
UNIT 3 OFFICE EQUIPMENT AND MACHINES

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3.0 OBJECTIVES

After studying this unit, you should be able to:

- state the meaning of office mechanization;
- learn about the office equipments and machines in detail; and
- understand the safety and security of data.

3.1 INTRODUCTION

As an office now attends to clients from all parts of globe, it has to keep pace with technological developments taking place in office operations. Today, a modern office has mechanized its routine and monotonous activities. Machines and equipment have become integral part of a modern office. Besides performing routine office functions, some machines are also used for safety and security of office operations and data. Various office equipment like computer, photocopier, binding machine, lamination machine, franking machine, CCTV etc. have become necessity for survival and growth of business houses.

3.2 OFFICE MECHANIZATION

A Secretary or an Office Assistant is appointed in an organization to perform usually routine office functions viz. mail handling, filing, communicating, making travel arrangements, arranging appointments, making calculations etc. Direct and indirect costs of keeping such staff are going up. Even after paying high salaries, it cannot be ensured that work performed by them is hundred per cent accurate or of standardized quality. Office mechanization is an effort to replace human labour by machine operation to carry out routine functions efficiently and effectively.

3.2.1 Meaning and Objectives

Office mechanization means use of machines and equipment in Office. It is defined as replacement of manual labor by machine operations.

With office mechanization, paper work in office has reduced to a considerable extent and a Paperless Office has become a reality.

Objectives of Office Mechanization

One of the major decisions an Office Manager has to take is regarding introduction of mechanization in office. He has to give careful thought and consideration as to when and what machines should be introduced in the office. While selecting office machines, he has to consider the main objectives for introduction of such machines. The objectives of office mechanization are:

- i) To **Save Labor** : There is saving of labor as large volume of work can be handled by fewer employees.
- ii) To **Save Time** : Machines work faster and give more output than what is manually possible. Thus, there is considerable saving of time.
- iii) To **Promote accuracy** : As office machines minimize clerical errors, accuracy of work especially in accounting, computation, calculations etc. is another objective of office mechanization.
- iv) To **Ensure Neat and Clean work**: Improved quality of work is one of the important objectives of office mechanization. Work produced with the help of machines is usually neat and uniform in appearance.
- v) To **Eliminate Monotony** : The routine work which is of repetitive nature is generally monotonous and normally leads to boredom. Office machines help in relieving human labour of boredom.
- vi) To **Lessen Chances of Fraud** : Machines like Cash Register, Cheque Writing Machine etc. help in minimization of frauds and misappropriation of funds to a great extent.
- vii) To **Ensure Better Control** : Mechanization in office enables the management to exercise effective control over office operations. For example, the use of Time Recording Machine in office ensures better control over attendance of staff.

3.2.2 Importance

The decision to shift from manual operations to mechanization in an office is mainly governed by comparison of costs incurred and costs saved. Both these

costs should be compared carefully and weighed before taken decision to purchase a particular machine in office. Of course, introduction of machines do require a large amount of initial capital investment but in the long run, their use is advantageous for an organization. The following benefits prove importance of mechanization in an office:

1. **Higher Efficiency:** As the speed of work is greatly increased with the use of office machines, higher efficiency in work done can be achieved resulting in saving of a lot of time.
2. **Better Quality of Work:** The work performed with the help of machines is standardized, uniform, neat and clean as compared to manually performed jobs.
3. **Greater Accuracy :** Mechanization ensures greater accuracy of work produced. Clerical errors and frauds can be reduced considerably when Accounting Machines are used.
4. **Reduced Operating Costs :** Office Machines are labor and time saving devices. They save manual effort and increase productivity and thus lead to overall reduction in operating costs.
5. **Relieves Monotony :** The monotony of repetitive office work is reduced with the use of office machines.
6. **Better Service and Goodwill :** The use of office equipment results in improvement of office services. This helps in giving better services to customers and public, which enhances the prestige of an organization. For example, customers' database can be stored in computer and used whenever required.
7. **Effective Control :** Mechanization enables management to exercise effective control over various office operations.
8. **Effect on Personnel:** Office Machines help to motivate employees of the organization and they finish their work on time.
9. **Specialization and Modernization:** Introduction of office machines is an indicator of modernization in office. When office employees work on same machines for a long period of time, they develop specialized skills which is quite helpful in performing office work.

