Unit 1 : Office Automation

Introduction

Office automation is a broadly used term and it represents a new profession, a new integration of technologies and a new perception of the potential of information tools available to man. It is primarily based on two factors: computers and communication technology. The computer is moving from being an independent system to a component embedded in a whole range of office devices. Communication technology integrates these devices and people. It provides an effective communications infrastructure. So, office automation is the use of various technologies (e.g. computer and telecommunication) to simplify and support routine office functions, improve communication, increase office productivity and enhance the quality of clerical output. Many office tasks including preparation of reports and correspondence, communications, file maintenance, duplication and distribution of written materials, can be facilitated and improved through word processing and other office automation techniques.

Office automation is the use of various technologies (e.g. computer & telecommunication) to simplify & support routine office functions, improve communication, increase office productivity & enhance the quality of clerical output.

Lesson 1 : Goals of Office Automation

Learning Objectives

On completion of this lesson you will be able to :

- know the goals of office automation
- know the advantages of office automation.

Goals of Office Automation

The goals of office automation may be expressed in terms of

Goals of office Automation

- Greater efficiency,
- Better service,
- Better accuracy,
- Demanding for timeliness,
- Facility in control,
- Standardization of office routine,
- Relieves of monotony,
- Prevention of fraud,
- Better information retrieval,
- Lower operating cost,
- Reduction in paper work,
- Improved communication environment.

Greater Efficiency

The use of computers and other office automation technologies on large scale has made prices lower by 10 to 30 percent and often much more than they would be without computers. The use of office automation technologies improves productivity i.e. the amount of goods or services that individuals and machines can produce in a given time period. These productivity gains can lead to (i) a stronger competitive position and (ii) higher levels of real income for an increased number of individuals. So, office automation brings speed and efficiency to all types of office work. Improved efficiency leads to greater profitability and at the same time creates good images in the minds of the people who deal with office.

Better Service

Offices use office automation technologies to improve the service they provide to customers, clients, patients etc. For example, Computer processing techniques and office automation tools make possible :

- shorter waiting lines at airline ticket offices and at the reservation desks of hotels, motels and car-rental agencies
- faster and more accurate answers to the inquiries of people served by the offices
- more convenient handling of purchase transactions through the use of credit cards
- more efficient customer service and control in retail outlets.

Thus, office automation provides better service and help to improve the quality of work done in the office.

Better Accuracy

If a data processing operation is strained to and beyond the capacity for which it was originally planned, inaccuracies begin to appear and the control of official activities suffers. Computer processing, becomes quite accurate if the task to be performed are properly prepared. So, office automation ensures better accuracy. Chances of errors are almost eliminated. Thus work goes on smoothly and bottlenecks and delays are eliminated.

Demanding for Timeliness

Timeliness of information is of great importance to all offices and organizations for decision making. For example, timely announcement of promotion, timely information about training opportunities, timely modification of staff lists and their addresses, timely payment to customer and so on, avoid many serious problems. For an administrator,

timely information may help him to take timely decisions and actions and prevent undesirable consequences. Only office automation can perform these and provide timely information.

Facility in Control

Facility in control

Office automation facilitates the task of mangers. Office automation helps managers to exercise better degree of control over their sub-ordinates. Certain office automation tools allow for minimization of fraud in the accounting department.

Facilitates Standardization of Office Routines

Facilitates standardization of office routines

Office automation helps to facilitate standardization of office routines and procedures. Standardization of office routines facilitates better co-ordination of works.

Relieving Monotony

Relieving monotony

Office automation reduces the monotony of carrying out repetitive processes which are boring and time consuming. The office worker is thus relieved of mental tensions of going through same process again and again by using office automation tools and technologies.

Prevention of Fraud

Prevention of fraud

Computer and office automation tools are more reliable than man. A man can deceive cheat but a computer works on its own motion. So, for the prevention of fraud, office automation is a must.

