Professional Issues in IT

Structure and Management of Organizations

Structuring the Organizations

- An Organization is a group of people working together in a formal way
- Organizational work is shared between these people
- Rules about who does what
- How the work is shared
- How tasks and people are grouped together
- Organizational Structures vary among organizations

Organizational Models

- Organizational models answer two questions:
  - How the organizations are structured?
  - How the people in organizations work?
- Two Types
  - Bureaucratic model
  - Organic model

Bureaucratic model

- Developed in 19th Century
- This model still describes the organizational structure of most of the large scale organizations
- The ideal bureaucratic organization was thought to have the following characteristics:
- All tasks are split up into specialized jobs, in which jobholders become expert; management can thereby hold the jobholders responsible for the effective performance of their duties
- The performance of each task is governed by precise rules. This means that there should be no variation in the way tasks are carried out and therefore no problems with the coordination of different tasks.

Bureaucratic model

- Each individual/unit in the organization is accountable to one and only one manager

- In order to ensure that personalities and personal relationships do not interfere with the organization's performance, employees are required to relate both to other employees and to clients in impersonal and formal manner

- Recruitment is based on qualifications and employees are protected against arbitrary dismissal. Promotion is based on seniority and achievements. Life-time employment is envisioned.

Bureaucratic model

- Organizations will be hierarchical and its structure can be represented as a tree

- Many companies are successfully running for many years

- Modernized and liberalized versions of this mode are needed to be found

- Considering independence, this model is not very suitable for software companies because most of the people depend on each other. These people include developers, testers, project managers, QA Analysts.

Organic Model

- The best alternate of Bureaucratic model
- An organization will be effective to the extent that its structure is such as to ensure a maximum probability that in all interactions and in relationships within the organization, each member, in the light of his background, values, desire, and expectations, will view the experience as supportive and one which builds a sense of personal growth and importance.
- Most software companies operate with this view
- Also common in most of the academic institutions
- Like proponents of bureaucratic model, proponents of organic model claim that it is universally acceptable.

Matrix Management

- Every individual and every unit in the organization is responsible to only one manager in Bureaucratic model.

- However in case of software and high technology companies, individuals and unit may need to answer multiple managers

- Matrix management model can help addressing this issue but its implementations suggest that it is not very much effective.

Structuring Principles

- Bureaucratic Model tells us about the way individuals and groups in an organization relates to each other. It tells us nothing, however, about how to group together the tasks and activities that have to be carried out. There are many ways of doing this.
  - Structure by function
  - Structure by geography
  - Product line structures
  - Structure by market sector
  - Structure by technology
  - Operational structure

Structure By Function

- In almost every organization, we can identify certain groups of activities that have to be carried out and that fit naturally together.

- First of all, there are the activities that are the primary purpose of the organization. These activities are called operations.

- Secondly, all companies need to pay bills, hire and manage employees, and perform supporting operations. All these activities are generally known as administration.

- Thirdly, companies need to publicize their products and try to persuade the people to buy their products. These activities are generally known as sales and marketing.

- Finally, the companies need to be continually developing their products and services. These activities are called Research and Development activities.

Structure By Function
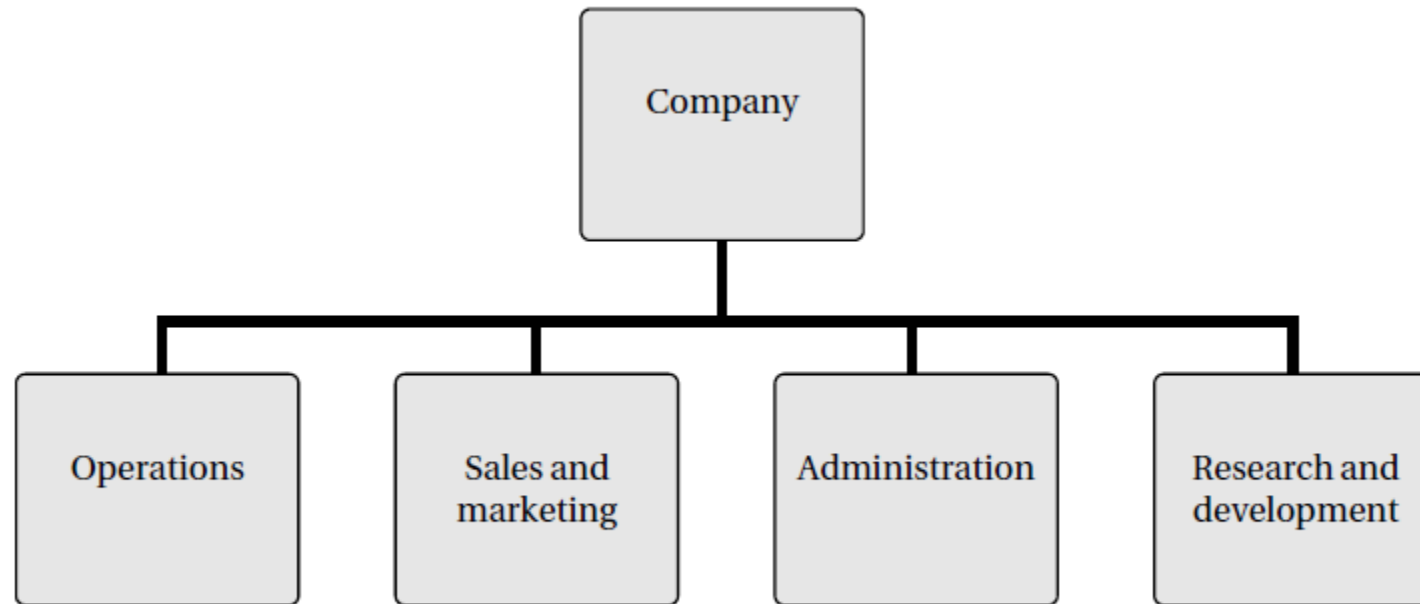
Structure By Geography

