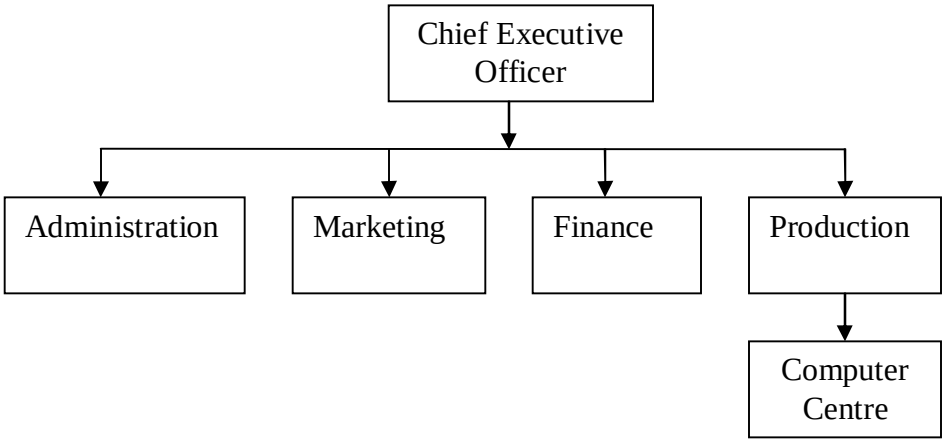
The Computer Centre is a service unit that utilizes computing resources to provide diverse computer services to the general public. It is an institution which contains one or more computers being operated upon by specialized set of people. A computer centre is a data processing centre where various data are being processed and turned to reliable information.

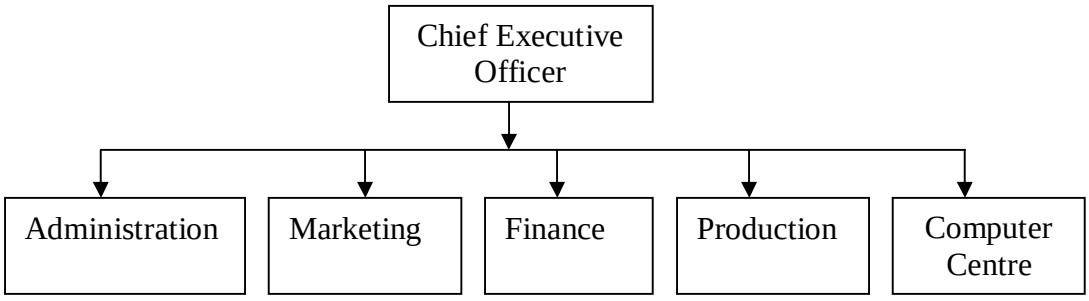
Every organization has an objective of setting up a computer centre, this is to ascertain the extend of relevance of the computer centre to an organization. The organization must put in place a good detail planning and layout of how the computer department should be. The manager must give detail planning to productive running, equipment selection, types of programs to be used, sitting arrangements and employment of qualified staff.

Computer Centre and its presence in organization

- A computer centre may simply be a single unit within each department



- A computer centre can provide services to other department as a company's centre



- Computer centre may be, instead, a separated unit under chief executive officer at the same level of authority as other functional departments.

Various Names of Computer Centre

Normally, all computer centres are responsible for virtually similar tasks in all organizations; however, their focuses may not be the same. Using a certain name would identify its focused responsibilities, and the following are examples of such naming convention.

- **Data Processing Centre:** To provide business data (Sales, Deposit/Withdrawal, Airline Ticketing, Student Registration, etc.) and produce summary report or other business documents.
- **MIS Centre:** To provide information for managers and executives for making timely and quality decisions (usually continuing the work of data processing).
- **Data Centre:** To provide data for use by all departments (e.g. centre to provide criminal records, population records, etc.)
- **Office Automation and Internet Centre:** To provide services to all departments with office automation and communication system.
- **Computing Service Centre (or Computer Centre or IT Service Centre):** Basically, to provide services of all types related to business data processing, business applications, and maintenance services to all departments in the organization.