3.2.3 Limitations

There are certain limitations in regard to mechanization of office services. These limitations are outlined below :

1. **Heavy investment :** Initial expenses of installation of office machines are too high for an office to invest. Small organizations cannot afford to privilege them as some machines are quite costly.
2. **High maintenance cost :** Machines require high operational and periodical maintenance which becomes quite expensive and additional cost to the organization. Sometimes, breakdown of machine may also cause considerable losses to an organization.
3. **Risk of Obsolescence :** Machines tend to become obsolete in quite a short period of time. Further, many-a-times, machines purchased for specialized jobs cannot be adopted for new or changed office methods.

4. **Change in Existing System:** Sometimes, introduction of office machines need change in overall office systems and procedures.
5. **Need for Trained Operators:** Some machines need well-trained and skilled operators. This puts extra financial burden on the organization.
6. **Staff's Resistance:** Workers, sometimes, resist introduction of machines and do not cooperate in using machine optimally.
3. **Less Flexible:** Machines used for one office operation may not be fit to carry out other tasks of similar nature.
8. **Uneconomical:** Office Machines prove to be wasteful and uneconomical if these are not used up to their optimum capacity.
9. Other problems like noise, space, after sales service etc. are also limitations of office mechanization.

3.2.4 Selection of Office Machines and Equipment

As various types and models of machines are available now-a-days, selection of a suitable office machine is an important decision to be taken by an Office Manager. Even to perform a task, there are various options available. A good machine proves to be an asset for the office while a bad machine is a mere liability. While selecting office machines, an Office Manager has to be very vigilant and take the following factors in to account:

1. **Does the machine saves time?**

As time is money, the machine selected should perform the job in lesser time than it is performed manually.

2. **Does the machine saves labour?**

The machine selected should result in increased volume of work than handled by the existing staff and thus result in saving of cost of labour.

3. **Does the machine give accuracy?**

The machine selected should produce accurate work and need minimal checking.

4. **Will the machine relieve monotony?**

Machines selected should lessen boredom and monotony while performing office operations.

5. **Will the machine reduce the chances of fraud?**

The use of office machine should reduce the chances of occurring frauds in office operations. Use of Cash Register, Time Recording Machines, Cheque Writer etc. are introduced in office with this particular objective in consideration.

6. **Does the office has sufficient space and facilities?**

Introduction of office machines do need sufficient space and facilities for its operation. At the time of taking decision for purchase of same, it should be ensured that the office has enough space and all the facilities regarding installation of machine.

7. Does the office has skilled operators?

As there are chances of office machines becoming faulty or idle due to unavailability of skilled operators, an Office Manager should ensure that the machine is installed in office only when there is sufficient training given to people to operate it.

8. Is the machine easy to operate and versatile?

The machine selected should be easy to operate and versatile in nature. For example, a Photocopier can also be used as a scanner and printer when attached to CPU.

9. Does the supplier has good reputation?

As after-sales-service is very important factor while selection of office machines, it has to ensured that the supplier enjoys a good reputation in the market for providing product quality and after-sales-service to their clients.

While selection of office machines, it should be ensured that work performed on the machine should be of routine and repetitive nature. As far as possible, mobile and portable machines with latest styles should be selected so that they could be shifted easily in case of need.

3.3 OFFICE EQUIPMENT AND MACHINES

There is a large variety of machines one can find in offices; ranging from a conventional typewriter (rarely seen in offices today) to a sophisticated computer. Between these two extremes, a number of machines have come up to make office operations advanced and speedy. Due to advancement of technology, some of the commonly used machines in an office are Copying Machines, Accounting Machines, Calculating Machines, Communication Equipment, Computer, Printer, Mail Room Equipment, Office Security Systems, Miscellaneous Machines like Paper Shredder, Binding Machine, Lamination etc.

3.3.1 Copying Machines

As it is common for an office to make multiple copies of a document, copying machines are very popular and widely used in offices.