Better Information Retrieval

Better information retrieval

A New-York surgeon contacted a medical library when a near-term pregnant woman lapsed into a hepatic coma. He needed immediate information on exchange blood transfusion for woman. Using a computer terminal and a retrieval program, the librarian searched more than a half million medical documents in a few minutes to get information needed by the surgeon to perform an emergency blood transfusion. The patient recovered fully from hepatitis. Most information retrieval tasks obviously do not involve life or death decision; but quick computer assisted retrieval can save time and aggravation for many individuals. So, office automation ensures better information retrieval.

Lower Operating Cost

Lower operating cost

Operating cost per hour of work declines with the use of office automation technologies. For example, a PC can help a manager budget

and balance his check book, control his installment purchases, control his home's energy use and analyze his investment. Of course, there is no doubt that office automation technologies require a large amount of initial capital investment. However, now-a-days, office automation prove beneficial. The costs of electronic-office equipment have been falling rapidly in recent years. Executives are now more receptive to the idea of investing in new office automation technology to reduce rising labour costs and improve productivity.

Reduction in Paper Work

Reduction in paper work

Paper based office work is certainly costly. It is not due to the increasing cost of paper but due to the procedure involved in preparing reports and letters. First, a letter is dictated (or written by hand). Then it is typed (draft), proofread and delivered to the executive. After corrections and alternations, the process is repeated again till it is approved. Office workers use to output written documents on paper - a physical medium that (i) takes space, (ii) requires postage for mailing or effort for delivering, (iii) often gets stored in file cabinets that is space consuming, (iv) requires additional work to update and destroy. So, finding no other way, managers are trying to reduce paper work to minimize the cost and improve office productivity. Only office automation provides a number of ways for accomplishing these through the use of office automation technologies such as computer processing, distributed data processing, e-mail, and teleconferencing etc.

Improved Communication Environment

Improved communication environment

Studies shows that a lot of office activities involve the communication of information to others. For example, more than half of a typical manager's time is spent communicating in meetings, phone calls, letters and memos. Secretaries and office staff support these communication efforts by taking messages, drafting documents, planning meetings and documenting verbal agreements. A key ingredient of office automation is the ability to communicate easily relevant data and information to every worker who needs it. It has obvious superiority in certain respects over traditional channels for business communication. The postal service can be slow, letters are sometimes lost, and the mail usually takes long time. Telephone calls require both senders and receiver to be on the line at he same time. Hand written memos depend on some internal distribution process and are easily lost in the shuffle of paper. To avoid all these drawbacks, a whole array of advanced communications, including e-mail, Internet, voice mail, facsimile transmission, local area network, teleconferencing, are now being offered by a modern automated office.

Exercise

1. *Multiple choice questions*

a. The use of office automation technology made prices lower by

i)   10 to 20 percent
ii)   10 to 30 percent
iii)   30 to 40 percent
iv)   45 to 65 percent.

b. Office automation facilitates the task of

i)   officers
ii)   managers
iii)   clerks
iv)   peons.

c. Operating cost per hour of work declines with the use of

i)   office automation technology
ii)   computer controlled robot
iii)   hand-made tools
iv)   electronic-mail system.

2. *Analytical questions*

1.   Identify and discuss some of the goals of office automation.
2.   Critically discuss advantages of an automated office.
3.   Discuss the effect of reduction of paper work on the environment.

Lesson 2: Office and Office Automation

Learning Objectives

On completion of this lesson you will be able to :

- define office
- classify office objectives
- outline the services of an office
- know what office automation is
- identify the benefits of office automation
- find out the obstacles to the growth of office automation.

Office

The office of today represents the largest and the most exciting area for the application of information technology. Normally, office may mean a central place where some sort of paper work is performed by the clerks on their desks. But this definition, though sounds correct, is incomplete. The office can be defined as :

Definition of an office

"*A place where proper records for the purpose of control information and efficient and effective operations are prepared, handled and serviced*".

- A place where professionals like physicians, lawyers, or engineers conducts their business.
- It may consists of a few tables, chairs, almirahs, typewriters, telephone, photocopier, computer and additional equipment like calculator, cyclostyle and Xerox machines.
- People in the office can be executives, secretaries, clerks and peons.

An office is primarily concerned with the records of organization - making records, using records and preserving them for future reference.

Function

The functions performed by an office may be classified as primary and secondary.

