used by anyone having an account with Google. The users of this collaboration service can enjoy the instant messaging and email facilities along with other provided by Google. While collaborating with your team in real-time it allows you to share everything you want from screen of your desktop to your whiteboard presentations documents and files etc. you can also enjoy your own domain Gmail address, better security options, live 24/7 customer support, management of mobile devices and strong administration control along with basic benefits just by creating a G Business account. You can also perfectly integrate the reliability and power of Google while using G Suite.

ezTalks Meetings-

The increasing needs of communication in business have introduced various types of messaging and collaboration services for the corporate world. ezTalks Meetings is one of such services can help you to connect with your clients and employees by sending them messages along with collaborating with them online to solve same problem or work on same project, regardless of their location in this world. Some of the exclusive features of this service include scheduling meetings online, sharing screens, instant messaging, record and playback meeting proceedings along with making it easy for you to collaborate with your teams. You can get crystal clear quality of audio files and HD quality videos by using it with various types of devices including iPhone, iPad, Windows, Mac and Android phones.

Workflow Max-

It is another web communication software that offers messaging and collaboration services to the business world to improve the collaboration between their teams. Basically, it provides comprehensive communication solution to the businesses to allow them access anything from anywhere. In this way it is a good tool for the businesses having offices at different locations all over the world. Along with messaging and collaborating with your teams it also allows you to track the progress of your work, invoicing the work completed and monitor several other important things required to achieve the goal. It can also help in managing a project, tracking the time, managing accounts at back-end, status and financial reporting and generating quotes

etc. Initially you can use its free version but if you require more features then you can opt for its paid version also.

Trello-

It can be very difficult for a person to organize various projects without being present there. But it cannot be possible unless you are using effective services for messaging and collaboration. You can use Trello on various operating systems including iOS, Android and web for effective organization of your projects. It can be used flexibly for managing various types of projects through its mobile and web versions. You can also use it for chatting with your friends along with organizing your projects. Its free version allows you to create boards and lists for your business but if you want to add more features to its services then you have to use its premium version.

Slack-

It is one of the most popular collaboration tools used these days that also allow instant messaging to communicate instantly with your friends or the participants of your choice. It can be used on various platforms including Windows, Web, Android, Windows phone and iOS to provide you security, excellent interface and free services. Millions of people all over the world are growing their business fast after using Slack for instant messaging and collaboration with their remotely placed teams. It can be used to send files and messages directly to different groups of people or individuals regardless of their location in this world. Along with it this online service also allows calling through video conferencing which makes it better than various other online collaboration tools. It is design to be compatible with Dropbox and Google Drive.

Thus, after going through the reviews of 5 top messaging and collaboration services it can be easier for you to choose the best one for your business. You should compare their features and needs of your business while choosing one for it.

8.4 ONLINE DISCUSSION FORUM

Online forums can be used for many purposes, such as helping students to review material prior to an assignment or exam, engaging students in discussion of course material before coming to class, and reflecting on material that they have read or worked with outside of class.

Why and how did you use an online discussion forum?

I used a discussion forum to offer students a structured opportunity to interact with each other online around exam time. For the purpose of reviewing for the exam students posted questions they had about course material and other students answered them in the online forum. I also agreed to weigh in on student comments after each question had received at least one response from another student. I had a few reasons for my decision to use the forum in this way. First, I knew that I would not have enough time to answer all of my students' questions around exam

time as I was preparing for my own qualifying exams during the same semester. I was also fairly certain that my students could be effective in teaching each other and answering one another's questions; I wanted them to depend more on each other and less on me in the time leading up to the exam. By using an online discussion, I hoped to encourage collaboration and to give students a structured opportunity to work together to find the answers to questions that they were having difficulty with. This activity would also have another desired benefit; it would help students to practice writing and explaining concepts prior to doing so on the exam.

Reddit-

Reddit is lovingly known as the front page of the internet. At its simplest Reddit is really just a good old-fashioned discussion forum. It's a place where millions of people go every day to discuss politics, post memes and share every odd thought that's ever occurred to them in the shower. The site is divided into subreddits, with each user choosing which subreddits they would like to subscribe to according to interest like this online casino discussion. This is a bustling community of entrepreneurs who are intent on helping each other find the best solutions. Topics are organized into threads that anyone can start. The essence of Reddit is the upvote system. Users can either upvote or downvote a post according to their opinion of it.

Quora-

Even if you've been living under a rock, chances are you've heard of Quora. Founded in June 2009 by Adam D'Angelo and Charlie Cheever, Quora is a Q&A site where anyone can ask a question and get answers. Quora allows users to create personalized homepages that feature the things they want to learn more about by following topics, questions, people and boards. Also, rather than getting one answer the site allows all users to weigh in on what they think the best answers are. The genius behind Quora is that users can upvote answers that are the best.

Stack Overflow-

Stack Overflow is a platform where students and professionals post queries and answer questions about programming. It is a platform to showcase their knowledge. It is a free community where programmers write quality answers that help other users. Based on the quality of answers, the people who have answered them gain popularity when other users have upvoted the said answers.

XDA-Developers-

It is a community of several million Android and Windows Phone developers who use the XDA website and forums to discuss OS versions, specific devices and customization. At XDA you can find solutions for your problems and get the most out of your smartphone device, Android particularly. The best part is you don't need to be a programmer or specially-abled personnel to be a developer at XDA.

GameSpot-

GameSpot is a video gaming website that provides news, reviews, previews, downloads, and other information on video games. The site reviews game both popular and small on every platform. GameSpot is used by 26m gamers worldwide, who contribute content and network with other gamers through the website.

Final Thoughts-

Forum and chat websites are probably one of the oldest forms of community on the internet. These forums are doing well in their respective niches, raking the owners millions of dollars in revenue on annual bases. Most importantly helping the end user by giving information which they seek.

8.5 SHARED CALENDAR/SCHEDULER/OPEN-SOURCE TOOLS OF TO-DO LIST

It's hard to remember everything when there's too much to do at work or in everyday life. Some still prefer to put to-dos and ideas on paper, but technologies offer a better way to handle forgetfulness. Apps for mobile devices, PCs and the Web remind you when something needs to get done, help you share your ideas and collaborate with others to accomplish tasks sooner. Here's our list of the best to-do list apps that will prevent you from forgetting important things and add fun to your daily routine.

Wunderlist

One of the most popular to-do list apps, Wunderlist provides an easy daily planning for work tasks, household routine, and movies to watch – literally everything you might forget. Reminders and due dates will help you avoid missing deadlines and failing to get important tasks done. Hashtags and folders simplify organization of a work process. Share your to-dos with colleagues, friends or family; comment the items and add notes to capture your ideas. The app is available for the widest range of devices: iPhone, iPad, Mac, Android, Windows, Kindle Fire and the Web.

Any.do

Another simple tool that helps you remembers every task. Reminders, systematization and chats are available – like in many other similar apps. The specific feature is Any.do Assistant that automatically reviews your tasks and suggests the ones that it can do for you. The authors declare that “smart robots and diligent humans will help you accomplish your tasks.” In the paid version, collaboration, location-based reminders and unlimited attachments are offered additionally. The app can be accessed through iPhone, iPad, Android phones and tablets, Web, Chrome and Mac.

Todoist

Available for almost any platform, Todoist is considered one of the best to-do list apps for work and everyday life. It offers access to your task lists from anywhere. You can share your tasks with friends, family or colleagues to get more done. Breakdown into subtasks, reminders, comments and attachments are available, as in many other apps. The fun feature is Karma that allows you to track productivity and visualize the dynamics of your achievements.

TickTick

The app offers task lists with subtasks, deadlines, reminders and attachments. The free basic version has limited number of lists, tasks and users. Apart from unlimited tasks and bigger user count, the Pro version includes calendar view, task filters, Siri integration and some other advanced options. This tool might be one of the best to-do list apps for teams, as it allows sharing lists and assigning tasks to colleagues.

Tasks.org

Back then, there was an open-source to-do list app named Astrid, which was purchased and then shut down by Yahoo. The source code was still available, so user Alex decided to clone the old tool for those who were missing it, and built Tasks. The app has major Astrid features and more: task priorities, categories and tags, reminders of due and overdue tasks, synchronization with Google Tasks and customizable color schemes. Additional plugins and extensions are available as an in-app purchase.

One List

Those who hate the minimalistic (some would rather call it depressive) color schemes of most to-do lists probably remember the Clear iOS app. It had stunning colorful interfaces, but now it seems to be abandoned by the developer. One List for iOS is one of the possible replacements: it has bright task lists with customizable themes and allows color-coded prioritizing, setting due dates and configuring reminders. “One list to rule them all,” as the developer promises.

Suru

For many of us, a to-do list has to be attractive or we’ll never open it. Folks at Esoteric Development, the authors of Suru, definitely know that. The beautiful interface with seven color palettes is not the only advantage: this iOS app allows to break down tasks into subtasks, prioritize, structure and share your projects, and to export task lists into PDF. You can add descriptions and photos to your to-dos so nothing slips out of your mind.

Google Keep

This note and to-do list tool for Android and iOS is a convenient way to capture tasks and ideas, collaborate with others, plan projects or events. The app is available from almost any device and offers task lists, tagging and reminders (including location-based ones). Add photos to your

notes to avoid long verbal descriptions. What's more, instead of typing your notes, you can just record a voice memo and Google Keep will transcribe it.

Google Tasks

A simple Google Tasks manager, available for iOS and Android. It easily synchronizes with Google Calendar and Gmail, which helps you back up important tasks and access your to-do lists from anywhere. Break down tasks into subtasks, set up recurring tasks and create lists. Get reminded at the right time and place by setting up geo-reminders, like for example "remind me to take out the trash when I get home."

8.6 APPLICATIONS OF GOOGLE CALENDAR

Google Calendar is the time management and scheduling tool created by Google. It allows you to make appointments, organize your daily tasks, and more. The time management tool works best for people who need to simplify and plan their busy schedule. You can schedule Google Hangout calls with a click of a button while scheduling a remote meeting. My personal calendar is currently being used to help me coordinate meetings with vendors and highlight payment schedules for my upcoming wedding. So, it can definitely be used to plan some non-work-related stuff, too.