Earlier Stencil Duplicator was the commonly used equipment for making multiple copies with the help of a stencil (generated on manual typewriter or dot matrix printer), but due to several models of copiers available now-a-days, the use of stencil duplicator is quite limited.

a) Photocopier

A Photocopier is a machine which makes copies of visual images quickly and cheaply. With the help of this machine, an exact photographic copy of the original is obtained. Photocopiers use a technology called xerography, a dry process using heat. Copiers can also use other output technologies such as ink jet, but xerography is standard for office copying. One can use Black and White or coloured photocopier of various sizes as per the requirement.

With the use of digital technology, a copier effectively consists of an integrated scanner and laser printer. Automatic image quality enhancement and the ability to “build jobs” (that is, to scan page images independently of the process of printing

them) are quite useful features of the photocopier. One of the great advantages of using networked digital photocopiers is that hard copies of documents can be scanned into device and forwarded to the appropriate department without the need of making another hard copy. The documents are then stored electronically and changes made are tracked. Employees can also scan copies of documents into the photocopier and send them directly to their computer.

Documents can also be scanned into photocopiers and sent via email directly from the device, by linking photocopier to an email server. With logins these emails can be sent from the user's own email account. Email can be easily recognized by the person receiving it. It is also stored in the user's sent items.

Many new photocopiers also incorporate faxing capabilities. It means that documents scanned into the device may be faxed directly, storing the data in the hard drive.

b) Scanner

In computing, a scanner is a device that optically scans images, printed text, handwriting, or an object and converts it to a digital image. The document is placed on a glass window for scanning. It can copy things onto computers. After that one can alter the things which have been copied.

Scanners today provide high quality in terms of resolution for both color and black and white documents.

Many photocopiers can work as printer and as well as scanner.

c) Fax

A FAX is an abbreviation for Facsimile. With fax system, it is possible to transmit electronically visual images over telephone lines from one fax machine to another fax machine instantly. It can send handwritten or printed matter like pictures, charts, diagrams etc. to different locations within or outside the country.

Fax machines are very convenient to transmit a correspondence speedily that cannot easily be sent through email.

3.3.2 Accounting Machines

The mechanization of accounting operations is becoming increasingly important in large organizations as they have to cope with enormous figure work and analyse various types of figures for different purposes within few minutes. Accuracy and speed are the main features of accounting machines.

Accounting Machines offer various advantages viz. legibility and tidiness of entries, checking of accuracy, printing of balances, cumulative totaling, preparation of payroll and pay slip etc.

Some of the commonly used Accounting Machines are :-

a) Book Keeping Machines

These machines help in posting entries in cash book, journal, ledgers, etc. and contribute greatly to office efficiency and economy in staffing. Calculations become a pleasure instead of monotonous work. Accounting Machines help in –

i) posting in ledger accounts, Cash Book or Journal.

- ii) preparation of payrolls, cash receipts, etc.
- iii) transferring of amount from Cash Book/Journal to Ledger.

Firstly, the Cash Book, Journal or Ledger is laid flat on the machine. The carriage of the machine moves on rails as the posting progresses and all the debit and credit items are posted.

One machine can do work of many clerks and entries posted are neat, legible and accurate. Monotony and fatigue can be eliminated to a large extent with the use of such machines.

The main drawbacks of the machines are that the machine is expensive for small offices and cause too much dependence which may sometimes delay work. For using Accounting Machines, skilled and trained staff is required.

b) Cash Register

These machines record on paper-roll cash receipts. The customers in departmental stores need receipts and cash memos. The operator receives the amount, keeps it in shelves made below the machine and issues receipt or cash memo. The machine prints the amounts on rolled paper which is visible through a glass panel on the top of the machine. It automatically gives cumulative total of receipts and at the end of the day, the Manager can find out the total sales. The merits of the Cash Register include (a) the record of cash receipts are neat, clean and accurate, (b) there is no chance of arithmetical errors, (c) any time, the total amount of sales can be known, (d) the chances of fraud are eliminated and (e) duplicate copy of receipt is not needed. The main drawbacks are: (a) correction of errors is difficult and (b) the receipts do not have complete details. In spite of these demerits, this machine is used widely in business houses and at collection counters of departmental stores, electricity bill collection centre, etc.