- In many cases it makes sense to group activities together on a geographical basis.
- Multinational companies are usually forced to have geographical elements in their organizational structure
- Multinational companies operate as subsidiary and register/operate under local laws regarding company formation, employment, accounting, and taxation.
- Sales and Marketing activities are performed after considering linguistic and cultural factors
- Sometimes companies are structured within the countries whereby large company structures are divided into regional team structures in order to increase efficient communication within the organization.

Product Line structures

- A Product line structure is based around the different types of products that an organization produces.
- This type of structure is usually adopted in engineering organizations or the organizations producing multiple types of products
- Software companies can also adopt this model
  - Development and maintenance of software
  - Consultancy
  - Training
- This should be regarded as product line
- Large multinational organizations have a mixture of functional, geographical, and product line structures.

Mix Structure
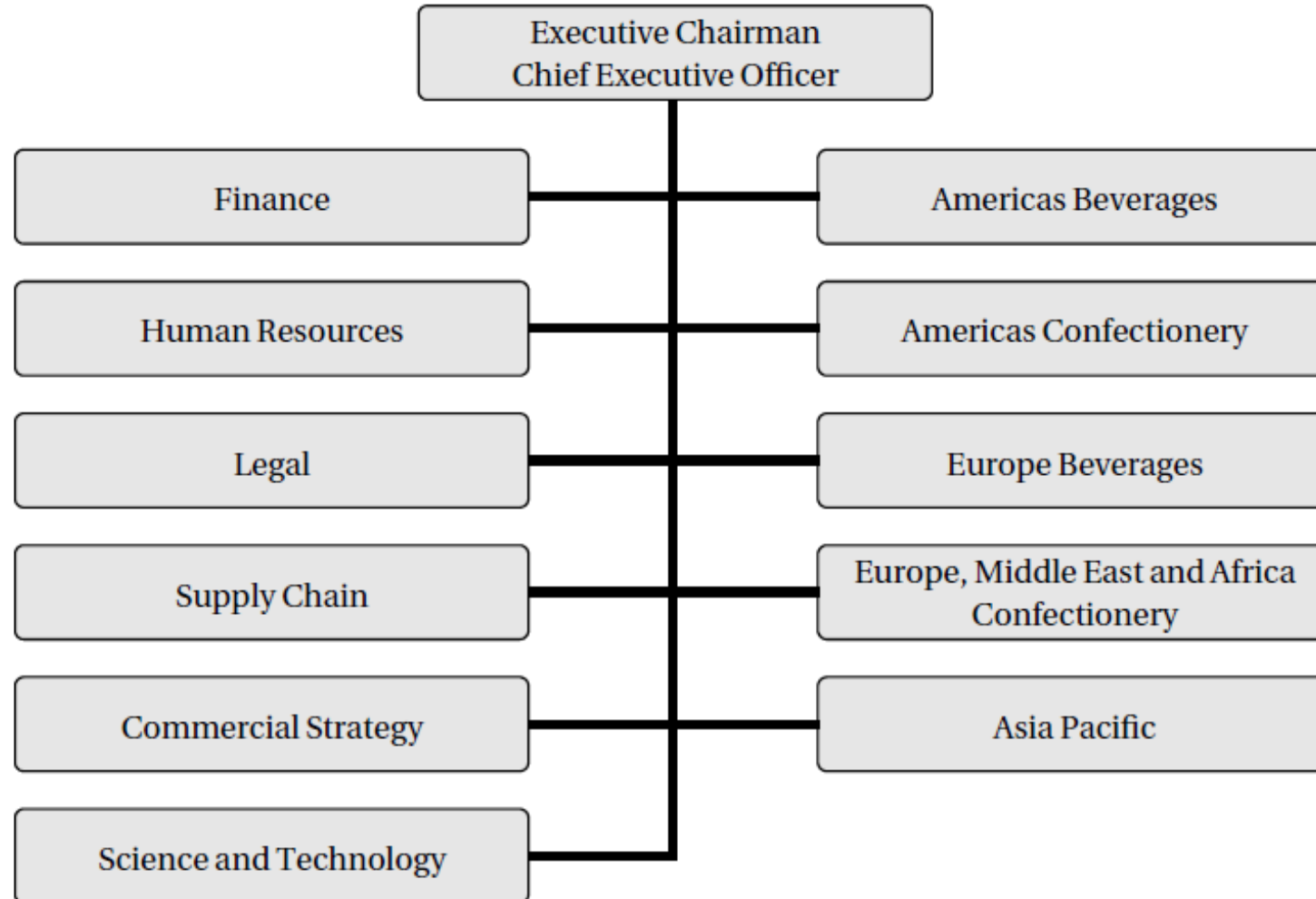
Structure by Market Structure

