

Effects of ISO 9001 on Efficiency of Firms: A Conceptual Framework

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Abstract: - This study analyses the effects of ISO 9001 on product efficiency of firms. The firms are from the food and beverages industries, the machineries industries as well as from the electrical and electronics appliances manufacturing industries and include both adopters and non- adopters of ISO 9001. A conceptual approach is adopted and the effects of ISO 9001 can be modeled in four ways: as a managerial input alongside the conventional inputs of capital and labor, as a factor affecting technical inefficiency, as an input and a factor affecting technical inefficiency and as having no effect at all. ISO 9001 operates as a factor affecting technical inefficiency with non-neutral effects on capital and labor. The combined effect of ISO 9001 with capital increases the level of technical inefficiency reflecting adjustment costs incurred when ISO 9001 is adopted. The combined effect of ISO 9001 with labor decreases the level of technical inefficiency reflecting the positive result of ISO 9001 on reducing x -inefficiency.

I. INTRODUCTION

A quality system; consists of a set of fixed business procedures and rules aiming to ensure that a product, process or service meets a pre-determined and widely acknowledged set of standards. Quality assurance, an industrial process designed to manage and update the quality system, is able to continuously guarantee and demonstrate that the system conforms to the agreed set of specific conditions and standards. The ISO 9000 series or, more formally, &quality management and quality assurance standards & quality; outlines the requirements to be met by a producer, illustrating the producer& competence to design, produce and deliver products or services with a consistent and coherent level of quality.