Primary and secondary functions

- *Primary* function of the office is to make, preserve and use records of the organization.
- The *secondary* functions may be divided into the following five categories.

i). Planning :

Another major office function is planning. Planning means scheduling the activities of the organization and lying down a course of action. Effective performance of all office work requires prior planning. Planning is necessary to avoid wastage and delay. Planning reduces overall cost of office operation.

ii). Communication :

Arranging communications between different individuals within premises of the office through interviews, telephones and conference etc and with outsiders through letters, telephones, telegrams and personal meetings etc is an important secondary function performed by the office.

iii). Compilation and Presentation of Statistics :

Compilation and presentation of data are also office work. Collection and comparison of prices, compilation of costs, analysis of sales and reckoning of payroll is also part of the office work.

iv). Systematization and Cost Reduction :

Systematization is done by analyzing the existing office routines and adopting improved ones. Office cost may be reduced by using automated technology whenever necessary. Off-line cost may also be reduced by adopting better office forms and other labour saving devices.

v). Creation and Management of Information :

All offices, irrespective of their size and kind, create and manage information that is required for making decisions or providing services to people within or outside the organization. The creation and management of information involves the following activities :

- Capturing facts and figures,
- Classifying and sorting,
- Calculating,
- Summarizing,
- Storing and retrieving,
- Reporting.

Services

The services of an office are as follows :

- Mailing service : Receiving, distributing and dispatching letters, notices, circulars, memoranda etc.
- Drafting, typing and duplicating services : Making arrangements for drafting typing and duplicating letters, circulars etc.
- Oral communication service : Providing all assistance for arranging interviews, conferences, meetings and receiving and making telephone calls.
- Accounting service : Recording business transactions, maintaining cost and financial accounts.
- Filing and indexing service : Maintaining, preserving and locating all office records and account books.
- Billing service : Preparing bills, passing credit and recovery of outstanding accounts.
- Statistical service : Collection, tabulation and interpretation of statistical data and preparation of charts and diagrams.

Characteristics of Office Automation System

Office automation is a widely used term today. It generally means the application of computer and communication technology to improve the productivity of "knowledge workers".

- Office automation refers to the use of sophisticated electronic equipment and communication systems to carry out the "electronic tasks". The tasks include

  - Text processing,
  - Data processing,
  - Information storage,
  - Information retrieval and updating,
  - Message distribution,
  - Document transmission and reproduction,
  - Teleconferencing.

- Office automation is a process that involves people, procedure and technology.

- Office automation technology include word processor, telecommunication, reprographics, e-mail, e-filing, facsimile transmission, micro-graphics and voice technologies.

Office Automation and MS Office

- Office automation involves the use of computers, in conjunction with other electronic-equipment to automate the basic secretarial and clerical tasks of office.

- Basic office automation consist of word processors connected to one another by means of a local area network.

- Office automation should be designed as a multifunction information system to provide executives decision support tools such as:

  - On-line access to databases,
  - Model building and forecasting,
  - Risk analysis,
  - Sophisticated graphics,
  - Integration of data and text,
  - Data communication.

- Some office automation systems go far beyond the function of providing word processing on networks. PCs or workstations are connected to a network.

- Office automation supports a large number of software packages that could be used as decision support tools. Important ones are :

  - Word processor,
  - Database management systems,
  - Electronic spreadsheets,
  - Graphics packages,
  - Electronic mail systems.

Common software packages for an office.

- Benefits of office automation include increased productivity, greater accuracy, lower clerical cost, continuously decreasing cost, decreasing size and increasing capabilities, quality and flexibility of outputs, and ease of operations.

Obstacles to the Growth of Office Automation

The problems which can obstruct the growth of office automation are as follows :

- Monotonous job specialization can lead to boredom, frequent errors, high personnel turnover and high training cost.
- People may be unable to locate records in large files because the records may have been stored under a number of different classification schemes.

Obstacles

- Cost associated with storing and duplicating documents within an organization or office, as well as the cost of preparing and mailing documents are often very high.

- Wrong management approach for a particular office.

- Poor selection of equipment relative to the employee's skill levels.

- Some argue that automated office will trend to dominate our lives as a society as individuals.