Fig. 3.1: Cash Register

c) Electronic Cheque Writer

This machine is used for writing, crossing or signing a cheque to prevent fraud by altering or erasing the figures of the amount or the data. Any alteration in the

cheque becomes impossible as the machine applies downward force and uses fibre of the cheque to give print. The machine helps where a large number of cheques have to be signed regularly.



Fig. 3.2: Electronic Cheque Writer

d) Coin Sorting Machine

Coin Sorter is a machine which helps in sorting of coins of different denominations. There is a rectangular box with different trays having holes of different sizes. These trays are over one another. Coins of different denominations are put on the uppermost tray. With a mechanical force, trays are shaken. Coins are thus automatically sorted. It helps a Cashier who has to spend a lot of time and energy in sorting out of coins.



Fig. 3.3 : Digital Coin Sorter

e) Rupee Counting Machine

This machine is commonly used in banks, jewellery shops, departmental stores etc. A bundle of rupee notes is put on the tray of the machine and air pressure is given at the open face of the bundle. Rupee starts getting segregated quickly and the total figure of the counted notes can be seen simultaneously on the display panel.

3.3.3 Calculating Machines

Calculating Machines save a lot of time and energy in making calculations of discounts and percentages, totaling payments, preparing trial balance, tallying wage payments etc. while preparing pay rolls, sales analysis, tax reports etc. The reports and documents which need a considerable amount of figure work can be handled easily and accurately. Calculating Machines are of listing or non-listing type. Listing Machines print record of calculations and also facilitate rectification of errors. Non-listing machines give result of calculations on a display panel.

3.3.4 Communication Equipment

a) Telephone

Telephone is the most convenient and widely used means of oral communication for having internal and external contacts in an organization. Telephone calls are classified according to area viz. Local call, STD (Subscriber Trunk Dialing) calls and ISD (International Subscriber Dialing) calls.

b) Mobile Phone

A mobile phone (also called Cell Phone or Hand Phone) is an electronic device used for full duplex two-way radio telecommunications over a cellular network known as Cell Sites. A key feature of this phone is that it enables seamless telephone calls possible even when the user is moving around wide areas. Mobile phones differ from cordless telephones which only offer telephone service within limited range through a single base station attached to a fixed land line, for example within a home or an office. Mobile phones that offer more advanced computing ability are referred to as smart phones.

A mobile phone user can make and receive calls to and from public telephone networks which include other mobiles and fixed line phones across the world.

Mobile phones support many additional services and accessories, such as short or medium messaging service, internet access, gaming, blue-tooth, camera, , MP3 player, radio, infrared short range wireless communication etc.

c) EPABX System

The EPABX means Electronic Private Automatic Branch Exchange. It is an electronic exchange which is privately owned and automatic. This system connects office telephones with the public telephone network.

Earlier, PBX system was used to route incoming calls to the appropriate extension in an office and to share phone lines between extensions. Today, a wide range of services are offered by a EPABX system like:

- a single business number which can connect to all company employees and departments.
- answering of calls with a customized greeting.
- providing various options for transferring a call.
- distributing uniformly calls to a department among available employees through Automatic Call Distribution (ACD).

- keeping a caller on hold till someone is available to attend the call.
- playing music or customized message if callers are put on hold.
- recording of voice messages.
- allowing transfer of calls between extensions.
- conferencing of multiple incoming calls with employees' extensions.
- availability of detailed call records, if required, at any time.

d) Dictating Machines (Dictaphone)

Dictating machines may be either mechanical or magnetic. They can record voice on wire or coated tape which can be removed from the machine after dictation and forwarded to the point of transcription. These machines are used to record messages or dictations when boss wants to dictate some matter and the secretary is not available.

e) Voice Answering Machine

Automated voice answering systems are used to take messages and provide automated information retrieval requests. They reduce operator's error, improve customer service and allow call center employees to perform other tasks.

f) LCD Projector

Liquid Crystal Display (LCD) Projector is an ICT (Information and Communication Technology) device that displays information stored in computer such as multimedia, power point files, animation, motion video and other interactive contents on projection screen.

In business organizations, conferences, presentations and virtual meetings are facilitated using LCDProjectors.

g) Public Address System

A Public Address System (PA system) uses microphones, amplifier and loudspeakers to reinforce a sound source and distribute the sound throughout a venue or building.

