

Anwar El-Tawil

Standards and Quality



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Standards
and **Quality**

DEDICATION

This book is dedicated to the memory of Dr. Lawrence D. Eicher, Secretary General of ISO from 1986 to 2002.

PREFACE

It is well known that standards and quality are closely related. While many books and references have been written on quality techniques, much less was written about the techniques of standard setting and the institutions involved in that activity at the industry, national and international levels.

This book is about standards and quality. The book provides the essential features of both disciplines. It starts with an overview of standardization: what are standards, what benefits they bring, how they evolved. Then it goes on to describe the essential features and bodies active in national and international standardization. Conformity to standards is discussed, as well as accreditation and the bodies that carry out these activities.

Quality and quality management are described. A brief history of the evolution of quality concepts from preindustrial times till the present is given. Quality techniques are described including quality management systems according to ISO 9000 series of standards and the six sigma approach to quality management.

The books also includes an overview of other management systems such as food safety management, social responsibility and energy management. The role of metrology is described and the different elements of the quality infrastructure are explained.

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CHAPTER 1

STANDARDS AND THEIR BENEFITS

1.1 WHAT ARE STANDARDS?

In common language the word “standard” signifies several things and is used in many different contexts. The Oxford English Dictionary gives the following meanings of the word standard: 1) level of quality or attainment; 2) something used as a measure, norm or model in comparative evaluations; 3) a military or ceremonial flag; 4) a tree that grows on an erect stem of full height; 5) an upright water or gas pipe. The English word “standard” stems from an old French word that means a flag (cf. meaning no. 3 of the Oxford Dictionary above). This word indicates the position of a standard, which is that of a lead object that is followed by the troops of an army or by people in general.

In social sciences the word standard is used in the expression “standard of living”, in economics we encounter the “gold standard”, in animal husbandry the “breed standard”, in mathematics the “standard deviation” and in cryptology the “encryption standard”.

This and the following chapters deal with **documentary standards** applicable to production and service processes and to the outcome of those processes: products and services. Documentary standards are best described by the International Organization for Standardization (ISO) and the International Electro-technical Commission (IEC), the two apex international standards organizations. The definition of “standard” given by these two organizations is as follows^a:

^aThis definition is given in the publication authored by the two international organizations entitled « ISO/IEC Guide 2: 2004 Standardization and related activities -- General vocabulary »

A Standard: is a *document established by consensus and approved by a recognized body that provides for common and repeated use, rules, guidelines or characteristics of activities or their results aimed at achieving the optimum degree of order in a given context.*

Several important characteristics of documentary standards follow from this definition. First, it implies that standards are established by consensus, which means that those concerned by the standard, usually called the stakeholders, have agreed that a given standard is the best way of doing business and that it safeguards their interests in a balanced manner. Secondly, the definition mentions that standards are established for common and repeated use. This distinguishes a standard from an agreement between business partners that deals with one particular situation and may be fixed in a contract or in letters of acceptance but need not be fixed in a document available to other parties such as a standard. Thirdly, the definition describes the possible content of a standard as being rules, guidelines or characteristics that apply to activities or processes as well as to their outcome. Such an outcome could be a product or a service.

The definition also states that standards are established by a recognized body. This limits the establishment of formal standards to recognized bodies that are in a position to get the stakeholders of standardization together in a way that promotes the establishment of consensus. Such bodies provide a suitable forum for precise formulation, further development and updating of the standard. Those bodies facilitate the publication of standards, make them available to users and act as a repository for the collection of standards in the given field or fields. For a more detailed description of the status and functioning of standards bodies, see Chapter 3.

An important aspect of documentary standards as defined by ISO/IEC is expressed in the last phrase of the definition, which states that a standard *aims at achieving the optimum degree of order in a given context.*