You can type either "what's my Google calendar" or "what is google calendar" to have a full view of your upcoming events.

Looking to synchronize all your calendars in Google Calendar? Doing this will allow you to see all of your events in one calendar so you can get a clear picture of what your schedule is like. So if you have both a personal and work calendar, you can synchronize the two to view it all in one. Steps below (Open Google Calendar)-

- a) Click the "Settings menu" gear, then "Settings"
- b) Scroll to "Import & Export"
- c) Export your calendar
- d) Then head into your main calendar
- e) Click the "Settings menu" gear, then "Settings"
- f) Scroll to "Import & Export"
- g) And import your calendar

Note- Get the official Google Calendar app for your Android phone and tablet to save time and make the most of every day.

8.7 APPLICATIONS OF GOOGLE MEET (HOW TO USE?)

Google is making enterprise-grade video conferencing available to everyone. Now, anyone with a Google Account can create an online meeting with up to 100 participants and meet for up to 60 minutes per meeting. Businesses, schools, and other organizations can take advantage

of advanced features, including meetings with up to 250 internal or external participants and live streaming to up to 100,000 viewers within a domain.

How to use Google Meet?

It's free!

To sign up for the free version of Google Meet, go to the Google Meet page. Enter your name, email, country and primary use for Google Meet (personal, business, education or government). Agree to Google's terms of service, and hit Submit. Once you sign up, here's how to use the free version of Google Meet:

- a) Go to meet.google.com (or, open the app on iOS or Android, or start a meeting from Google Calendar).
- b) Click Start new meeting, or enter your meeting code.
- c) Choose the Google account you want to use.
- d) Click Join meeting. You'll have the ability to add others to your meeting, too; And that's it! Happy video chatting.

8.8 POINTS TO REMEMBER

- The evolution of various messaging and collaboration services is one of the changes experienced by corporate world during last few years.
- Online forums can be used for many purposes, such as helping students to review material prior to an assignment or exam, engaging students in discussion of course material before coming to class, and reflecting on material that they have read or worked with outside of class.
- Google Calendar is the time management and scheduling tool created by Google. It allows you to make appointments, organize your daily tasks, and more.
- Google is making enterprise-grade video conferencing available to everyone. Now, anyone with a Google Account can create an online meeting with up to 100 participants and meet for up to 60 minutes per meeting.

8.9 GLOSSARY

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8.10 CHECK YOUR PROGRESS

Descriptive Type Questions-

- a) Explain various messaging and collaboration services.
- b) What is the use of Online Discussion Forum? Explain.
- c) How online meeting tools are useful? Explain.
- d) Define the role of scheduler?

- e) Why the to-do list tools are useful? Explain.

8.11 BIBLIOGRAPHY/ REFERENCES

- Susan Fenner (ed.), Complete Office Handbook: The Definitive Reference for Today's Electronic Office, 2nd edition. Random House, 1996. ISBN 0-679-77038-0.
- Pranav Mukul (25 July 2016). "DigiLocker initiative records a repository of 24.13 lakh docs from 20.13 lakh users". The Indian Express. Archived from the original on 14 July 2017. Retrieved 10 June 2017.
- <https://www.varonis.com/blog/secure-file-sharing/>
- <https://www.eztalks.com/unified-communications/5-messaging-and-collaboration-services.html>
- <https://www.actitime.com/software-collections/to-do-list/>
- <https://www.google.com/calendar/about/>

8.12 SUGGESTED READINGS

- https://en.wikipedia.org/wiki/Google_Photos
- <https://www.varonis.com/blog/secure-file-sharing/>.
- <https://www.eztalks.com/unified-communications/5-messaging-and-collaboration-services.html>

UNIT- 9

DATA SECURITY

9.1	INTRODUCTION
9.2	OBJECTIVES
9.3	DATA SECURITY- AN OVERVIEW
9.4	TYPES OF DATA SECURITY CONTROL
9.5	DATA SECURITY TECHNOLOGIES
9.6	PROTECTING YOUR COMPANY’S DATA
9.7	A SECURITY CHECKLIST
9.8	CHALLENGES AND ISSUES
9.9	POINTS TO REMEMBER
9.10	GLOSSARY
9.11	CHECK YOUR PROGRESS
9.12	BIBLIOGRAPHY/ REFERENCES
9.13	SUGGESTED READINGS

9.1 INTRODUCTION

Computers and other digital devices have become essential to business and commerce; they have also increasingly become a target for attacks. In order for a company or an individual to use a computing device with confidence, they must first be assured that the device is not compromised in any way and that all communications will be secure. In this chapter, we will review the fundamental concepts of information systems security and discuss some of the measures that can be taken to mitigate security threats. We will begin with an overview focusing on how organizations can stay secure. Several different measures that a company can take to improve security will be discussed. We will then follow up by reviewing security precautions that individuals can take in order to secure their personal computing environment.

When protecting information, we want to be able to restrict access to those who are allowed to see it; everyone else should be disallowed from learning anything about its contents. This is the essence of confidentiality.

9.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Define the importance of Data Security
- Explore Data Security in India.
- Types of data security.
- Know the challenges of data security in India.

9.3 DATA SECURITY- AN OVERVIEW

Data security is both the practice and the technology of protecting valuable and sensitive company's and customer's data, such as personal or financial information. Think about the valuable data your company collects, stores, and manages. Information like financial or payment related data, intellectual property, and sensitive personal information about your employees and customers are a goldmine for the hackers. Data security, the processes and technologies you should be using to safeguard that data is a crucial element in protecting your company's reputation and fiscal health.

Importance Of Data Security-

The data that your company creates collects, stores, and exchanges is a valuable asset. Safeguarding it from corruption and unauthorized access by internal or external people protects your company from financial loss, reputation damage, consumer confidence disintegration, and brand erosion. Furthermore, government and industry regulation around data security make it imperative that your company achieve and maintain compliance with these rules wherever you do business.

9.4 TYPES OF DATA SECURITY CONTROL

Understanding the importance of data security will help you formulate a plan to protect that data. There are many data security technologies and processes that can support your company's productivity while safeguarding data. Types of data security controls include:

Authentication-

Authentication, along with authorization, is one of the recommended ways to boost data security and protect against data breaches. Authentication technology verifies if a user's credentials match those stored in your database. Today's standard authentication processes include using a combination of ways to identify an authorized user, such as passwords, PINS, security tokens, a swipe card, or biometrics. Authentication is made easier through single sign-

on technology, which, with one security token, allows an authenticated user access to multiple systems, platforms, and applications. Authorization technology determines what an authenticated user are allowed to do or see on your website or server.

Access control-

Authentication and authorization happen through the process called access control. Access control systems can include: (i) Discretionary access control (the least restrictive), which allows access to resources based on the identity of users or groups, (ii) Role-based access control, which assigns access based on organizational role and allows users access only to specific information, (iii) And mandatory access control, which allows a system administrator to strictly control access to all information.

Backups and recovery-

Prioritizing data security also requires a plan for how to access your company's and client's data in the event of system failure, disaster, data corruption, or breach. Doing regular data backups is an important activity to help with that access. A data backup entails making a copy of your data and storing it on a separate system or medium such as a tape, disk, or in the cloud. You can then recover lost data by using your backup.

Encryption-

Data encryption software effectively enhances data security by using an algorithm (called a cipher) and an encryption key to turn normal text into encrypted ciphertext. To an unauthorized person, the cipher data will be unreadable. That data can then be decrypted only by a user with an authorized key. Encryption is used to protect the data that you store (called data at rest) and data exchanged between databases, mobile devices, and the cloud (called data in transit). Your encryption keys must be securely managed, including protecting your critical management systems, managing a secure, off-site encryption backup, and restricting access.

Data masking-

Data masking software hides data by obscuring letters and numbers with proxy characters. The data is still there, behind the masking. The software changes the data back to its original form only when an authorized user receives that data.

Tokenization-

Tokenization substitutes sensitive data with random characters that are not algorithmically reversible. The relationship between the data and its token values is stored in a protected database lookup table, rather than being generated by and decrypted by a mathematical algorithm (as in the case of encryption). The token representing the real data is used across

different systems as a replacement, while the actual data is stored on a separate, secure platform.

Deletions and erasure-

When electronic data is no longer needed and must be permanently cleared from the system, erasure can overwrite that data so that it is irretrievable. Erasure is different from deletion, which is a process that simply hides data in such a way that makes it easy to retrieve.

9.5 DATA SECURITY TECHNOLOGIES

The following are data security technologies used to prevent security breaches, reduce risk and sustain protections.

Data Auditing-

The question isn't if a security breach occurs, but when a security breach will occur. When forensics gets involved in investigating the root cause of a breach, having a data auditing solution in place to capture and report on access control changes to data, who had access to sensitive data, when it was accessed, file path, etc. are vital to the investigation process. Alternatively, with proper data auditing solutions, IT administrators can gain the visibility necessary to prevent unauthorized changes and potential breaches.

Data Real-Time Alerts-

Typically, it takes companies several months (or 206 days) to discover a breach. Companies often find out about breaches through their customers or third parties instead of their own IT departments. By monitoring data activity and suspicious behavior in real-time, you can discover more quickly security breaches that lead to accidental destruction, loss, alteration, unauthorized disclosure of, or access to personal data.

Data Risk Assessment-

Data risk assessments help companies identify their most overexposed sensitive data and offer reliable and repeatable steps to prioritize and fix serious security risks. The process starts with identifying sensitive data accessed via global groups, stale data, and/or inconsistent permissions. Risk assessments summarize important findings, expose data vulnerabilities, provide a detailed explanation of each vulnerability, and include prioritized remediation recommendations.