- Structuring the organization based on market
- This model is common in Software Industry whereby software companies provide services to specific industry sectors and then structure their teams accordingly. For example, a company dealing in medical software may hire the services of medical doctors and IT engineers in order to produce high quality software.
- This approach has two disadvantages
  - The lack of balance among technical and domain knowledge among technical and non-technical employees can results in bad products
  - Survival of organizations becomes almost impossible in saturated markets

Structure by Technology

- Once it was a favorite structure of software organizations
- Company has many technology divisions e.g. AI, IoT, Cyber Security, VR, AR, etc.
- This system has several issues:
  - It usually require several technologies to meet a customer's needs
  - Many applications do not require specific technologies
  - Software engineers may involve in multiple projects
  - It is difficult to determine which customer require specific technologies

Operational Structure

- Companies may work on projects or products. In both cases, the time of product delivery and project completion vary.

- Similarly companies may hire-fire employees for each project

- The Operational structure is hard to design and difficult to manage because each new project may require new set of people to run it.

- However, operational structures that support product manufacturing and delivery can be more beneficial because sometimes the products become main source of revenue which results in long term employment which increases employee's satisfaction level who like to stay more in the company.
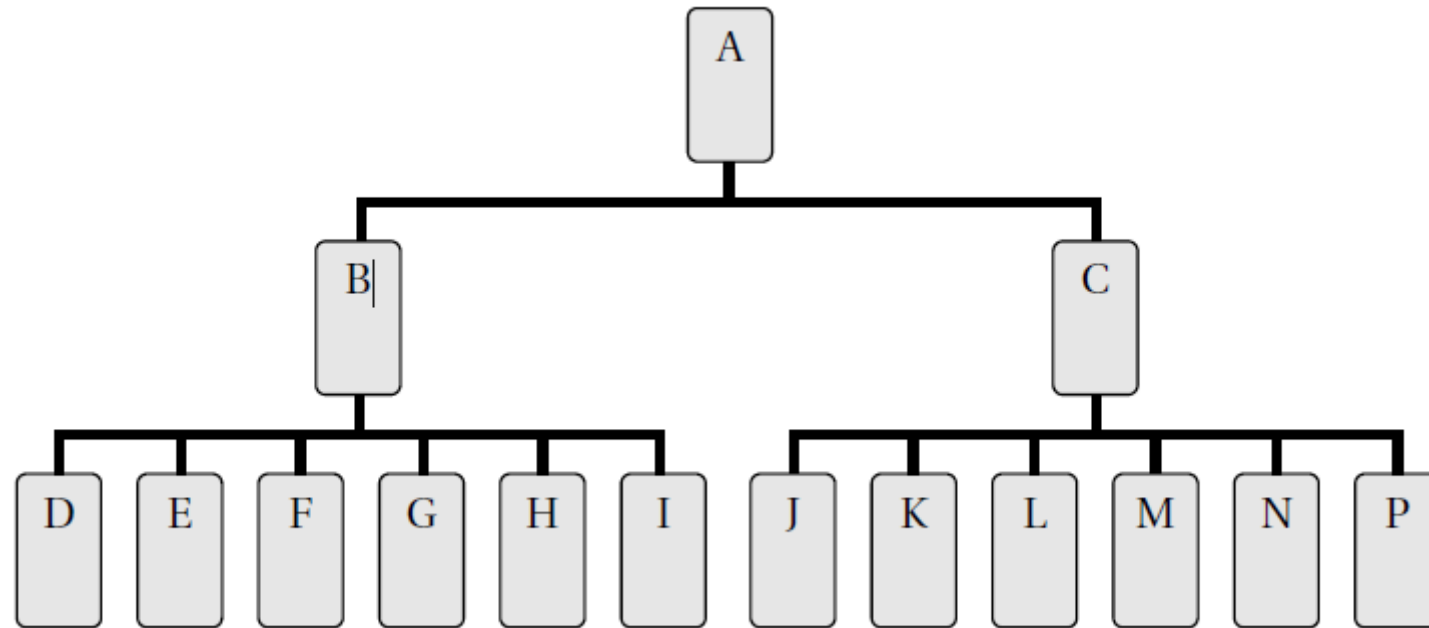
Depth of Structure

