

11.5.2 ISO 9000 Quality Standards

The ISO 9000 standards describe the elements in quality assurance, which outline the requirements of good quality product in an organization. The elements comprise organizational structure, procedures, and resources that are needed to implement quality assurance in the software. These standards also provide auditing tools to make sure that they are properly implemented according to the standards and meet the user requirements. After implementing these standards, it is mandatory to audit the organization to evaluate its effectiveness. After a successful audit, the organization receives a registration certificate, which identifies the quality of the organization as being in compliance with ISO 9000 standards. ISO 9000 series includes three models, which are listed below.

- **ISO 9001:** This quality assurance model applies to organizations that design, develop, install, and service products. It discusses how to meet customer needs effectively.
- **ISO 9002:** This quality assurance model applies to organizations that produce, install, and service products. This model is nearly identical to 9001, except that it does not incorporate design and development.
- **ISO 9003:** This quality assurance model applies to organizations whose processes are almost exclusive to inspection and testing of final products. This model is currently limited to an inspection function.

One of the quality standards that is commonly used in practice is ISO 9001:2000. It is a quality management standard that is established for improving the overall quality of the process and product in an organization. It can be achieved by using appropriate management policies and practices. The ISO 9001:2000 is based on several management principles relating to different requirements. These principles are discussed here.

- **Management responsibility:** Describes a policy and regular reviews of management tasks and activities
- **Sales:** Provides information, which is helpful in understanding customer needs
- **Document control:** Provides information on manuals and documentation prepared for an organization

- **Purchasing:** Provides information to customers on how to make sure that they are purchasing the required products
- **Identification and traceability:** Provides information on how to identify products and services (particularly certified items)
- **Inspection and test:** Provides information on how to test and inspect the products.
- **Corrective and preventive action:** Provides information on how to detect faults in the products and ways to manage them
- **Quality system:** Consists of a quality manual, which shows whether the manual applies to the management. It also examines the procedures and processes of the product.