

Chapter 8

Process analysis

Learning outcomes

After studying this chapter you should be able to:

- ❑ describe the key elements of a process
- ❑ establish performance indicators and measurements for each process
- ❑ produce process flow charts that link together to form a coherent system description
- ❑ identify the extent to which the processes meet the requirements of governing standards
- ❑ identify the changes that need to be made to ensure the processes are effective
- ❑ select an appropriate type of document for communicating relevant process information
- ❑ understand the importance of culture on process performance and how to minimize its effects.

Change in direction

ISO 9001:1994 required production, installation and servicing processes to be identified (but no other processes). It also required these processes be planned and carried out under controlled conditions which were to include documented procedures and the monitoring of process parameters. ISO 9001:2000 takes a completely different approach. It requires the organization to measure, monitor

and analyse processes, determine their sequence and interaction and determine criteria and methods to ensure effective operation and control. A process that is operating effectively delivers the required outputs of the required quality, on time, economically while meeting the policies and regulations that apply. This won't happen if left to chance, it has to be engineered - work has to be done to design a process with this understanding of effectiveness in mind.

Previously, all that was in most people's minds was to 'document what you do'. In some cases processes were operating effectively, but what was captured was at best a sequence of activities and at worst, a list of responsibilities. Much of what makes a process effective was left undiscovered, undocumented, not understood and probably not managed. What generally resulted from this approach was that independent procedures, not processes, were developed and written down and put together to form manuals. What is required is clearly a change in direction away from documenting what exists to designing effective processes - a task, the complexity of which will become apparent from reading this chapter.

Nature of processes

Processes comprise the actions and decisions required to transform the inputs into outputs that meet process objectives. However there are different types of activities and every activity requires adequate resources, information and a suitable environment for an effective transformation to take place. A popular way to define a process is through a flow chart. However, the flow chart should not be construed as being the process, as it is often merely a diagrammatic representation of the steps of a process.

To obtain a better understanding of the organization's processes it is necessary to perform a process analysis. Each process has a number of inherent characteristics.

- ❑ Products or information that are to be processed
- ❑ Objectives for the performance of the process
- ❑ Instructions which convey requirements for the product or information to be processed

- ❑ Planning activities which establish who is to do what, when, how, where and why
- ❑ Preparatory activities which set-up conditions for commencing work
- ❑ Result-producing activities that act upon the inputs in the sequence they are executed
- ❑ Interfaces between activities and other processes supplying resources, product or information
- ❑ Interfaces between sequential activities receiving or supplying product or information required for processing
- ❑ Measurement activities for verifying that inputs and outputs meet requirements
- ❑ Measurement activities that verify that the process performs as intended
- ❑ Data collection points that capture data needed to judge process capability
- ❑ Diagnostic activities that discover the cause of variation
- ❑ Decision stages where decision makers consider the facts and decide on a course of action
- ❑ Feedback loops which return product or information for reprocessing
- ❑ Routing activities which move outputs including waste from one stage to another
- ❑ Resources which energize the activities and decisions including people, time, materials, machines, facilities, space etc
- ❑ Constraints which prevent, restrict, limit or regulate events.