PA systems with a larger number of speakers are widely used in institutional and commercial buildings for making announcements, give information to a specified group of people or declare states of emergency. Intercom systems, which are often used in offices, also have microphones in each room so that the office staff can reply to the central office.

h) Electronic Mail

Electronic Mail commonly called e-mail is a method of exchanging digital messages instantaneously across the internet with the help of e-mail address. E mail servers accept, forward and store messages. The cost of sending an e-mail is very negligible if we have 24 hour internet facility on computer. One e-mail message can be sent to multiple recipients almost at a cost of a single e-mail. Further, delivery of e-mail is almost guaranteed as losing of the mail in cyberspace is very rare.

Storing and managing e-mails are very easy as no physical space is being used for record management.

Check Your Progress A

1. Fill up the following blanks:-

- a) Mechanization is replacement of labor by machine operations.
- b) The monotony of repetitive office work is with the use of office machines.
- c)record on paper-roll cash receipts.
- d) The EPABX means
- e) E-mail is a method of exchanging digital messages instantaneously across the with the help of e-mail address.

2. State whether each of the following statements are True or False:-

- a) Machines and equipment are the tools used due to the needs of efficiency and standardization of routine office operations.
- b) At the time of taking decision for purchase of an office equipment, consideration of enough space regarding its installation is not an important factor.
- c) With the use of digital technology, a Photocopier effectively consists of an integrated scanner and laser printer.
- d) For using Accounting Machines, skilled and trained staff is not required.
- e) Delivery of e-mail is almost guaranteed as losing of the mail in cyberspace is very rare.

3.3.5 Computer

A computer is the most commonly used machine in offices. A computer is a machine that can perform a variety of operations such as arithmetical calculations, comparison of data, storage of information, analysis of data and preparation of diagrams and charts etc. The main component of computer is the 'memory' unit. The input data and programmes are fed and remain available for reproduction. With the help of Word Processing programmes, one can compose letters, memos, reports etc. visible on screen, edit them, save them and print as often as needed. A document is given a file name and stored on disk or pen drive. High speed, flexibility and accuracy are main advantages of the computer. The main disadvantages include high initial and operating cost, need of trained staff and serious disorder in case of breakdowns.

Computer's desktop environment is within physical limits. A Laptop is a small and light personal computer designed for mobile users. A laptop integrates most of the typical components of a desktop computer, including a display, a keyboard, a pointing device and often including a battery, into a single small and light unit. The

rechargeable battery is charged from an AC adapter and typically stores enough energy to run the laptop for three to five hours in its initial state, depending on the configuration and power management of the computer.

Due to websites availability on computers, companies are able to reach global markets. In business organisations, with the help of various software, computers are used for accounting, scheduling, inventory management, product designing, research, customer interaction, communication, e-mail, web conferencing, chatting etc.

3.3.6 Printer

A **printer** is a device which allows users to print text and graphics on the plain papers. A printer is a piece of hardware for a computer. It can also work with digital cameras to print directly without the use of a computer.

Inkjet Printers and Laser Printers are the most popular printer types for business use. Dot Matrix Printer are less popular now-a-days as they are slow and make a lot of noise while printing. Plotters are large format inkjet printers.

3.3.7 Office Security Systems

Safety and security of people, documents, property etc. is a matter of vital concern for every office. Some of the commonly used office security equipment are:

a) Video Security Systems (Close Circuit TV or PC Video Surveillance)

The systems are helpful to protect people and property around the clock. With the help of real time surveillance, one can track any suspected incident, employees' movement, business frauds etc.

b) Metal Detector

A Metal Detector is a portable device which penetrates magnetically in order to find traces of metal. It helps in office buildings, schools, government agencies and prisons to ensure that no one is bringing a weapon onto the premises.

c) Smoke Detector

Smoke detectors identify smoke in the air and give warning of prospective fire with the help of a strong alarm in the vicinity or signal to a centralised warning system. These devices can even detect cigarette smoke alarms go off.

d) Paper Shredder

Paper Shredder is used to destroy confidential or sensitive documents when they are no longer required in offices. The machine shreds all these documents into strips or fine particles, since they may be used by thieves to commit fraud or identity theft. Paper shredders are also used for recycling purposes and waste reduction. Shredded paper can be used to create packing material.