Data Minimization-

The last decade of IT management has seen a shift in the perception of data. Previously, having more data was almost always better than less. You could never be sure ahead of time what you might want to do with it. Today, data is a liability. The threat of a reputation-destroying data breach, loss in the millions or stiff regulatory fines all reinforce the thought that collecting

anything beyond the minimum amount of sensitive data is extremely dangerous. To that end: follow data minimization best practices and review all data collection needs and procedures from a business standpoint.

Purge Stale Data-

Data that is not on your network is data that can't be compromised. Put in systems that can track file access and automatically archive unused files. In the modern age of yearly acquisitions, reorganizations and "synergistic relocations," it's quite likely that networks of any significant size have multiple forgotten servers that are kept around for no good reason.

9.6 PROTECTING YOUR COMPANY'S DATA

In recent years, data protection has become a must for all companies, no matter their size. While big organizations suffering data breaches such as Facebook, Orbitz or Quora are the ones making headlines, a more troubling reality awaits small and mid-sized companies: 60% of them go out of business within six months of a cyber-attack, according to the National Cyber Security Alliance. Additionally, the rise of data protection regulations around the world, has added an extra layer of urgency to the need for all companies to implement concrete data protection measures. Big companies are, in many cases, way ahead of the game, having already built their cyber security policies and tested them over the course of the last few years. Let's have a look at some of their most successful strategies:

Write up a strategy-

Rather than having a vague idea of policy and procedures, businesses of all sizes should have a formal IT security strategy that's as detailed and exhaustive as possible. It's imperative that it not only lays out how to protect data and resources, but what to do should things go wrong. An incident-response strategy ensures you'll be a step ahead, rather than making any rash heat-of-the-moment reactions that might make things worse. Keep it updated and close to hand too; there's no point putting in all that effort writing it up only for the document to collect dust in a drawer somewhere.

Protect against malware-

Ward off data threats by securing your PCs and network against malware. Malicious software that can cause massive amounts of data damage, malware can swarm on unprotected machines without you even knowing about it. It's essential that you protect yourself from malware through the following:

- Apply the firewall: While not enough on its own, your router's on-board firewall provides the first line of defence, so turn it on.

- PC protection: Sophisticated security software protects without compromising on the performance of your computer or network. Look for protection that can deal with identity theft, suspect websites and hacking in one fell swoop.
- Keep emails clean: Antispam software protects against unwanted emails, which can create risks and distractions for employees. Stop them in their tracks with the necessary precautions.

Keep your wireless network secure-

If you have a wireless network, then beware: hackers are waiting to pounce on it without warning. An encryption key may flummox those who aren't especially tech savvy, but to hackers, it's be a breeze to bypass. Strengthen your router by using the strongest encryption setting you can to protect your business, and turn off the broadcasting function to make your network invisible. As far as hackers are concerned, they can't hack what they can't actually see.

Safeguard passwords-

Even something as simple as a password can be optimised to fortify your data. They might be a nuisance to remember, but the more complex your passwords, the more protection you can provide. Make your passwords at least eight characters long, and embed numbers and other non-standard characters within them, so they can't be easily guessed. Changing them frequently can also help – as can employing credentials which aren't words, but combinations of seemingly random letters, numbers and special characters. Here's where passwords managers really come into their own, meaning your employees don't have to worry about remembering them and won't risk writing them down.

Create a plan for personal devices-

More common in small-to-medium sized businesses make sure you're staying abreast of the security risks associated with employees bringing in and using their own devices. Create a plan for the practice in order to provide some protection against legal repercussions and mobile system costs. A clear, comprehensive policy covering pertinent data deletion, location tracking, and Internet monitoring issues can be very valuable. Additionally, businesses should look to make proper provision for employees who work remotely or use their own devices as part of their roles. While these practices can increase productivity and reduce overheads, they can also introduce new security concerns if not properly managed.

Set up automatic software updates-

Hackers love to scan a network or site to see which version of software it's running on to make it easier for them to exploit the vulnerabilities of older versions. Updating device security settings, operating systems and other software to their latest versions can prevent this from

happening. Set any patches and improvements to automatically update in the background to further safeguard against potential threats.

Conduct background checks-

Be extra vigilant with regards to hiring new employees; safeguarding against internal threats plays a key role in effective cyber security. Look into their background and give yourself an idea of what kind of person they are. Additionally, be mindful of changes in the character of existing employees, as this could be indicative of other issues.

Dispose of data properly-

Having the appropriate measures in place to dispose of data which is no longer required is a critical factor in reducing the risk of a security breach. Ensuring that retired and reused devices and storage media have had their contents properly removed will ensure that confidential company data can't be retrieved further down the line – and won't fall into the wrong hands. Remember; Reinstalling your operating system, formatting your hard drive or deleting specific files and folders doesn't ensure your data is gone. In fact, in most cases your data is still completely accessible with freely-available tools. Ensure your IT disposal partner is using a tool that overwrites your data multiple times ensuring your data is unrecoverable. Businesses should look to implement a sound data destruction policy which outlines the protocol for each use case (computers, phones, external hard drives and flash memory) – whether these devices are being redistributed within the business or discarded at the end of their lifecycles.

Use the cloud-

If your business doesn't have the time or expertise to stay on top of all the security issues updates requiring attention, then it might be worth looking at a cloud service provider instead. A reputable cloud provider will be able to store data, maintain software patches and implement security. While not likely to be suitable for enterprise-level organisations, this can be a good approach for small businesses looking to provide themselves with a degree of protection.

Educate your employees-

Making sure everyone in your business understands company security policy is important. Whether you opt to do it during onboarding or conduct bi-annual refresher courses, it's worth carrying out – just make sure everyone is heeding the practices, throughout the entire company.

9.7 A SECURITY CHECKLIST

According to the National Cyber Security Alliance, 83% of small businesses do not have a formal cyber security plan (2012). Unless businesses take the necessary precautions, they will be more vulnerable to data breaches placing their employees, customers and business at risk. The financial liability associated with a breach can temporarily or permanently disrupt business

operations. By having a plan, you will be less vulnerable and more resilient. Below is a list of basic considerations.

[1] Activate firewalls and install anti-virus, anti-malware and anti-spyware software-Your Internet service provider may provide free software that you can download.

[2] Virus software should be updated and run weekly, at a minimum.

[3] Update software immediately- Security breaches may occur through vulnerabilities in software. Hackers learn about the security flaws that are patched with an update and attempt to exploit those vulnerabilities with companies that haven't updated.

[4] Keep software updated and stay informed about the latest security features and vulnerabilities.

[5] Create strong passwords- Weak passwords are the easiest way to infiltrate a computer network. Do all employees create strong passwords that are long and unique? Create a firm policy for employees and managers that includes the following recommendations:

- Do not use the same user IDs and passwords for work and home accounts. This way the company will not be at risk if an employee's personal accounts are breached.
- Select passwords that are unique, ideally random, 16 characters or longer with letters, numbers and punctuation. There are online tools that can help with password generation.
- Require password changes at least 6-12 times per year.
- Prohibit posting passwords on computers and work spaces.
- Provide your team with a multi-user password manager tool if needed.

[6] Cancel accounts upon employee terminations- Any time an employee leaves the company, either voluntarily or involuntarily, immediately cancel their account.

[7] Restrict access- Define what data your employees need access to. Restrict access to any area that is not necessary for the job.

[8] Encrypt confidential information- Use encryption software to protect confidential information on laptops, tablets, backups and other media.

[9] Reduce spam and phishing vulnerabilities- Scammers use emails that appear to be from legitimate sources to bait unsuspecting users into providing personal information or clicking on links containing malicious software. Ways to reduce these issues:

- Adjust the protection level of your spam filter to reduce the amount of spam emails that are deposited to inboxes. Employees can assist with this effort by marking messages as spam or forwarding messages to the spam filter, whatever applies.
- Train employees how to identify phishing emails, so that they are less likely to click on links to malicious software and provide sensitive personal and company information to scammers.

- Have a policy that employees should immediately report any suspicious email that they've responded to or link that they've clicked on, so that you can assess if there are any security concerns.

[10] Establish two-factor authentication- on your web logins and online accounts. This security feature requires two forms of verification to gain access to accounts i.e. a password plus a code that is texted to a smartphone. It stops hackers from gaining access to an account when a password is compromised. Perform a secure wipe of all devices and copiers before they are recycled. Often data is retrievable even after it is deleted. A wipe overwrites the info several times making it difficult to recover.

[11] Limit login attempts on your website: - If someone can login to any public part of your website, ensure there is a login limiter i.e. WordPress has a Limit Login Attempts plugin. Hackers use software to attempt thousands to millions of user ids and password combinations to hack a company's website. Utilize software that allows you to set an account lockout threshold. When an IP address fails to input a correct user id and password for a specific number of attempts, the system will lock the user out.

[12] Adopt a backup plan for your files: The continuity of your business hinges on your resilience in the event of a disaster or your data being compromised by ransomware. Some aspects to consider in your policy:

- What storage medium(s) will you use to back up your data i.e. local device or cloud?
- How many backups do you need?
- How often do you need to back up? Frequency depends on how often you make changes to websites and account data. Ideally, back up your data more frequently than needed.
- Where will you store local drives?

[13] Secure your Wi-Fi networks with encryption and passwords- Securing Wi-Fi networks also mean keeping a separate network for guest access, using a different router connection whenever feasible. Change the passwords to Wi-Fi accounts regularly.

[14] Establish security policies for employees who work remotely. Your level of security may be impacted by an employee's security practices outside of the office. Work cell phones and laptops must be password protected and never left unattended in public places including vehicles. Use only a private, secure Wi-Fi and a Virtual Private Network.

[15] Set firm policies of what apps can be downloaded- Have a policy about what apps employees can install on phones, tablets and computers. Employees should never jail break their phones or tablets to download apps because this bypasses security features provided by the operating system. They should be prohibited from downloading applications and visiting websites not related to the job. This will reduce unnecessary risks.

[16] Consider vulnerabilities related to contractors: - Contractor access to your company's network can be vulnerability if policies aren't in place. If you employ third party contractors who must access your computer network:

- Restrict access to only the data that they will need.
- Require them to adopt the same security policies as employees where applicable.
- When their contract is complete, immediately terminate their user ids and passwords.