- On the economic front, the pessimists argue, more people will be displaced and then unemployed as the advances in technology are accelerated.

- Some administrators have lost their job or have suffered a loss of status and prestige when office automation systems were installed, and others have suffered anxiety at being forced to give up familiar surroundings and procedures and to learn new techniques.

- Clerical employees, for example, have often been displaced by computers and production employees are being threatened (or sometimes displaced) by the rapidly increasing use of office automation technologies or computer controlled machines.

- System miscalculation have also victimized individuals.

- Individuals may temporarily feel threatened by a change and reaction may be evidenced by open opposition and even destruction . Besides these, the following symptoms may be found, these are-

  - withholding a data and information,
  - providing inaccurate information,
  - distrusting computer outputs,
  - showing lowered morale.

- The lack of control over office automation system security has resulted in :
  - economic loss, i.e. theft of money and goods,
  - misrepresentation of facts,
  - system penetration and espionage,
  - a loss of privacy for individuals,
  - inconvenience,
  - and dehumanization.

Exercise

1. *Multiple choice questions*

a. An office is primarily concerned with

i)   the records of the organization
ii)   the files of the organization
iii)   the letters of the organization
iv)   the memos of the organization.

b. The secondary functions may be divided into

i)   3 categories
ii)   4 categories
iii)   5 categories
iv)   7 categories.

c. Office automation is a process that involves

i)   people, paper and procedure
ii)   people, procedure and technology
iii)   man, machine and management
iv)   people, procedure and production.

d. Increased productivity, greater accuracy, lower clerical cost and ease
     of operations are the benefits of

i)   offices
ii)   organization
iii)   office automation
iv)   planning.

e. Monotonous job specialization can lead to

i)   boredom, frequent errors, high   personnel turnover and high
        training cost
ii)   boredom, frequent errors, low personnel turnover and high training
        cost
iii)   boredom, non frequent errors, high personnel turnover and low
        training cost
iv)   boredom, frequent errors, high personnel turnover and low training
        cost.

f. Clerical employees have often been

i)   displaced by computers
ii)   honored by computers
iii)   rewarded by computers
iv)   dishonored by computers.

g. Overvalued representation could be used in

i)   data manipulation
ii)   criminal manipulation
iii)   file manipulation
iv)   record manipulation.

2. *Analytical questions*

a)   What is an office ? What are the functions of an office ?
b)   What do you understand by office automation ?
c)   Describe how administrators and employees may be harmed by the use of office automation technologies.
d)   What are the problems that can obstruct the growth of office automation ?

Lesson 3 : Computer Mail Systems

Learning Objectives

On completion of this lesson you will be able to :

- know voice mail systems and transmission of text
- learn what videotex is.

What is CMMS ?

A computer mail/message system (CMMS) is a network that can store, transmit and deliver electronic messages avoiding the usual postal services. CMMS is gaining popularity among large organization and offices in advanced countries mainly due to two reasons :

- The cost of sending a message over a CMMS has been continuously decreasing. It is dropping by 10 to 15 per cent every year.
- The postal service is relatively slow and messages get lost sometimes. When telephone is used to convey a message, it is not certain that the message will reach the concerned person.

A computer mail/message system (CMMS) is a network that can store, transmit and deliver electronic messages avoiding the usual postal services.

Message Distribution

A written message can be keyed into the system at any time for onward transmission. The message is received and stored in the receiving system. The receiver reviews the stored message at a time convenient to him. A visual display terminal is used to review the message. The receiver can also obtain a hard copy, if required, on the printer and can send replies immediately through the keyboard. Such systems are often referred to as "electronic mail service" and the storage part of the receiving end as "electronic mail box".

Message Distribution

Voice Mail System (VMS)

Voice mail systems function somewhat like an electronic mail box described above. However, instead of holding a recorded written message, it holds a recorded voice message. The caller establishes a connection between his/her phone and a computer and notifies the computer that he/she wants to leave a message at a particular number. The caller then leaves the message orally on the phone. The computer, in turn, converts the caller's oral message into a digital signal and forwards

Voice Mail System (VMS)

it to the concerned destination. At the receiving end, the voice message is recorded and stored until the receiver requests for it. The receiver, at any time convenient to him, can hear the computerized reproduction of the caller's voice. The same voice message can be sent to many people. The procedure for sending voice messages is shown in Fig. 1.1.

