4.2 Requirements Determination

It is helpful to view requirements determination through the three major activities of requirements which are discussed below:

4.2.1 Activities in Requirements Analysis

Activities involved in requirement analysis which assists in viewing requirements determination are:

- Requirements anticipation
- Requirements investigation
- Requirements specification

Requirements Anticipation

This activity is basically foreseeing system characteristics based on previous experiences. The system analyst, due to prior experience of studying a similar system, may foresee the requirements. He may also foresee certain problems or features and requirements for a new system. As a result, the features they investigate for the current system, questions that they raise, or methods employed may be based on this familiarity.

Requirements anticipation can be a mixed blessing. On the one hand, experience from previous studies can lead to investigation of areas that would otherwise go unnoticed by an unexperienced analyst. Having the background can help one know what to ask or which aspects of investigation can be beneficial to the organization. On the other hand, if a bias is introduced or short cuts are taken in investigations, requirements anticipation is a problem.

Requirements Investigation

This activity is at the heart of system analysis. Using a variety of tools and skills, analysts study the current system and document its features for further analysis.

Requirements investigation relies on fact finding techniques discussed later and includes methods for documenting and describing the system features.

Requirements Specification

The data produced during the fact finding study are analyzed to determine requirements specifications

- The description of features for a new system. This activity has three interrelated parts:

(i) ***Analysis of Factual Data:*** The data collected during the fact finding study and included in

data flow and decision analysis documentation are examined to determine how well the system is performing and whether it will meet the organization's demands.

(ii) ***Identification of Essential Requirements:*** Features that must be included in a new system, ranging from operation details to performance criteria, are specified.

(iii) ***Selection of Requirements Strategies:*** The methods that will be used to achieve the stated requirements are selected. These form the basis for system design, which follows requirements specifications.

4.2.2 Basic Requirements

Analysis structures their investigation by seeking answer to these four major questions:

- What is the basic business process?
- What data are used or produced during the process?
- What are the limits imposed by time and volume of work?
- What performance controls are used?

Understand the Process

Begin with the basic. Analysts must raise questions that, when answered, will provide a background of fundamental details about the system and describe it. Asking the following questions will help acquire the necessary understanding:

- What is the purpose of this business activity? (Objective)
- What steps are performed?
- Where are they performed?
- Who performs them?
- How long does this take?
- How often is it done?
- Who uses the resulting information?

Suppose you are investing an inventory recording system, something about which you know very little. You ask all the above questions with reference to the inventory recording system. Answers to these questions provide a broad understanding of what inventory recording is all about and show that the objective of inventory recording is more than just buying stock. But there is not yet enough

information to fully understand the system.

Identify Data Used and Information Produced

Analysis next needs to find out what data are used to perform each activity.

Most business transactions also produce the information that is useful to managers when they evaluate employee, business and system performance and that may be useful in another context to both manager and analyst.

Example: Inquiring analysts will find out data about inventory reordering and stocking also provide information about warehouse demands, purchasing practices, sales and cash flow.

Determining Process Timing and Volume

The frequency of business activities varies greatly.

Example: Some activities, such as paying taxes, occur only few times in a year, paying salaries to employees is monthly and paying to supplier occurs whenever purchases are made. Therefore, analysts must learn how often an activity is repeated.

Knowing whether an activity occurs frequently may lead an analyst to raise many additional and important questions to determine the reason for the frequency and its effect on business activities.

Many times the easiest way to get this information is to identify the reason for the activity: what causes the activity to be performed? Analysts refer to direct cause of activities as the trigger function. Activities can be triggered by customers (through call, letters, orders, etc.) by events (completion of an application to open a new bank account) and by the passage of time.

Some activities, such as completing a purchase requisition, take only a few seconds. Others, such as deciding whether to accept a merger offer, occur infrequently but take lot of time. Time alone does not determine the importance of an activity, but it does affect the way analysts evaluate certain steps in carrying out the performance.

Identify Controls

In business situations there are well controlled either by management or process monitoring, determining whether an activity has been performed properly may be no problem. But during the analysis stage, the analyst must examine control methods: are there specific performance standards? Who compares performance against standards? How are mistakes caught? How are errors handled? Are the errors excessive? Weak or missing controls are an important discovery in any systems

investigation.

4.3 Types of Requirements

1. ***Functional requirement:*** It points to the statements of services that the system should offer, how the system should respond to specific inputs and how the system should perform in specific situation.

   Functional requirements essentially:

   - Illustrate functionality or system services
   - Depend on the category of software, predictable users and the sort of system where the software is used
   - Functional user requirements may be elevated statements of what the system should do; functional system requirements should illustrate the system services detail.

   Example:

   - The consumer shall be able to investigate either all of the preliminary set of databases or choose a subset from it
   - The system shall offer suitable viewers for the user to read documents in the document store
   - Each order shall be assigned a unique identifier (ORDER ID) which the user shall be able to copy to the account's permanent storage region.

2. ***Nonfunctional requirement:*** A property or eminence the system must have

   - Performance
   - Security
   - Costs

   Restrictions on the services or functions provided by the system like timing constraints, restrictions on the development process, standards, etc.

   A non-functional requirement includes:

   - Product requirements
     - Requirements which state that the delivered product must perform in a specific manner, e.g. execution speed, reliability etc.

- Organizational requirements
  - Requirements which are a result of organizational plans and procedures, e.g. process standards used implementation requirements etc.
- External requirements
  - Requirements which happen from factors which are external to the system and its growth process, e.g. interoperability requirements, governmental requirements etc.