[17] Research local computer support companies who can help: - If you get into a bind, you want to have a contact for a trusted specialist who can help you immediately. Establish connections before there are problems.

[18] Screen companies that you hire to maintain your server- If you hire someone to maintain your server, did you research the best companies and seek referrals from other businesses? How do they protect your data against malware and natural disasters? What are their security policies?

[19] If a device is infected with malware, immediately remove it from the network so that it doesn't affect other computers. Turn off the device and change online and network passwords where possible.

9.8 CHALLENGES AND ISSUES

Some of the key security challenges and issues are discussed here, As-

- Vulnerability to fake data generation
- Potential presence of untrusted mappers
- Troubles of cryptographic protection
- Possibility of sensitive information mining
- Struggles of granular access control
- Data provenance difficulties
- High speed of NoSQL databases' evolution and lack of security focus
- Absent security audits

[1] Vulnerability to fake data generation

Before proceeding to all the operational security challenges of big data, we should mention the concerns of fake data generation. To deliberately undermine the quality of your big data analysis, cybercriminals can fabricate data and 'pour' it into your data lake. For instance, if your manufacturing company uses sensor data to detect malfunctioning production processes, cybercriminals can penetrate your system and make your sensors show fake results, say, wrong temperatures. This way, you can fail to notice alarming trends and miss the opportunity to solve problems before serious damage is caused. Such challenges can be solved through applying fraud detection approach.

[2] Potential presence of untrusted mappers

Once your big data is collected, it undergoes parallel processing. One of the methods used here is MapReduce paradigm. When the data is split into numerous bulks, a mapper processes them and allocates to particular storage options. If an outsider has access to your mappers' code, they can change the settings of the existing mappers or add 'alien' ones. This way, your data processing can be effectively ruined: cybercriminals can make mappers produce inadequate lists of key/value pairs. Which is why the results brought up by the Reduce process will be faulty. Besides, outsiders can get access to sensitive information.

The problem here is that getting such access may not be too difficult since generally big data technologies don't provide an additional security layer to protect data. They usually tend to rely on perimeter security systems. But if those are faulty, your big data becomes a low hanging fruit.

[3] Troubles of cryptographic protection

Although encryption is a well-known way of protecting sensitive information, it is further on our list of big data security issues. Despite the possibility to encrypt big data and the essentiality of doing so, this security measure is often ignored. Sensitive data is generally stored in the cloud without any encrypted protection. And the reason for acting so recklessly is simple: *constant encryptions and decryptions of huge data chunks slow things down*, which entails the loss of big data's initial advantage – speed.

[4] Possibility of sensitive information mining

Perimeter-based security is typically used for big data protection. It means that all 'points of entry and exit' are secured. But what IT specialists do inside your system remains a mystery. Such a lack of control within your big data solution may let your corrupt IT specialists or evil business rivals mine unprotected data and sell it for their own benefit. Your company, in its turn, can incur huge losses, if such information is connected with new product/service launch, company's financial operations or users' personal information. Here, data can be better protected by adding extra perimeters. Also, your system's security could benefit from anonymization. If somebody gets personal data of your users with absent names, addresses and telephones, they can do practically no harm.

[5] Struggles of granular access control

Sometimes, data items fall under restrictions and practically no users can see the secret info in them, like, personal information in medical records (name, email, blood sugar, etc.). But some parts of such items (free of 'harsh' restrictions) could theoretically be helpful for users with no access to the secret parts, say, for medical researchers. Nevertheless, all the useful contents are hidden from them. And this is where talk of granular access starts. Using that, people can access needed data sets but can view only the info they are allowed to see.

The trick is that in big data such access is difficult to grant and control simply because big data technologies aren't initially designed to do so. Generally, as a way out, the parts of needed data sets, that users have right to see, are copied to a separate big data warehouse and provided to particular user groups as a new 'whole'. For a medical research, for instance, only the medical info (without the names, addresses and so on) gets copied. Though, the volumes of your big data grow even faster this way. Other complex solutions of granular access issues can also adversely affect the system's performance and maintenance.

[6] Data provenance difficulties

Data provenance or historical records about your data complicates matters even more. Since its job is to document the source of data and all manipulations performed with it, we can only image what a gigantic collection of metadata that can be. Big data isn't small in volume itself. And now picture that every data item it contains has detailed information about its origin and the ways it was influenced (which is difficult to get in the first place). For now, data provenance is a broad big data concern. From data security perspective, it is crucial because, unauthorized changes in metadata can lead you to the wrong data sets, which will make it difficult to find needed information. Untraceable data sources can be a huge impediment to finding the roots of security breaches and fake data generation cases.

[7] High speed of NoSQL databases' evolution and lack of security focus

This point may seem as a positive one, while it actually is a serious concern. Now NoSQL databases are a popular trend in big data science. And its popularity is exactly what causes problems. Technically, NoSQL databases are continuously being honed with new features. And just like we said in the beginning of this article, security is being mistreated and left in the background. It is universally hoped that the security of big data solutions will be provided externally. But rather often it is ignored even on that level.

[8] Absent security audits

Big data security audits help companies gain awareness of their security gaps. And although it is advised to perform them on a regular basis, this recommendation is rarely met in reality. Working with big data has enough challenges and concerns as it is, and an audit would only add to the list. Besides, the lack of time, resources, qualified personnel or clarity in business-side security requirements makes such audits even more unrealistic.

Few more burning issues about data security, as-

[i] Not knowing who uses what data and where it is?

You can't secure data without knowing in detail how it moves through your organisation's network. Begin by doing a thorough inventory of sensitive data (See fig 1). Then develop a "Sensitive Data Utilisation Map" documenting your findings. Also consider building a series

of diagrams to show where and how data moves through the system. All the parties involved should check these diagrams, and this process will itself raise awareness of both the value and the risk to sensitive data.

[ii] Treating all data equally

Business managers need to classify data according to its sensitivity and its worth to the organisation so they can correctly evaluate and fund different levels of protection. “Data Asset Valuation” is a very worthwhile ROI-type of activity. The goal is to correlate a variety of criteria, including regulatory compliance mandate, application utilisation, access frequency, update cost and competitive vulnerability to arrive at both a value for the data and a ratio for determining justifiable security costs.

[iii] Focusing solely on regulatory compliance concerns

Virtually all government and industry privacy and security regulations boil down to the most basic best practices of data security. So being able to pass a regulatory audit does not automatically ensure effective security. Instead of trying to protect your organisation's data assets by solely striving to meet individual regulatory requirements, focus on complying with security-centred processes, policies and people, reinforced by security solutions such as automated policy enforcement, encryption, role-based access and system auditing. In other words, do the right things instead of just the required things.

[iv] Keeping what you don't need

You can reduce the risk of retaining sensitive customer data by removing the electronic and paper data from all systems and files. However, just deleting files with infrequently accessed, highly sensitive data won't work - it would violate multiple data retention regulations not to mention annoying your marketing department. A better way is to look at the specific data retention and protection regulations governing each of the sensitive data elements that need protecting, working in conjunction with legal department and the data librarian who will usually know the relevant regulations.

[v] Security triage

We have to move beyond dealing with the crisis of the moment and focus on securing data holistically and consistently. And while it may be difficult to free up the time and the budget to institute a comprehensive data security plan, ultimately a unified approach will be far more effective than the fragmented practices present at too many companies, increasing security and saving both time and money.

Data-driven security cannot be an occasional event sparked by a crisis; it needs to be an integral part of the organisation's daily routine.

[vi] Outsourcing responsibility

Virtually all data protection and privacy regulations state that firms can't share the risk of compliance, which means that if your outsourcing partner fails to protect your company's data, your company is at fault and is liable for any associated penalties or legal actions that might arise from the exposure of that data. Laws concerning data privacy and security vary internationally. To lessen the chance of sensitive data being exposed deliberately or by mistake, you must ensure that the company you are partnering with offshore or domestic takes data security seriously and fully understands the regulations that affect your business.

[vii] Putting too much faith in risk assessments

The simplistic Yes/No questions that are part of the generic ISO 17799 and PCI requirements focus on whether a particular technology, policy or control is in place, and not how effective these controls can be against careless or malicious insiders or outsiders. Risk assessments tend to look at one item at a time, and do not offer a holistic view of the system. Each component may look secure, but risk may still occur at the interface points or the points of inconsistency across systems. Think holistically to secure a system, considering the flow of data through the entire system rather than testing individual points.

[viii] Settling For Less Than Real Security

Knowing what enterprise data protection technologies, policies and procedures are "reasonable" relative to peer organisations is useful information, but don't allow others' actions to determine your security plan and goals. Model your policies and processes after the best practices of the most secure organisations in your industry, rather than those used by the common denominator. Strive for excellence.

[ix] Fragmented processes and policies

Despite claims that protecting data assets is strategic to an enterprise, the scope of data protection projects is all too often either regulation or department-specific. Look at developing an enterprise-wide data protection strategy instead. The goal of the project is not to produce a report, but to build awareness and executive support for the treatment of sensitive data assets with technologies, policies and procedures that match with the regulations, the utilisation and the potential loss if the data assets were to be compromised.

[x] Retaining sensitive data without balancing risks against rewards

Retaining sensitive data can be very valuable for analytic, marketing and relationship purposes. The rewards can be very high, provided you can properly secure the data and reduce the risks of storing it.

Make sure that your organisation's risk reward ratio is balanced toward reward and the data is being used in a way that brings real benefits to your organisation. And if securely storing data is costing more than its value to your organisation, it's time to refine your data retention policy.