Voice mail boxes reduce/eliminate many frustrations of telephone communications, such as busy signals, non-availability of concerned persons and disturbances during an important meeting.

🖥 Transmission of Text

The conventional method of transmitting information in the form of text is through the teleprinter exchange system called "telex". In this system, text is transmitted over telecommunications lines between two terminals called teleprinters that look like typewriters. After establishing connection with the distant terminal, text is keyed into the keyboard of the sending-end terminal. The text is then transmitted over the lines to the receiving-end teleprinter which prints out the message automatically. The telex system is extremely widespread and found in almost every office.

The conventional method of transmitting information in the form of text is through the teleprinter exchange system called "telex".

These terminals may also be connected to computers to extend the use of computers to various places of work in an organization. With the introduction of microprocessors, the teleprinter terminals that are connected to computers are being replaced by the terminals with display screen and processing power. The screen displays text as it is keyed in, enabling a visual check before the input is transferred to the computer for onward transmission. Text is displayed on the screen faster than by the teleprinter terminals. It is a silent operation.

🖥 Videotex

Videotex refers to the transmission system that uses a TV set to display text. The development of videotex systems have led to the use of computer-based information services in the home. There are two kinds of videotex systems, namely,

Videotex refers to the transmission system that uses a TV set to display text.
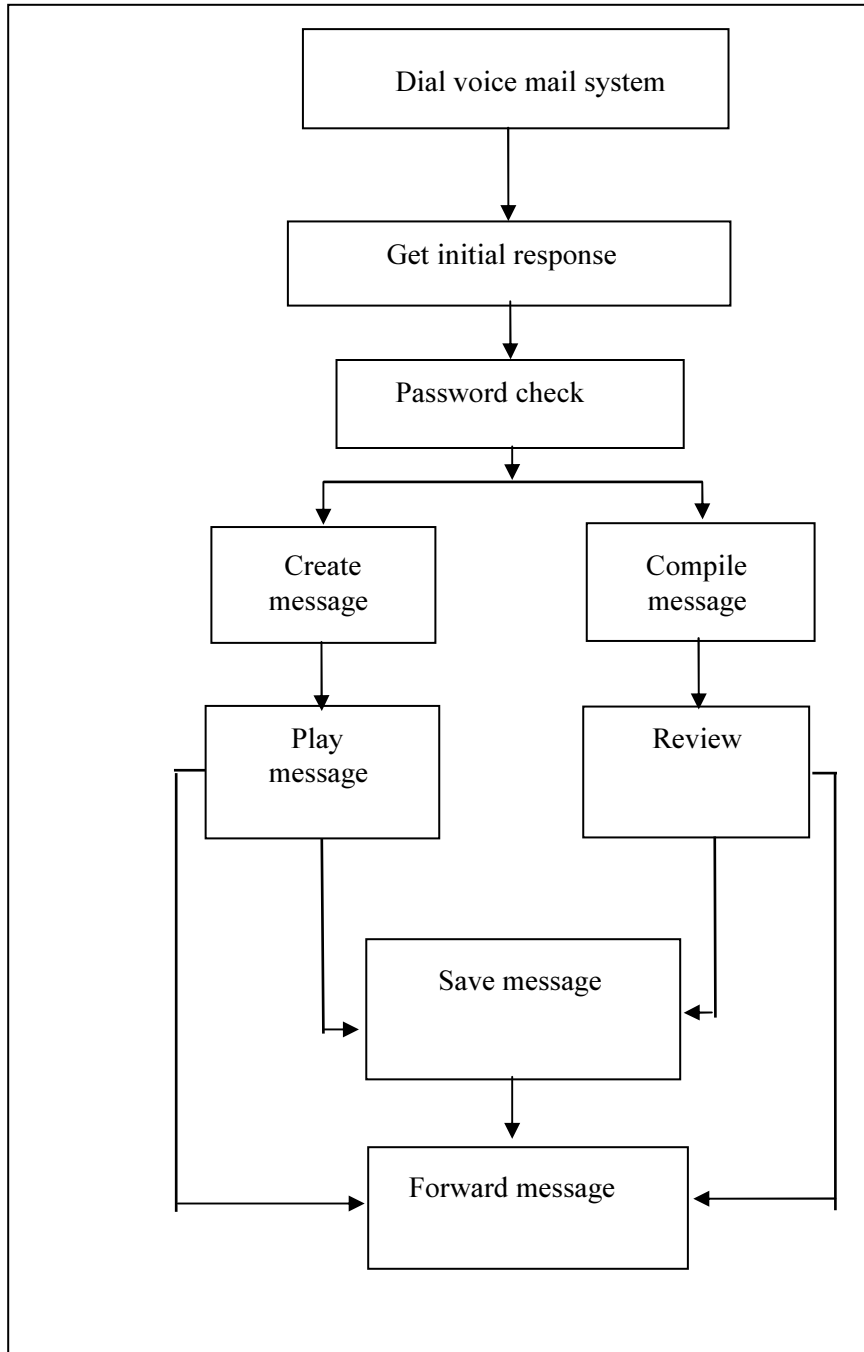
- teletext and
- viewdata.

