

**DESIGN AND DEVELOPMENT OF ISO 9001:2000
BASED QUALITY INFORMATION SYSTEM
AND ITS FINANCIAL ACCOUNTABILITY**

ABSTRACT
of the thesis

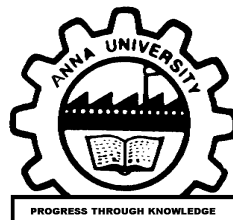
Submitted by

M. SAKTHIVEL

in fulfilment for the award of the degree

of

DOCTOR OF PHILOSOPHY



**FACULTY OF MECHANICAL ENGINEERING
ANNA UNIVERSITY : CHENNAI 600 025**

JUNE 2006

ABSTRACT

During the past five decades, the world had been adopting quality as the weapon to face the competitive market war. The long process of honing the sharpness of quality weapon has progressed through several eras. New quality strategies and models have been emanating during these eras. One of them that have been conquering the global organizations is ISO 9000 certification. The pace at which ISO 9000 certification occurs is unabated and growing phenomenally. The impact of this phenomenon has been so severe that it has made organizations of various types and sizes to become quality system conscious.

Significant benefits have been reported in literature over obtaining ISO 9000 certifications. Particularly, the revised version of ISO 9001 released during the year 2000, has been found to receive the appreciation of both researchers and practitioners. This is due to the reason that, ISO 9001:2000 is very clear in enunciating the phases of continual quality improvement journey. Yet the world community is yet to nourish the full value by deriving appropriate information from ISO 9001:2000 based quality systems.

The value of information can be sensed by seeing the enormous contributions that the field of information technology has offered to the human race. It is very concerning that ISO 9001:2000 based quality systems and information systems are not integrated to reach the destination of

continual quality improvement journey. The research work reported in this thesis has strived to overcome this research and practice deficiency.

This research work has been accomplished in two phases. During the first phase of this research work, the modules of the quality information system (QIS) pertaining to the five major clauses of ISO 9001:2000 have been developed. After designing these QIS modules, their practicality were examined by conducting case studies at an Indian high technology oriented manufacturing company. The implementation experiences gained through the conduct of these case studies were used to suggest the roadmaps for successfully implementing the above QIS modules. Also, after developing each module of this QIS, the validation studies were conducted by gathering the feedback of the managing partner of the company using the questionnaires. The feedbacks of the managing partner were favourable indicating the practical validity of the modules of ISO 9001:2000 based QIS.

The world's current quest for imbibing the information as the competitive strategy in organizations can be sensed by observing the popularity of Enterprise Resource Planning (ERP) packages. It is reported that large amount of money has been invested on ERP implementation and subsequently significant benefits have been reaped. This trend favours the fruitful adoption of the modules of QIS of ISO 9001:2000 standard which have been contributed during this research work. However, the increasing reports of failure of ERP systems may have to be noticed now with caution.

One of the presumable reasons for the reported failures of ERP packages is that, their inputs and outputs are not made available in the form of financial values. This situation leads to an inference that a mechanism is necessary to financially depict the inputs and outputs of ISO 9001:2000 based QIS. In order to fulfill this requirement, during the second phase of this research work, a financial accounting system of ISO 9001:2000 based QIS has been designed and developed. Using this financial accounting system, the income and expenditure account and balance sheet of the ISO 9001:2000 based QIS implemented in the above mentioned company were developed. These statements were shown to the managing director and his feedback was obtained.

On the whole, this research work has concentrated upon integrating two powerful competitive strategies namely quality and information and contributed the models for attaining and sustaining them. Since the validation studies have been conducted continually in a typical real time environment, the contributions of this research work have been practically compatible in all aspects. Besides, the scientific principles and research findings drawn from the literature have been suitably exploited in this research work. On adoption, the contributions of this research work would enable the contemporary organizations to leverage the benefits of implementing ISO 9001:2000 standard.