9.9 POINTS TO REMEMBER

- Data security is both the practice and the technology of protecting valuable and sensitive company and customer data, such as personal or financial information.
- Data security—the processes and technologies you should be using to safeguard that data is a crucial element in protecting your company’s reputation and fiscal health.
- Safeguarding it from corruption and unauthorized access by internal or external people protects your company from financial loss, reputation damage, consumer confidence disintegration, and brand erosion.
- Authentication technology verifies if a user’s credentials match those stored in your database.
- Tokenization substitutes sensitive data with random characters that are not algorithmically reversible. The relationship between the data and its token values is stored in a protected database lookup table, rather than being generated by and decrypted by a mathematical algorithm.
- Data masking software hides data by obscuring letters and numbers with proxy characters. The data is still there, behind the masking
- Data encryption software effectively enhances data security by using an algorithm (called a cipher) and an encryption key to turn normal text into encrypted ciphertext. To an unauthorized person, the cipher data will be unreadable
- A data backup entails making a copy of your data and storing it on a separate system or medium such as a tape, disk, or in the cloud. You can then recover lost data by using your backup.

9.10 GLOSSARY

- Authentication is the process of identifying a piece of information, the veracity of information provided.
- An attack is an action with malicious intention to interrupt the operations of a network or steal the data, etc.
- Antivirus software is a program or a set of programs that help prevent any malicious code, program from entering your computer or network.
- A Distributed Denial of Service is a Denial-of-Service technique that uses numerous hosts to perform the task.
- A computer worm is a standalone malware computer program that replicates itself in order to spread to other computers.

- Vulnerability is a weakness which can be exploited by a threat actor such as an attacker to perform unauthorized actions within a computer system.

9.11 CHECK YOUR PROGRESS

Descriptive Type Questions-

- What is Cryptography?
- What is the difference between Threat, Vulnerability and Risk?
- What is the use of Firewall?
- List the common types of cyber security attacks.
- Define data leakage?
- What is Distributed Denial of Service?

Objective Type Questions-

- Data security means protecting digital data those in a database from destructive forces and from the unwanted actions of unauthorized users such as cyber-attack. (True/False)
- A Firewall is a network security system that monitor and controls and outgoing network traffic. (True/False)
- A threat is a potential negative action facilitated by vulnerability that results in unwanted impact to a computer system. (True/False)
- Cryptography is a method of stealing information unwanted users (True/False)
- Antivirus software is a program or a set of programs that help steal any malicious code, program from entering your computer or network. (True/False)
-is the process of identifying a piece of information, the veracity of information provided.
- A computer is a standalone malware computer program that replicates itself in order to spread to other computers.

Answer (Objective Type Question)-

- | | | | |
|-----------|--------------------|----------|-----------|
| [a] True | [b] True | [c] True | [d] False |
| [e] False | [f] Authentication | [g] worm | |

9.12 BIBLIOGRAPHY/ REFERENCES

- <http://ierj.in/journal/index.php/ierj/article/view/1626/1546>
- <https://bus206.pressbooks.com/chapter/chapter-6-information-systems-security/>
- <https://looker.com/definitions/data-security>

- <https://www.microfocus.com/en-us/what-is/data-security#:~:text=Data%20security%20refers%20to%20the,across%20all%20applications%20and%20platforms>.
- <https://www.comparethecloud.net/articles/10-practical-tips-for-keeping-your-business-data-secure/>
- <https://www.itproportal.com/2008/04/18/10-most-common-data-security-issues-and-how-solve-them/>

9.13 SUGGESTED READINGS

- Hacking: The art of Exploitation by Jon Erickson
- The art of invisibility by Kevin Mitnick

UNIT- 10

E-BANKING

- 10.1 INTRODUCTION

- 10.2 OBJECTIVES

- 10.3 E-BANKING- AN OVERVIEW

- 10.4 INTERNET BANKING

- 10.5 HOME BANKING

- 10.6 MOBILE BANKING

- 10.7 VIRTUAL BANKING

- 10.8 E-PAYMENTS

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- 10.10 DIGITAL CASH AND DIGITAL TRANSCATION

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- 10.16 SUGGESTED READINGS

10.1 INTRODUCTION

E- Banking is a process of banking services and products through electronic channels such as telephone, internet, cell phones etc. today many people are moving towards e-banking as buy its use it become easy for customers to manage their account from a place and at any time and this charge very nominal cost. It is not wrong to say that e-banking is one of the most popular and latest technological wonder in field of banking which has given a banking sector a new dimension for growth. E-banking has helped the banking industry in several new ways but the

biggest advantage that it has imparted to this sector in developing countries especially country like INDIA is related to improving customer relations.

E-banking is the electronic banking process that provides the financial service for the individual client by means of Internet. The evolution of electronic banking (E-banking) started with the use of automatic teller machines (ATMs) and has included telephone banking, direct bill payment, electronic fund transfer and online banking. According to some, the future direction of E-banking is the acceptance of mobile telephone (WAP-enabled) banking and interactive-TV banking. However, it has been forecast by many that online banking will continue to be the most popular method for future electronic financial transactions. Electronic funds transfer (EFT), refers to the computer-based systems used to perform financial transaction electronically. The term is used for a number of different concepts including electronic payments and cardholder-initiated transactions, where a cardholder makes use of a payment card such as a credit card or debit card. Card-based EFT transactions are often covered by the ISO 8583 series of standards. In order for customers to use their banks online services they need to have a personal computer and Internet connection.

10.2 OBJECTIVES

After the successful completion of this unit, you will be able to-

- Define the importance of e-banking
- Explore online banking in India.
- Define the electronic payment system.
- Know the challenges of e-banking in India.

10.3 E-BANKING- AN OVERVIEW

In its very basic form, E-banking can mean the provision of information about a bank and its services via a home page on the World Wide Web (WWW). More sophisticated E-banking services provide customer access to accounts, the ability to move their money between different accounts, and making payments or applying for loans via e-Channels. In the context of E-banking, electronic delivery of services means a customer conducting transactions using online electronic channels such as the Internet. Many banks and other organizations are eager to use this channel to deliver their services because of its relatively lower delivery cost, higher sales and potential for offering greater convenience for customers. But this medium offers many more benefits, which will be discussed in the next section. A large number of organizations from within and outside the financial sector are currently offering E-banking which includes delivering services using Wireless Application Protocol (WAP) phones and Interactive Television (iTV).

In entire Indian banking system, Electronic Banking has turned emerged as an important part. The concept of e- banking is off to some extent latest origin in India. Traditional model of

banking i.e. branch based banking was widespread till 1990s, and after that non-branch banking services began. IT Act, 2000, was created by government of India with effect from the 17th October 2000. A Committee was laid down to study various aspects of Internet banking. The committee had paid enough consideration on three most important areas of Internet banking, Security issues, legal issues and regulatory issues. Recommendations and guiding principles of working committee was acknowledged by Reserve Bank of India and accordingly plans were issued to banks to employ internet banking in India.

E-banking is a popular modern technology that delivers the new and traditional banking products and services to the customers electronically. Any type of intelligent electronic devices such as, personal computer (PC), Personal Digital Assistant (PDA), Automated Teller Machine (ATM), kiosk or Touch Tone Telephone. But from among these the ATM card, Debit card, Credit card, online banking, phone banking, SMS banking etc. are most used for e-banking. In the developed countries e-banking has become an invaluable part of everyday life. Besides the developed world, the developing countries also come into contact with vast increase in e-banking such as; India.

Benefits of E-Banking-

Banking has witnessed many innovations in last 3 decade and one of the major among it is e-banking which was result of information and technological revolution. These IT revolutions changed the entire working of banking sector as e- banking gave birth to new type of financial services which was created by the intersection of tradition retail financial services with the internet. E-banking provides provision of performing basic banking services or transaction through web. These services include

- Checking and savings accounts
- Consumer loans and mortgage financing
- Credit and debit cards
- Private banking services

Introduction of e- banking made banking very convenient and time saving. Main focus of e-banking is to provide a customer with convenient and secure methods of doing online financial transactions like automatic deposits, automatic bill payments from their bank account, getting online loan and many more.

10.4 INTERNET BANKING

Online banking, also known as internet banking or web banking, is an electronic payment system that enables customers of a bank or other financial institutions to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services.

Some banks operate as a "direct bank" (or "virtual bank"), where they rely completely on internet banking. Internet banking software provides personal and corporate banking services offering features such as viewing account balances, obtaining statements, checking recent transactions, transferring money between accounts, and making payments.

Advantages of Internet Banking- The most prominent benefits provided by online banking include:

- Speed and efficiency
- Online bill payment
- Low overhead can mean high interest rates on deposit accounts
- Low overhead can mean low fees
- 24/7 account and service access

Disadvantages of internet Banking- There are some drawbacks to using online banks as well. Here are some of the downsides of working with an online bank:

- No relationship with personal banker
- Inconvenient to make deposits
- Technology issues
- Security issues
- Inefficient at complex transactions

10.5 HOME BANKING

Home banking is the practice of conducting banking transactions from home rather than at branch locations. Home banking generally refers to mobile banking, web banking, banking over the telephone, or banking by mail. The first experiments with online banking started in the early 1980s. However, it did not become popular until the rise of the Internet in the mid-1990s. Many Internet banks maintain few, if any, physical branches.

The increasing popularity of home banking has fundamentally changed the character of the banking industry. Many people can arrange their affairs so that they seldom need to visit a physical branch. Online-only banks have profited from this shift in the industry. The absence of brick-and-mortar locations allows many online banks to offer favorable interest rates, lower service charges, and other incentives for those willing to bank online.

Many of the limits on home banking revolve around initiating large transactions. Requiring a personal appearance reduces and even prevents some forms of fraud. Although there is an increasing trend toward offering more services online, many banks normally require that some transactions occur in person. For instance, applying for a personal or business loan often calls for an appearance at a branch office. Applying for a mortgage is another financial transaction where the applicant historically had to visit the bank at some point.

Advantages of Home Banking-

Saving time and reducing physical risks are the main benefits of home banking. Financial transactions can often be completed in minutes at home. At best, banking in person requires walking over to a small branch office in a convenient location, such as a grocery store. At worst, traditional banking demands a separate trip and waiting in a long line upon arrival. Home banking also eliminates the need to take physical risks, which are not limited to the coronavirus. Car accidents killed tens of thousands of Americans every year in the early 21st century. Furthermore, many people are afraid of being robbed at ATMs.