Fig. 1.1: Sending voice messages.

Teletext

It is the transmission of text on the normal television channels for display on TV sets. This kind of service is popular in Britain. Both the British Broadcasting Corporation (BBC) and Independent Television (ITV) provide 'pages' of information on request by the viewer. The request is made by keying in page numbers on a hand-held control unit (keypad) and within a few seconds the requested page appears on the screen. Information covers topics such as travel, weather details, financial news, stock exchange rates, consumer items, important news items and special events of the day. Elements of a teletext system are shown in Fig. 1.2.
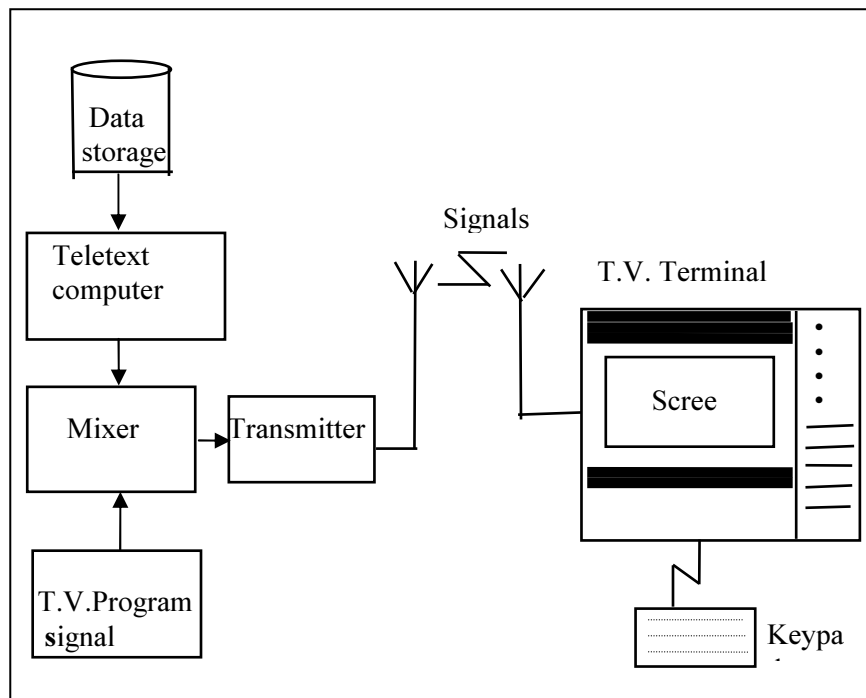
Teletext

Fig. 1.2: Elements of a teletext system.