- The depth of an organizational structure is the number of layers in the structure i.e. maximum number of layers

- All parts of the structure may not have same depth

- Depending upon the depth, the structure are termed as flat (for shallow structures) or tall (for deep structures)

Example
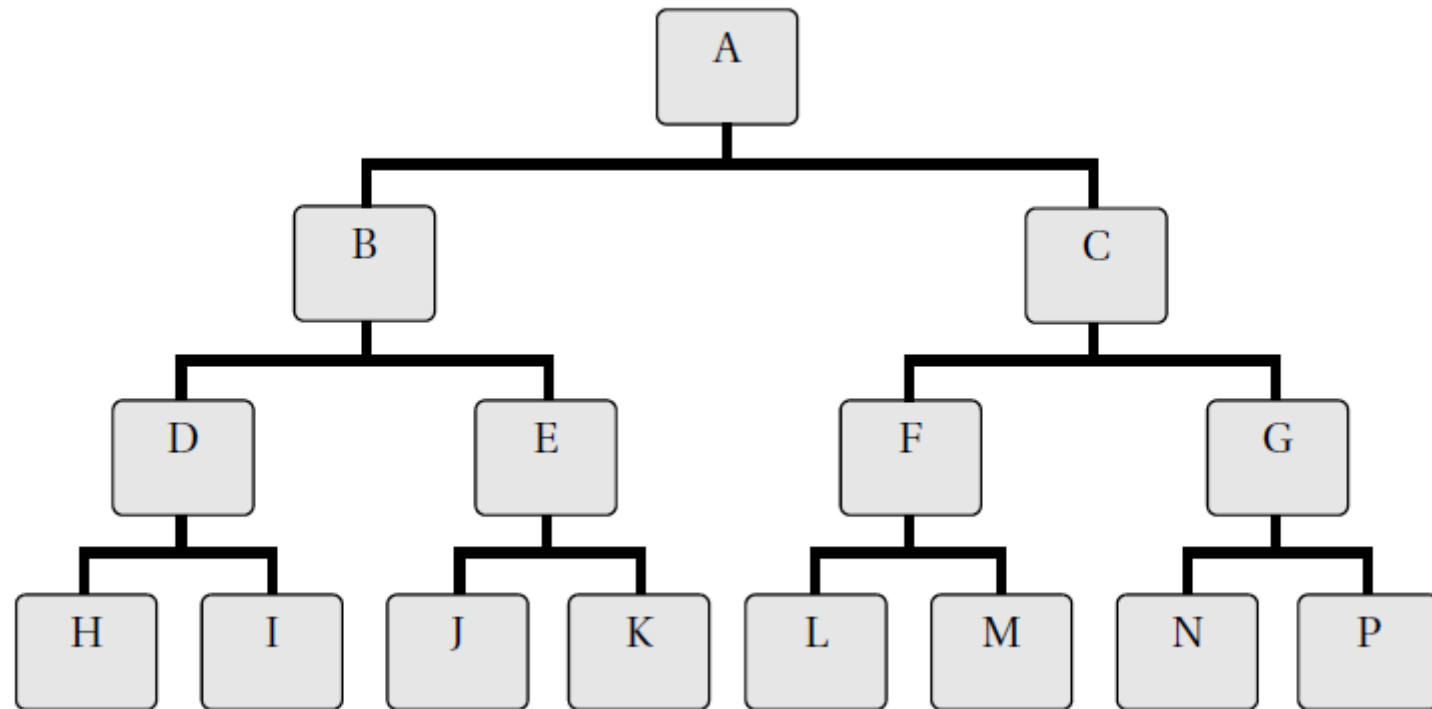
Example

Centralization

- Organization maybe centralized or decentralized
- Centralized: As much power as possible is kept at top of the company
- Decentralized: As much power and control as possible is delegated at the lowest level in the structure
- Drawing the correct balancing between centralization and decentralization is possible but difficult
- Decentralization is commonly found in R&D and high technology organizations
- Centralization is commonly found in manufacturing organizations

Setting up a structure

- Design the structure of a software organization that operates in three different countries i.e. Pakistan, UK, and USA. The company have different types of people who develop and market the software, manage financial and humane resources, and operations of the company.