Disadvantages of Home Banking-

With the increased shift to online banking, new security threats have arisen. All online information, such as account numbers and recent transactions, is vulnerable to malicious hackers and other thieves. Commercial banks with online arms have put into place cyber security measures to prevent such thefts from occurring. Cyber security has become essential as the world becomes more reliant on computers than ever before.

10.6 MOBILE BANKING

Mobile banking has become immensely popular among customers as a suitable method for money transaction. Banks are assertively adopting this mode. It is playing a vital role in availing banking services in remote areas where placing branch or ATM booth is not economically feasible. Mobile banking is so far the easiest way of expanding banking coverage. But there is huge possibility of fraud in case of mobile banking as authentication & all type of transaction information is provided via mobile phone including pin. So mobile banking is not intended to be used for big transactions where ATM transactions are suitable because of its two layer authentication system. In this paper, a new system is introduced that provides ATM service without traditional booths but two layer authentications with a tiny OS independent device has been introduced named VATM. This paper discusses how this system works using a low cost device made of micro-controller & CDMA module for communicating with bank for authentication which is used as an alternate of Automated teller machine for providing two layer authentications. There are both advantages and disadvantages of mobile banking some of which have been highlighted below.

Advantages

- It utilizes the mobile connectivity of telecom operators and therefore does not require an internet connection.
- With mobile banking, users of mobile phones can perform several financial functions conveniently and securely from their mobile.
- You can check your account balance, review recent transaction, transfer funds, pay bills, locate ATMs, deposit cheques, manage investments, etc.

- Mobile banking is available round the clock 24/7/365, it is easy and convenient and an ideal choice for accessing financial services for most mobile phone owners in the rural areas.
- Mobile banking is said to be even more secure than online/internet banking.

Disadvantages

- Mobile banking users are at risk of receiving fake SMS messages and scams.
- The loss of a person's mobile device often means that criminals can gain access to your mobile banking PIN and other sensitive information.
- Modern mobile devices like Smartphone and tablets are better suited for mobile banking than old models of mobile phones and devices.
- Regular users of mobile banking over time can accumulate significant charges from their banks.

10.7 VIRTUAL BANKING

In the present scenario all clients related to the Banking and other sectors has to do some sort of transaction in their everyday life. Their transaction come through various location and time which includes Railway Station, Airports, Hospitals, Super Market etc., This is possible through Virtual Banking wherein the customers have no time restriction or do they need any electronic device to any transaction. It is a form of self-made support system. Innumerable number of clients / customers now prefers to carry on their banking related transactions in a simpler, cheaper way at all the time irrespective of the geographical locations. This is where this Virtual Banking comes as a boon to all the clients.

Virtual Banking (VB) is a strategy of distribution channels which are used to provide financial services and seeks to expand the concept of the traditional bank branch. This is done through the growth and development of technology. This is the latest and foremost form of present-day banking where most of the services are delivered "Virtually". Means the services are delivered through Web and there is almost 1 to 2% eventuality that customers require their physical presence at their Bank Branch. Virmati's iCBS Middleware is based on the integration of such technologies as the internet, mobile phone, and others which allow the client identification, and recording transactions carried out by clients, but electronically.

It is a comprehensive solution for banks/institutions to manage the full-fledged Branchless Delivery or Direct Banking, thru the internet or mobile or call-centre. It allows banks to expand in new markets, reduce operational issues, take banking services to the doorsteps of its existing & potential customers. In a nutshell, iCBS Middleware is a technology enabler or technology infrastructure to drive customer acquisition, servicing & thus extend branch-less bank's outreach. The different channels are utilised as an interface with a Host CBS - core banking solution through a custom-built middle-ware. It provides customers of the bank, real-time access to their relationships in the bank such as account inquiries, fund transfers, credit cards,

payments and remittances, where one can make payments to individuals or institutions and other general payments on-line.

ICBS Middleware e-Banking is based on n-tier architecture. It offers a high degree of scalability as it can be used in both small application server environments and in multi-server distributed processing environments. The solution is platform independent. It is highly secured and provides support for different authentication mechanisms.

Advantages

- **More advanced web technology:** Virtual banks usually employ more advanced web features and online tools for customers than traditional banks. As a result, they usually come with a more robust, comprehensive set of features.
- **Environmentally friendly:** There will be no paper statements, no errands driving to the bank and no additional space needs for staffing or housing of operations.
- **Higher interest rates and lower mortgage and loan rates:** Internet-only banks do not have the same level of expenses for staffing and space as conventional banks with physical locations. These savings in infrastructure and personnel costs can be passed onto the consumers in the forms of higher interest rates on savings or checking accounts and lower mortgage or loan rates. Some virtual banks are even able to offer no-fee, interest-bearing accounts without minimum balance requirements.
- **Completely free checking:** Nearly all internet-only banks provide checking accounts at no cost. Though most brick-and-mortar banks also offer no-fee checking, conditions usually are attached, such as the requirement of direct deposit.
- **Convenience and mobility:** Virtual banks do not close. Your account is accessible around the clock.

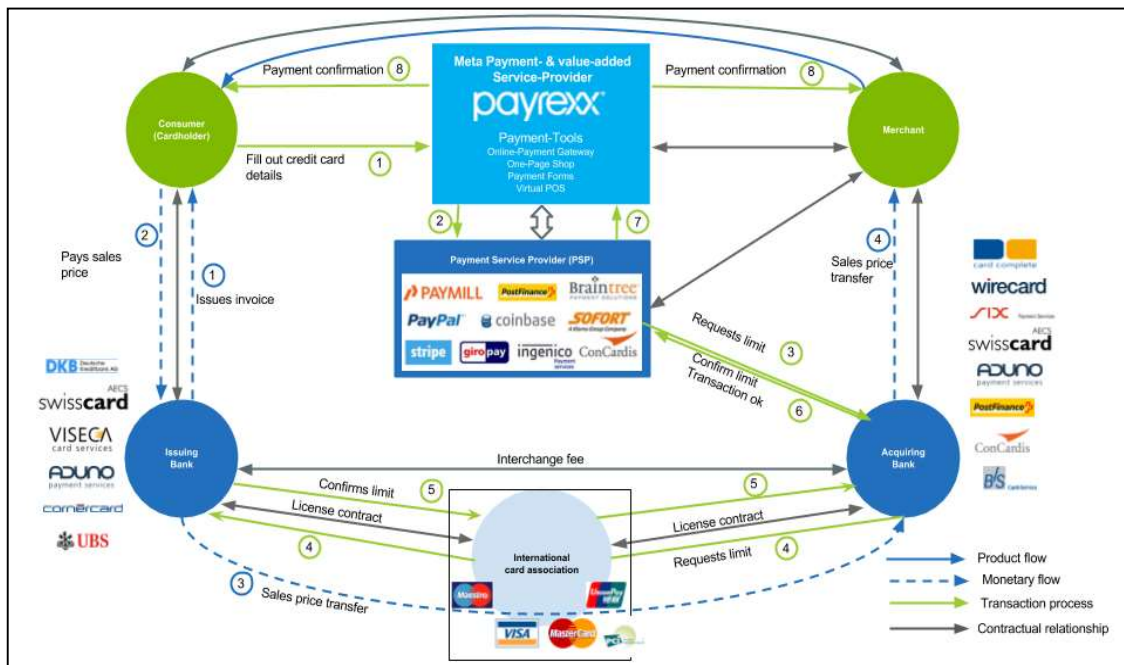
Disadvantages

- **Website outages:** Though increasingly uncommon, websites do go down at times, whether for planned maintenance or an unplanned glitch. If that happens, there is no physical place to go as a backup.
- **Lack of relationship:** Some transactions are easier when conducted face-to-face and more complicated issues can benefit from a personal interaction that is lacking in virtual banking.
- **Slower deposits:** Because there is no physical branch at which to make a deposit, adding money to an account can be delayed sometimes if a check has to be mailed. Advances in technology though are easing these delays, since most direct banks now allow remote deposits of checks through mobile phones. Cash, of course, still can present challenges

unless the virtual bank partners with a network of banks or credit unions to allow members’ deposits.

10.8 E-PAYMENTS

An electronic payment (e-payment), in short, can be simply defined as paying for goods or services on the internet. It includes all financial operations using electronic devices, such as computers, smartphones or tablets. E-payments come with various methods, like credit or debit card payments or bank transfers. Note that one of the most popular and common online payment methods nowadays is credit cards.



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 basic to make you understand it better.

- **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.
- **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.

- **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.

Popular e-payment mediums-

[1] ATM CARD/ BIOMETRIC CARD- ATM is known as an automated teller machine or automatic teller machine. In simple sense it is an electronic computerized telecommunications device that allows customers to complete financial transaction like cash withdrawals or cash deposit by using their ATM cards and report of the account's balance can also be received that too without the aid of any bank branch representative or teller. In simple words, it is simple to use self-service solution.

[2] DEBIT CARD/ CREDIT CARD- Debit cards are also known as a bank card or check cards. Debit cards look like credit cards or ATM (automated teller machine) cards it is a plastic payment card that can be used instead of cash when making purchases but operate like cash or a personal check. But still Debit cards are different from credit cards as credit card is a way to "pay later," but debit card is a way to "pay now." When any customer uses a debit card his/her money is quickly deducted from their account. In simple words by use of debit card the money comes directly from the user's bank account when a transaction is being performed.

[3] SMART CARD- A smart card is also known chip card, or integrated circuit card (ICC) it is a pocket-sized plastic card that has embedded in form of computer chip. The microprocessor is under a contact pad on one side of the card. Think of the microprocessor as replacing the usual magnetic stripe present on a credit card or debit card. The microprocessor on the smart card is there for security. The host computer and card reader actually "talk" to the microprocessor. The microprocessor enforces access to the data on the card. The chips in these cards are capable of many kinds of transactions like cash withdrawal, deposit and balance inquire etc.