Viewdata

Viewdata

It is a more versatile type of computer-based information system. This system links "viewdata terminals" to a central computer via telephone lines. The terminals are normally modified television sets which can still receive usual TV signals. A word processor can also be used as a terminal. Here again, information is transmitted as pages. A user requests for a page and gets it on a screen or printer. If a word processor is used, the message can be stored for future. The information is stored in the central viewdata computer and updated continuously. Elements of a viewdata system are shown in Fig. 1.3.
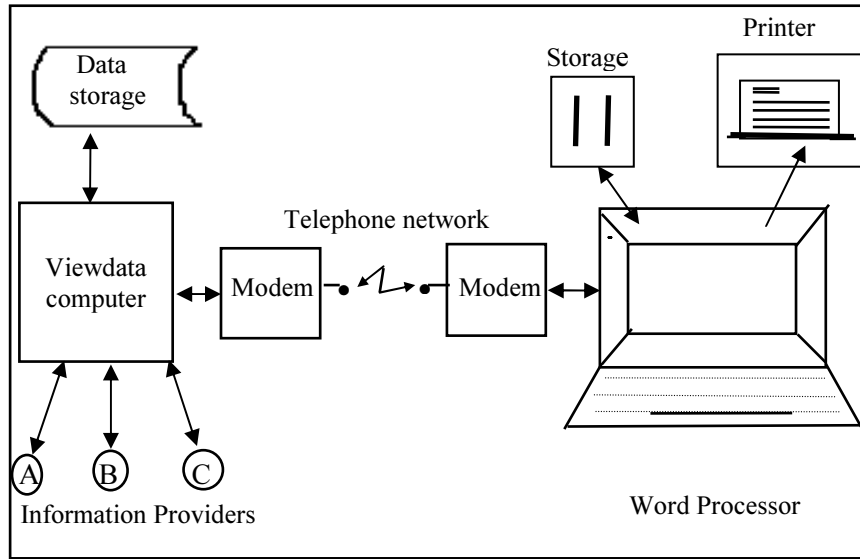
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Fig. 1.3: Elements of a viewdata system.

Britain and United States are among the leading countries that provide viewdata service to public. Viewdata service in Britain is popularly known as "Prestel". This service is provided by the British Telecommunications and is based on a number of regional computers situated in various parts of UK and a central computer in London. Information on Prestel is provided by independent agencies who lease space on the system. Government departments, business and industrial organizations and educational institutions are among the "Information Providers". In US, a large number of private organizations offer viewdate service. A user can register with a service company as a subscriber and can have access to the data bases maintained by the company. Subscribers can also exchange messages between themselves.

The interactive capabilities of viewdata promise a host of services to the public. It is possible to have electronic banking at home. A customer can get his bank account displayed on his television screen, make payments for goods and services and transfer money to other accounts or banks. Departmental stores use viewdata for providing "electronic shopping" service. Shoppers view merchandise on the TV screens and then place their orders through their home computers. Universities and educational institutions use viewdata for career guidance and for details of educational courses and opportunities.

Transmission of Pictures

Documents containing photographs, maps and drawings are transmitted using special machines called **facsimile** machines.

Modem

> MODEM means Modulator-DE Modulator unit.

MODEM means Modulator-DEModulator unit. A device that converts data from a digital form that is compatible with data processing equipment (e.g. Computer) to analog form that is compatible with certain transmission facilities and vice versa.

Summary

Office automation is a completely new way of perceiving the interaction between technology, people and functions. It provides a mixture of potential benefits and potential hazards. In order to reap the benefits over the hazards, the technology should be carefully selected and integrated with the people. Office automation is the collective term for the various technologies that have simplified, accelerated, organized and improved the quality of tasks such as typing, filing, conferencing, message exchange and generating, and distributing documents.

Exercise

1. *Multiple choice questions*

a. Videotex system are of

i)   2 kinds
ii)   3 kinds
iii)   4 kinds
iv)   5 kinds.

b. VMS means

i)   Voice Message System
ii)   Voice Mail System
iii)   Video Message System
iv)   Voice Mail Service.

c. Videotex refers to the transmission system that uses

i)   a CRT screen to display text
ii)   a TV set to display text
iii)   a printer to print the text
iv)   an electronic-mail box to receive the text.

2. *Analytical questions*

a)   Why should we use Computer Mail/Message System?
b)   What do you know about VMS? Briefly describe.
c)   What is telex? Describe the system.
d)   Describe different kinds of videotext system?