Services provided by Computer Centre

- To provide computer-related services to personnel and customers
- To provide advice and consultancy for users
- To provide systems development services to users
- To provide data entry services for user
- To create and maintain IT standards and procedures
- To provide IT acquisition services to users
- To keep and protect IT and data assets
- To ensure that the organization has adequate/advanced IT progress, which is in line with the organization's vision
- To ensure that services provided are meeting with users' requirements

Types of Computer Centre

The nature of data being processed and level of computerization determined the type of computer centre an organization will operate.

Basically, there are two types of computer centre, viz:

- Centralized data processing (DP) centre.
- Decentralized data processing centre.

Centralized DP

Centralized computing is computing done at a central location, using terminals that are attached to a central computer. The computer itself may control all the peripherals directly (if they are physically connected to the central computer), or they may be attached via a terminal server. Alternatively, if the terminals have the capability, they may be able to connect to the central computer over the network. The terminals may be text terminals or thin clients, for example.

At this centre, all the data under processing must pass through the central location. All the facilities and staffs are concentrated in a place. There is a complete standardization at this centre. Besides, the centre ensures efficient utilization of the system throughout the day (24 hours service).

It offers greater security over decentralized systems because all of the processing is controlled in a central location. In addition, if one terminal breaks down, the user can simply go to another terminal and log in again, and all of their files will still be accessible. Depending on the system, they may even be able to resume their session from the point they were at before, as if nothing had happened.

Advantages

- **Sharing resources**: A well-planned centralized system holds data used across the organization in one place, allowing all staff to access it. This makes it both faster and easier to undertake organization-wide activities. Central planning and operation also allows compatible technology and skills to be introduced. Exchange of hardware, software and staff between organizational systems and units therefore becomes much easier.
- **Avoidance of duplication**: One main intention of centralized approaches is to have a single version of any particular information system for the whole organization, and to store any item of data once and only once. As a result, there is no wasted effort, no wasted storage capacity, and no inconsistency of data
- **Learning and Control**: A centralized approach to information systems provides an organizational focus for learning and for control. This is likely to produce higher quality information systems and can also reduce costs by:
  - avoiding the decentralization problems of non-functioning or malfunctioning systems,
  - avoiding the decentralization problems of inadequate security, maintenance and documentation, and by
  - allowing technology purchases and system developments that are not organizational
- **Achievement of scale economies:** Centralized approaches allow most activities to be undertaken more cheaply per unit. Items purchased externally – computers, software packages, consumables, staff training, etc. can be decided upon once and then bought in greater bulk. Activities undertaken internally-from system development to implementation and maintenance, and management of all these processes – cover a greater number of staff.
- Easy to manage
- Less personnel cost

Disadvantages

- **Resource Constraints:** Centralized approaches require the commitment of four key resources: money, time, people and skills.
- The central computer performs the computing functions and controls the remote terminals. This type of system relies totally on the central computer. Should the central computer crash, the entire system will "go down" (i.e. will be unavailable).

Decentralized DP

Decentralized computing is a trend in modern day business environments. This is the opposite of centralized computing, which was prevalent during the early days of computers. Decentralized computing is the allocation of resources, both hardware and software, to each individual workstation, or office location. In contrast, centralized computing exists when the majority of functions are carried out, or obtained from a remote centralized location.

Unlike the centralized centre, each location has its own data processing equipments and staffs. The system can operate independently but may be linked to bigger systems for enhanced operations i.e. the centre can operate on their own but may be affiliated to larger systems for enhanced performance. The method used here is otherwise called distributed data processing.

Advantages of Decentralized DP

- Users receive reports at system rate.
- Job priority is determined by local management.
- The centre is much easier to control.
- There is a relief on central computer work load.

Disadvantages of Decentralized DP

- Specialize DP staffs are distributed at each location.
- The system may not be large enough to justify employment of specialize DP staff therefore more profitable applications may not be considered.
- Duplication of effort: it tends to be very costly because units will often duplicate what others are doing. Duplication may cover analysis, design and implementation of information systems, gathering and administration of data, and system operation, support and maintenance.

- Since data of similar entities are held simultaneously in two or more different locations, it tends to become inconsistent. No one knows which, if any, version of the data is the most accurate or up-to-date.

Centralization versus Decentralization

A centralized computer centre handles all processing at a single computer site, maintains a single central database, has centralized development of applications, provides central technical services, sets development priorities centrally, and allocates computer resources centrally. The system's remote users are served by transporting input and output data physically or electronically.