[4] EFT- Electronic funds transfer (EFT) is a service that allows a bank to transfer large amounts of money to another bank by sending an electronic message. Electronic transfers take only an instant. An electronic message instructs a computer to deduct a certain amount of money from one bank account and then add the same amount to another bank account. The message is sent, and the appropriate amount is transferred. No cash or paper changes hands, but money is transferred just the same.

[5] ECS- When you take a loan like a home loan or personal loan, you are required to pay its EMI on a fixed date every month. We are generally so busy with our personal and professional lives that it can be challenging to remember the EMI date. Missing EMI date could result in a penalty, and regular late payments can also affect your credit rating.

To eliminate this inconvenience, lenders in India now offer Electronic Clearing Service (ECS) facility to the borrowers. Let us have a look at what this facility is and how it works. ECS was launched by the RBI for facilitating bulk transfer of funds from one bank account to another bank account. Loan providers use this facility to debit loan EMIs on a fixed date from the bank

account of the borrower. This is done with the help of a clearinghouse. In India, ECS debit is mostly handled by the NACH (National Automated Clearing House) which works under NPCI (National Payments Corporation of India).

How Does ECS Works?

When you take a loan, you are required to sign an ECS payment mandate. This mandate gives the authority to the clearinghouse to debit the monthly EMI from your bank account and credit the same into your loan account, or lenders account on a fixed date. This mandate will have detailed information about your bank account, bank branch, ECS debit date and amount.

How to Stop ECS?

If for some reason you want to stop ECS debit from your bank account, you need to inform the same first to your loan provider. A written application needs to be submitted in a format prescribed by the loan provider. Once this is done, you also need to inform the same to your bank by submitting a written application.

Submit the application to the loan provider as well as your bank at least a couple weeks before your EMI debit date so that the necessary steps can be taken in time.

Things to Keep in Mind When Using ECS-

While the ECS facility eliminates the need for you to issue a cheque or go to an online payment gateway for regular payments like loan EMIs, you should make sure that your bank account has adequate funds for clearing the ECS. If at all you do not have adequate funds in your bank account and the ECS bounces, you will mostly be required to pay a penalty which can be as high as the penalty you pay for a bounced cheque. So, be a little cautious while using this facility for automating your EMI payments.

10.9 E-MONEY

Electronic money or e-money is a payment system which now is getting popular. E-money is a cashless payment system which now is many used in several big cities in Indonesia, including Jakarta. The existence of electronic money has been replacing the function of cash. You don't have to pull out your money from your wallet to paying anything, you only have to use one card and all is done. Although behind its advantages, don't mean there is no disadvantage. Below are advantages and disadvantages of electronic money.

Advantages-

- **More practical-** To use electronic money, you have to charge the balance. You can top up at the merchants and now is easier to find the merchant. The balance in your e-money can be used for any transactions, wherever and whenever. You only have to use one card and you can pay anything you want as long as you never run out of your balance.
- **Faster Transaction-** Payments using electronic money are indeed faster than use cash. As example when you want to pay for a train ticket. you can directly tap in on an available

machine, then go to the platform, and wait for your train to come. No need to long queue at the counter, pull out money, or waiting for the change.

- **Global Transaction-** For those who love online shopping, e-money also can be useful. Because, it can be used as a payment on any e-commerce sites, including overseas. It is because e-money applies globally. In online transaction, e-money has the same function with credit card. You only have to enter your card number, and the payment is done.

Disadvantages-

- **Consumptive-** Aware or not, e-money who gives us a lot of convenience has make us into a consumptive person. Why? Because the convenience make us want to buy things a lot, until we don't realize that the balance almost run out.
- **Low Security-** E-money can change hands easily. No need to entering password or something, everyone can use it without any permission. When your card is lost, the people who find your card can directly use it. That is the consequences behind its convenience which incriminating. All you have to do as the owner is keep it very well.
- **The Left Balance Can't Turn Into Cash-** Although transaction using electronic money card is very easy, not all payments can be made using electronic money. When you want to pay for something cash, or you are top up your balance too much, the balance that has been transferred can't be cashed or turn into cash. Unless your electronic money card is lost or damaged, you can report it to the bank concerned and the remaining balance can be cashed.

E-Purse (Electronic Purse)

An electronic purse is "designed to facilitate small-value face-to-face retail payments by offering a substitute for banknotes and coins. They are intended to complement rather than substitute for traditional retail payment instruments such as cheques and credit and debit cards. "Electronic purses differ from other cashless payment instruments in that they are supplied in advance with generally accepted purchasing power. They can be loaded at bank counters, through Automated Teller Machines (ATMs) or through specifically equipped telephones, against a debit entry in a credit institution account, or against banknotes and coins. The embedded purchasing power is drawn down at the point of sale by an electronic device that can suitably adjust the information on the card. Their potential to reduce significantly the use of notes and coins is even greater than that of other debit instruments since they are the first cashless instrument which would be used for very small amounts.

Their potential to replace other cashless instruments will depend: 1) on the level of fees and other costs levied by the issuer on those who use or accept these new instruments; 2) on the technical possibility, and the issuer's willingness, to remunerate the purchasing power embedded in electronic purses; and 3) on solutions adopted to compensate users in case of the

loss, theft or malfunction of the card. "For electronic purses to become a success, a distinct business case must exist for cardholders, for shopkeepers and for issuers. Electronic purses can have various advantages for cardholders. The most important aspect relates to convenience as there would be less need to carry loose change for low-value transactions. An additional advantage might be that, compared with notes and coins, the risk of robbery might diminish if the use of the electronic purses included a security feature such as a PIN code. Furthermore, prepaid cards would have the advantage that non-cash payment transactions could be made without necessarily being linked to a bank account. On the other hand, there are disadvantages as well: first, transaction costs may apply, and second, the electronic purse has to be supplied with value in advance, which may give rise to a transfer of float income from consumers to card issuers.

10.10 DIGITAL CASH AND DIGITAL TRANSACTION

Electronic money is broadly defined as an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transaction, but acting as a prepaid bearer instrument.

Basic Model of Digital Cash transaction- A Digital Cash transaction usually involves three types of users:

- A Payer (P) or consumer
- A Payee (R), such as a merchant
- A financial network like a Bank with whom both Payer and Payee have accounts, And usually involves three transaction: (i) Withdrawal, the Payer (P) transfer some money (token) from his/her account to her wallet (which could be a computer or smart case); (ii) Payment, the Payer (P) transfer the withdrawn money (token) to the Payee's (R) wallet; (iii) Deposit, the Payee (R) transfers the received money (token) to his/her account.

Important properties of a Digital Cash system

- **Security-** The most important feature of a Digital Cash system is that it should ensure a high-level of security through sophisticated authentication techniques, which means it should not be copied or reused by the payer, the payee or anyone else.
- **Anonymity-** It should be able to maintain the anonymity of the person, i.e. the transaction carried out should not be traceable.
- **Portability-** The use of such a system should be independent of the location. The transactions can be carried over computer networks and into storage devices and vice versa.

- **Transferability**- The user can spend the money received in payment without having to contact a bank for authentication
- **Divisibility**- This allows the digital cash to be sub-divided into smaller denominations and the customer can choose to spend only a part of it.
- **User friendly**- Both the payer and payee should be able to use it with ease which would make it widely acceptable.

DIGITAL TRANSACTION-

A digital transaction is a seamless system involving one or more participants, where transactions are affected without the need for cash. Digital transaction involves a constantly evolving way of doing things where financial technology (fintech) companies collaborate with various sectors of the economy for the purpose of meeting the increasingly sophisticated demands of the growing tech-savvy users.

As the needs of investors and financial service users become more complex, there is a demand for effective tools to simplify the processes and transactions carried out by end-users. It is inevitable that financial institutions would have to increase the number of digitized services and offerings, given a rise in the use of automated services. Implementing technology in the financial industry is a necessity for the survival of businesses as customers seek lower-cost alternatives to traditional financial services. Fintech companies have led the revolution in transforming the financial sector by digitalizing the end-client's transactional eco-system.

Digital Transaction Benefits

The example of a digital transaction above was made to show how the benefits of technology adaptation outweighs the costs for businesses, financial institutions, and end-users. Still, there are digital initiatives that come up to disrupt the previous digital transaction setups. Just as credit cards are disrupting the use of cash, processes like online transactions and crypto currencies are disrupting the regimen where physical presence and credit cards, respectively, are required for transactions. The e-commerce portal has provided a means by which buyers and sellers can engage in digital transactions; cloud service platforms have provided a digital process for storing data; crowdfunding gateways have provided a means by which individuals and startups can have access to funds; peer-to-peer lending forums have provided a way for individuals to lend to and borrow from each other without the hassles of the traditional banking regulation; robo advising tools have provided a way for individuals to plan their retirement phase; etc. These all constitute digital transactions that may eventually get disrupted by new inventions over the years.

10.11 E-BANKING CAUTIOUS

The banking industry is undergoing a radical shift, one driven by new competition from FinTechs, changing business models, mounting regulation and compliance pressures, and disruptive technologies. The emergence of FinTech/non-bank startups is changing the competitive landscape in financial services, forcing traditional institutions to rethink the way they do business. As data breaches become prevalent and privacy concerns intensify, regulatory and compliance requirements become more restrictive as a result. And, if all of that wasn't enough, customer demands are evolving as consumers seek round-the-clock personalized service. These and other banking industry challenges can be resolved by the very technology that's caused this disruption, but the transition from legacy systems to innovative solutions hasn't always been an easy one. That said, banks and credit unions need to embrace digital transformation if they wish to not only survive but thrive in the current landscape.

[1] Increasing Competition

The threat posed by FinTechs, which typically target some of the most profitable areas in financial services, is significant. Goldman Sachs predicted that these startups would account for upwards of \$4.7 trillion in annual revenue being diverted from traditional financial services companies. These new industry entrants are forcing many financial institutions to seek partnerships and/or acquisition opportunities as a stop-gap measure; in fact, Goldman Sachs, themselves, recently made headlines for heavily investing in FinTech. In order to maintain a competitive edge, traditional banks and credit unions must learn from FinTechs, which owe their success to providing a simplified and intuitive customer experience.