Besides, Cash Security System, Visitor Counting Machine, Fire Extinguisher etc. also, often used by organizations as safety and security devices.

3.3.8 Mail Room Equipment

Various Mail Room Equipment used in modern organizations to carry out mailing operations efficiently and effectively have been discussed in Unit-5.

3.3.9 Miscellaneous Machines

In addition to office equipment discussed above, several other office machines commonly used include Time Recording Machines, Lamination Machines, Binding Machine, Display Boards etc. New types and models of office machines and equipment are continuously introduced in markets, which help in carrying out office operations in an advanced manner easily, speedily and accurately.

3.4 SAFETY AND SECURITY OF DATA

Data Warehousing and Data Encryption are two commonly used techniques to safeguard data from any possible misuse and loss.

Back up of all the important and useful data should be saved in Data Warehouses. Use of Data Warehouses save business organisations from huge data loss due to unforeseen circumstances viz. natural calamities, bomb blasts, accidents, mass data corruption etc.

Conversion of data into encrypted form while storing in the Data Warehouses ensures safety of data. If anyone wants to use the data, the data stored in encrypted form has to be first decrypted by using security password and a decoding algorithm. In this way, only the authorised staff have access to data. Thus, data encryption refers to transformation of plain text into coded form, a form that is non-readable to unauthorized parties.

3.5 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress A

1. Fill up the following blanks:-

- a) manual
- b) reduced
- c) Cash Register
- d) Electronic Automatic Private Branch Exchange
- e) internet

2. True & False:-

- a) True

- b) False
- c) True
- d) False
- e) True

3.6 LET US SUM UP

Mechanization may be defined as replacement of manual labour by machine operation. Main objectives of mechanization are: (1) saving of labour and cost (2) saving of time (3) ensuring accuracy (4) relieving monotony (5) improvement in quality (6) better control and (3) improvement in prestige for the organization. The limitations of mechanization include heavy investment, high running cost, risk of obsolescence, need of skilled operators, employees resistance etc. Commonly used office machines include photocopier, accounting machines, computer, printer, scanner, mail room equipment, fax, telephone, paper shredder, time recording clocks etc.

Copying Machines produce multiple copies of a letter. Office accounting services are handled by book-keeping machines, cash registers, calculating machines etc. Computer is an electronic machine which can perform all mathematical operations, record and store information and reproduce it at a very high speed. Printer and scanner are hardware connected with the computer.

Various machines are used in the Mailing Department to ensure speed and accuracy such as Letter Opener, Folding Machine, Sealing Machine, Mailing Scale, Stamping, Addressing and Franking Machine. Besides, there are some communication systems such as FAX, electronic mail, LCD Projector, telephone, mobile phone, PABX system, PA system etc. to facilitate rapid and effective communication. Some of the commonly used office security equipment are Burglar (or intrusion), fire and safety alarms, Video Security Systems (Close Circuit TV or PC Video Surveillance), Metal Detector, Smoke Detector, Cash Security System, Visitor Counting Machine, Fire Extinguisher, Paper Shredder etc.

Data Warehousing and Data Encryption are the two techniques used for security and safety of data from any possible misuse and loss.

3.7 TERMINAL EXERCISES

1. What are the objectives of mechanization in offices ?
2. Explain any four mechanical devices commonly used in the Accounts Section of an organization.
3. What are Calculating Machines ? Describe their uses in a modern office.
4. Describe, in brief, the various types of copying machines used.
5. Explain the use of the following machines –
 - a) Printer
 - b) PA System

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- c) EPAX
 - d) Computer
6. “While selecting office machines, an Office Manager has to be very vigilant and take care of certain factors” Discuss.
 7. Discuss the techniques of safeguarding data.
 8. Differentiate between Data Warehousing and Data Encryptin?

3.8 REFERENCE BOOKS

1. Administrative Office Management by Dr. R. K. Chopra
2. Office Management by P. K. Ghosh
3. Secretarial Duties by John Harrison
4. Modern Office Management by Neuner and Lewis Keeling



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