A decentralized computer centre may have no central control of system development, no communication links among autonomous computing units, and stand-alone processors and databases at various sites. Each unit funds its own information processing activities and is totally responsible for all development and operation.

An advantage of centralized computer centre is that they provide for standardization in the collection of data and the release of information. There are also some economies of scale. Centralized computer centre reduces the need for multiple hardware's, software's, space, personnel and databases. It may be possible to recruit more qualified personnel in a central facility.

User motivation and satisfaction are increased under a decentralized environment. This is attained because users feel more involved and more responsible, systems are better customized to their specific needs, and they usually get better response time in routine operations as well as in requests for changes.

Factors to be considered when installing Computer System

Depending on the type of computer centre, certain factors have to be considered when installing computer system. The factors are:

1. **Local Support: It** is important to discover the level of support available locally from different manufactures of hardware. In most cases, the availability of such support would be a major factor in preferring a particular make of machine, even if initial cost are higher.

1. **Hardware Security:** Physical security around computer centres and laboratories need to be stepped up because of the activities of looters. Security attention should be given to the computer hardwares because of their small sizes; if the physical security is slack valuable and costly component of the system might be lost.
2. **Dust: It** is almost always advisable to provide dust cover on computer equipment when not in use, and in some areas special dust filters may be needed to prevent dust penetrating the casing.
3. **Heat:** Because of the heat been produced by the computer, full air conditioned office is highly imperative. It is advisable to buy portable air condition unit or install cooling fan in micro itself.
4. **Power Supply:** Computers can not function without electricity. Electric generators must be provided at the centre incase of the public power supply failure. In addition, the generator should be supported with power stabilizer and uninterruptible power supply (UPS). Power stabilizer protect the computer the harmful effects of fluctuations while UPS maintain the continuity of power supply in the gap between the switch over public supply to in- house generator or vise – versa.
5. **Humidity:** An unusually assemble of humidity can also be a problem, leading to corrosion of electric contact; it may be advisable to use non- corrodible plugs and socket or to use a contact less keyboard for example.
7. **Accessories:** It is essential to have a supply of computer accessories and part of a micro and all peripheral equipments.
8. **Workshop:** Basic maintenance facilities will be needed. It is not necessary to be an electronic engineer to do routine maintenance such as disc head alignment, to change board in the computer, or to run the diagnostics programs which will at least help to locate a fault.
9. **Communication Facilities:** These facilities must be provided to provide a link between the main computer centre and its terminals.
10. **Space Requirement:** From 400sq. ft. to several hundred thousand sq. ft; length-to-width ratio should be approximately 2:3; no long, narrow rooms.
11. **Floor loading:** should be sufficient, preferably with a sound-absorbent and antistatic covering.

Computer Centre Designs: Physical Computer Centre Setup

1. Site Selection
2. Designing office and rooms
3. Designing the whole centre
4. Detailing the facilities
    - Raised floor: let the wind blow under the floor
    - False ceiling
    - Air conditioner
    - Smoke and heat detectors
    - Rooms to be designed
    - Machine room
    - Operator working area
    - Storage for paper, tapes, disks and outputs
    - Customer engineer working area
    - Technician area
    - System development areas: for system analysts and programmers
    - Library: for storing books, journals and software
    - Conference and meeting rooms
    - Training rooms
    - Director rooms
    - Secretary rooms
    - Operator and guest areas
    - Toilet
    - Rest rooms
    - Areas for storing power units and air conditioners: such areas are needed to be designed so that there will be no harm in case of power supply shortage.

Planning should take into account the following special conditions:

- Separation into air-conditioned and non air-conditioned areas
- Floor preparation for equipment installation in the air condition areas

- Quiet zone in personnel areas (management offices, system support, operations scheduling, visiting programmers, library, conference room, coffee room).
- Solid and soundproof walls (over 40 dB in passage ways to separate air conditioned from non air-conditioned and noisy from quiet areas)
- Extensive use of moveable walls to allow for ongoing adjustments to technical and task-related developments
- Inclusion of reserve space in air conditioned and non air conditioned areas
- Provisions for visitors so that they do not disturb operations: (Many computer centers no longer permit machine room tours for security reasons, but portion of the operation may be viewed through safety glass from a gallery)