[2] A Cultural Shift

From artificial intelligence (AI)-enabled wearables that monitor the wearer's health to smart thermostats that enable you to adjust heating settings from internet-connected devices, technology has become ingrained in our culture — and this extends to the banking industry. In the digital world, there's no room for manual processes and systems. Banks and credit unions need to think of technology-based resolutions to banking industry challenges. Therefore, it's important that financial institutions promote a culture of innovation, in which technology is leveraged to optimize existing processes and procedures for maximum efficiency. This cultural shift toward a technology-first attitude is reflective of the larger industry-wide acceptance of digital transformation.

[3] Regulatory Compliance

Regulatory compliance has become one of the most significant banking industry challenges as a direct result of the dramatic increase in regulatory fees relative to earnings and credit losses since the 2008 financial crisis. From Basel's risk-weighted capital requirements to the Dodd-Frank Act, and from the Financial Account Standards Board's Current Expected Credit Loss (CECL) to the Allowance for Loan and Lease Losses (ALLL), there are a growing number of regulations that banks and credit unions must comply with; compliance can

significantly strain resources and is often dependent on the ability to correlate data from disparate sources.

[4] Changing Business Models

The cost associated with compliance management is just one of many banking industry challenges forcing financial institutions to change the way they do business. The increasing cost of capital combined with sustained low interest rates, decreasing return on equity, and decreased proprietary trading are all putting pressure on traditional sources of banking profitability. In spite of this, shareholder expectations remain unchanged.

This culmination of factors has led many institutions to create new competitive service offerings, rationalize business lines, and seek sustainable improvements in operational efficiencies to maintain profitability. Failure to adapt to changing demands is not an option; therefore, financial institutions must be structured for agility and be prepared to pivot when necessary.

[5] Rising Expectations

Today's consumer is smarter, savvier, and more informed than ever before and expects a high degree of personalization and convenience out of their banking experience. Changing customer demographics play a major role in these heightened expectations: With each new generation of banking customer comes a more innate understanding of technology and, as a result, an increased expectation of digitized experiences.

Millennials have led the charge to digitization, with five out of six reporting that they prefer to interact with brands via social media; when surveyed, millennials were also found to make up the largest percentage of mobile banking users, at 47%. Based on this trend, banks can expect future generations, starting with Gen Z, to be even more invested in omnichannel banking and attuned to technology. By comparison, Baby Boomers and older members of Gen X typically value human interaction and prefer to visit physical branch locations.

[6] Customer Retention

Financial services customers expect personalized and meaningful experiences through simple and intuitive interfaces on any device, anywhere, and at any time. Although customer experience can be hard to quantify, customer turnover is tangible and customer loyalty is quickly becoming an endangered concept. Customer loyalty is a product of rich client relationships that begin with knowing the customer and their expectations, as well as implementing an ongoing client-centric approach.

In an Accenture Financial Services global study of nearly 33,000 banking customers spanning 18 markets, 49% of respondents indicated that customer service drives loyalty. By knowing the customer and engaging with them accordingly, financial institutions can optimize

interactions that result in increased customer satisfaction and wallet share, and a subsequent decrease in customer churn.

[7] Outdated Mobile Experiences

These days, every bank or credit union has its own branded mobile application — however, just because an organization has a mobile banking strategy doesn't mean that it's being leveraged as effectively as possible. A bank's mobile experience needs to be fast, easy to use, fully featured (think live chat, voice-enabled digital assistance, and the like), secure, and regularly updated in order to keep customers satisfied. Some banks have even started to reimagine what a banking app could be by introducing mobile payment functionality that enables customers to treat their smart phones like secure digital wallets and instantly transfer money to family and friends.

[8] Security Breaches

With a series of high-profile breaches over the past few years, security is one of the leading banking industry challenges, as well as a major concern for bank and credit union customers. Financial institutions must invest in the latest technology-driven security measures to keep sensitive customer safe

[9] Antiquated Applications

Organizations using antiquated business management applications or siloed systems will be unable to keep up with this increasingly digital-first world. Without a solid, forward-thinking technological foundation, organizations will miss out on critical business evolution. In other words, digital transformation is not just a good idea — it's become imperative for survival.

While technologies such as blockchain may still be too immature to realize significant returns from their implementation in the near future, technologies like cloud computing, AI, and bots all offer significant advantages for institutions looking to reduce costs while improving customer satisfaction and growing wallet share.

Cloud computing via software as a service and platform as a service solution enable firms previously burdened with disparate legacy systems to simplify and standardize IT estates. In doing so, banks and credit unions are able to reduce costs and improve data analytics, all while leveraging leading edge technologies. AI offers a significant competitive advantage by providing deep insights into customer behaviors and needs, giving financial institutions the ability to sell the right product at the right time to the right customer. Additionally, AI can provide key organizational insights required to identify operational opportunities and maintain agility.

[10] Continuous Innovation

Sustainable success in business requires insight, agility, rich client relationships, and continuous innovation. Benchmarking effective practices throughout the industry can provide valuable insight, helping banks and credit unions stay competitive. However, benchmarking alone only enables institutions to keep up with the pack it rarely leads to innovation. As the cliché goes, businesses must benchmark to survive, but innovate to thrive; innovation is a key differentiator that separates the wheat from the chaff.

Innovation stems from insights, and insights are discovered through customer interactions and continuous organizational analysis. Insights without action, however, are impotent — it's vital that financial institutions be prepared to pivot when necessary to address market demands while improving upon the customer experience.

Financial service organizations leveraging the latest business technology, particularly around cloud applications, have a key advantage in the digital transformation race: They can innovate faster. The power of cloud technology is its agility and scalability. Without system hardware limiting flexibility, cloud technology enables systems to evolve along with your business.

10.12 POINTS TO REMEMBER

- E-banking is the electronic banking process that provides the financial service for the individual client by means of Internet.
- E-banking is a popular modern technology that delivers the new and traditional banking products and services to the customers electronically. Any type of intelligent electronic devices such as, personal computer (PC), Personal Digital Assistant (PDA), Automated Teller Machine (ATM), kiosk or Touch Tone Telephone.
- Most large banks, many regional banks and even smaller banks and credit unions offer some form of online banking, variously known as PC banking, home banking, electronic banking or internet banking.
- Online shoppers use credit for a majority of their Internet purchases. A credit card such as visa or master has a present spending limit based on the users credit limit.
- Debit card can be used for e commerce transactions in much the same way as credit card. Fewer sites offer the facility to use debit cards. Debit cards are not appropriate for very small transactions and do not afford anonymity.
- Electronic checks are another popular form of payment instrument on internet. Most of checks-based transactions usually held between businesses and therefore this mode of payment is relevant in B2B e commerce.
- An electronic wallet serving a similar function to a physical wallet, hold credit cards, electronic cash, owner identification, and owner address information and provides that information at an electronic commerce site checkout counter.

10.13 GLOSSARY

- Online Banking: A system that allows individuals to perform banking activities at home via the internet is called online banking.
- E Banking: E banking is a safe, fast, easy and efficient electronic service that enables you access to bank account and to carry out online banking services, 24 hours a day, and 7 days a week.
- Mobile Banking- It is a facility which enables customer to initiate and perform banking tasks on their mobile phones.
- ATM: Automated Teller Machine
- PDA: Personal Digital Assistance
- Debit Card: Debit cards draw money directly from your checking account when you make purchase. They do this by placing a hold on the amount of the purchase.
- Credit Card: A credit card is a card that allows you to borrow money against a line of credit, otherwise known as the card's credit limit.
- Electronic Payment System: An Electronic Payment System (EPS) is a way of paying for goods or services electronically instead of using cash or a cheque.

10.14 CHECK YOUR PROGRESS

Descriptive Type Questions-

- a) What is Online Banking?
- b) What can I do with Online Banking?
- c) What is Mobile Banking? Explain in details.
- d) What is E-Money? Explain in details.
- e) Explain E Payment System?
- f) Difference between credit card and debit card.

Objective Type Questions-

- a) Mobile Banking is a facility which enables customer to initiate and perform banking tasks on their mobile phones (True/False)
- b) A system that allows individuals to perform banking activities at home via the internet is called online banking. (True/False)
- c) An Electronic Payment System (EPS) is a way of paying for goods or services electronically instead of using cash or a cheque. (True/False)
- d) ATM stands for Any Time Money. (True/False)

- e) A debit card is a card that allows you to borrow money against a line of credit, otherwise known as the card's credit limit (True/False)
- f) Electronic checks are popular form of instrument on internet.
- g) is an electronic payment system that enables customers of a bank or other financial institutions to conduct a range of financial transactions through the financial institution's website

Answer (Objective Type Question)-

- [a] True [b] True [c] True [d] False [e] False
- [f] Payment [g] Online Banking

10.15 BIBLIOGRAPHY/ REFERENCES

- <https://www.ijert.org/electronic-banking-in-india-innovations-challenges-and-opportunities>.
- <http://oer2go.org/mods/en-boundless/www.boundless.com/business/textbooks/boundless-business-textbook/the-functions-of-money-and-banking-21/trends-in-banking-126/electronic-banking-582-6715/index.html>
- <https://online-journals.org/index.php/i-jim/article/view/4314/3486>
- <https://www.investopedia.com/terms/h/home-banking.asp>
- <https://www.simplethriftyliving.com/pros-cons-virtual-banking/>
- <https://www.adityabirlacapital.com/abc-of-money/electronic-clearing-service>
- <https://www.investopedia.com/terms/d/digital-transaction.asp>
- <https://global.hitachi-solutions.com/blog/top-10-challenges-banking-financial-organizations-can-overcome>
- <http://ierj.in/journal/index.php/ierj/article/view/1626/1546>

10.16 SUGGESTED READINGS

- E-banking in India, Challenges and Opportunities by R.K.Uppal, Published by New Century Publications.