II. OBSERVATION FOR THE EFFICIENCY OF ISO 9001

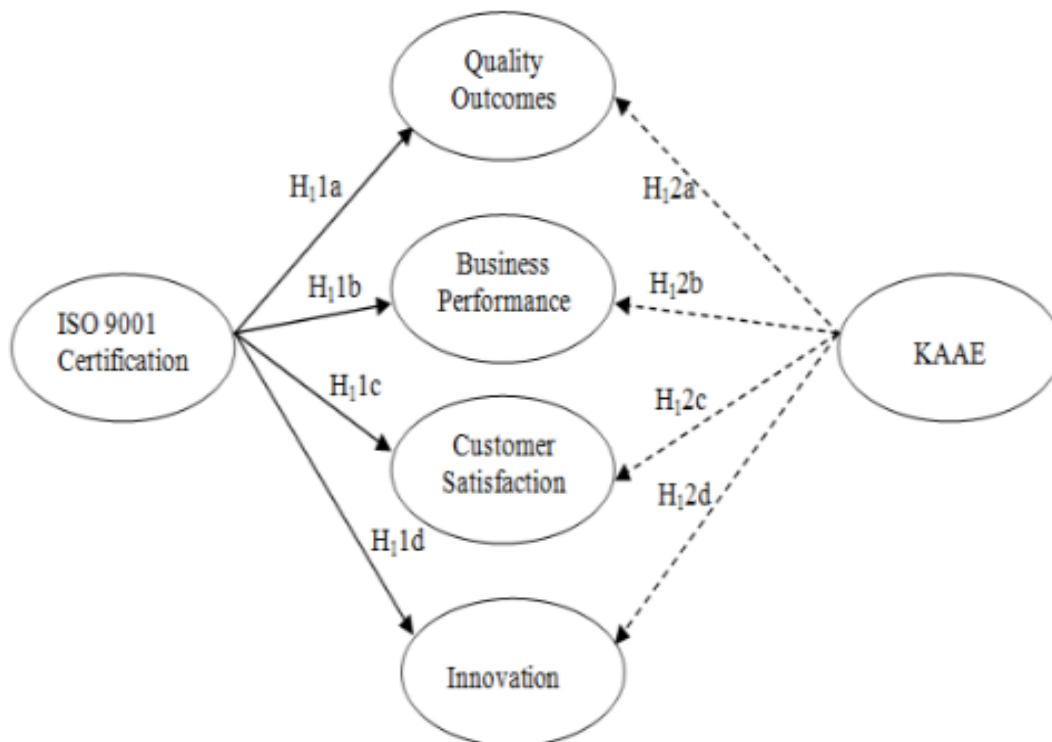


Fig 1. Branches of ISO 9001

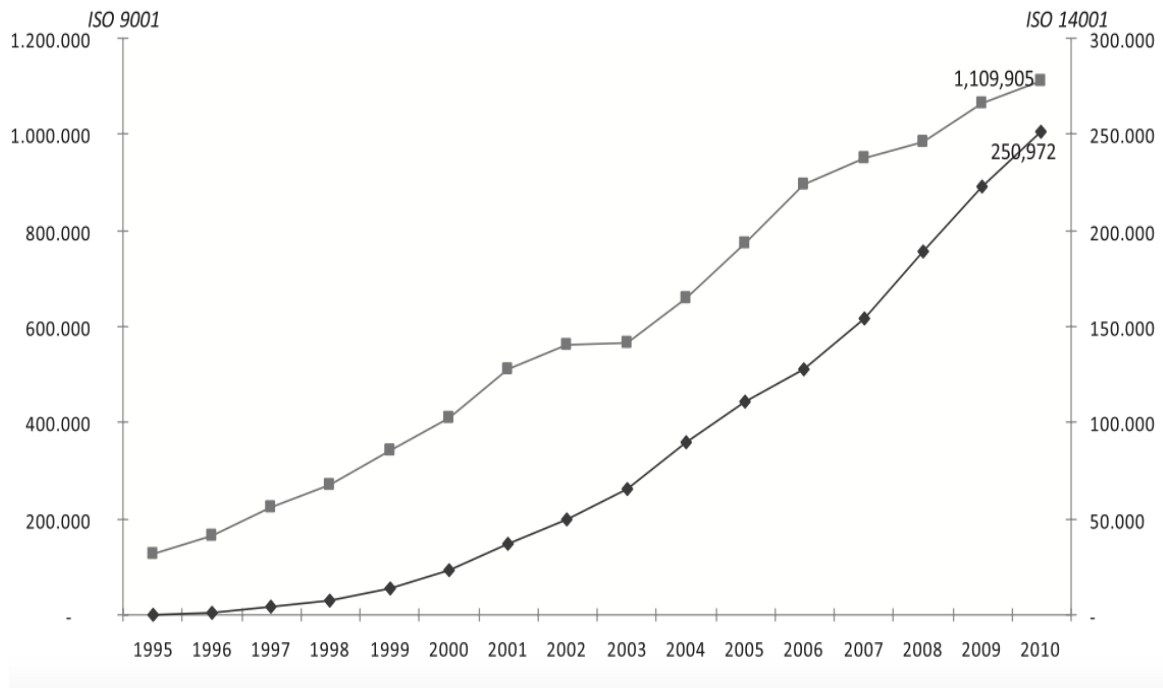


Fig 2. A comparative analysis between ISO 9001 and ISO 14001

According to the analysis above, this work represents an attempt to analyse in depth the class of standards known as management system standards (MSS), also referred to as meta-standards (Uzumeri 1997), and which have been so successful in recent years. In this paper, a review of the substantial advances made in the field of this subject of study is carried out; the review comes within the category of integrative reviews, works ‘that seek to merge findings from related areas’ (Macpherson and Jones 2010, p. 109). Moreover, a research agenda for the field is proposed. The paper focuses on the two main global management standards at the international level: ISO 14001 and ISO 9001.

III. ARTICLE REVIEWS

A. An Instrument for Measuring the Critical Factors of Quality Management

This article written by Jayanth V and P George and Roger G. focuses on the various critical factors of quality management. While many organizations collect quality data such as defect rates, error rates, rework cost, and scrap cost, these are not measures of organization-wide quality management. This paper provides a synthesis of the quality literature by identifying eight critical factors (areas) of quality management in a business unit. Operational measures of these factors are developed using data collected from 162 general managers and quality managers of 89 divisions of 20 companies. The measures can be used individually or in concert to produce a profile of organization-wide quality practices. The measures are found to be both valid and reliable. Such measures could be used by decision makers in an organization to assess the status of quality management in order to direct improvements in the

quality area. Researchers can use such measures to better understand quality management practice and to build theories and models that relate the critical factors of quality management to the organization's quality environment and quality performance.

B. The Impact of Quality Management Practices on Performance and Competitive Advantage

This article written by Barbara B, and Roger G, focuses on both core quality management practices and on the infrastructure that creates an environment supportive of their use. In addition, it incorporates two measures of quality performance and their role in establishing and sustaining a competitive advantage. Path analysis was used to test the proposed model, with multiple regression analysis determining the path coefficients, which were decomposed into their various effects. Weak linkages were eliminated. The trimmed model indicated that perceived quality market outcomes were primarily related to statistical control/feedback and the product design process, while the internal measure of percent that passed final inspection without requiring rework was strongly related to process flow management and to statistical control/feedback, to a lesser extent. Both measures of quality performance were related to competitive advantage. Important infrastructure components included top management support and workforce management. Supplier relationships and work attitudes were also related to some of the core quality practices and quality performance measures. The results were interpreted in light of Hill's concept of order winners and order qualifiers and Garvin's eight dimensions of quality. They indicate that different core quality

management practices lead to success in different dimensions of quality, and that those dimensions.

C. Total Quality Management Implementation and Competitive Advantage: The Role of Structural Control and Exploration

This article written by Thomas J Douglas and William Q Judge JR. focuses on the relationship between the degree to which total quality management practices were adopted within organizations and the corresponding competitive advantages achieved. According to the article the authors found relatively strong support for this relationship. Their data showed some support for the moderating influence of organizational structure on TQM implementation effectiveness. Specifically, two measures of organizational structure, labelled "control" and "exploration," were found to offer independent and interdependent influences on the financial performance of firms implementing TQM programs.

D. Management Theory And Total Quality: Improving Research And Practice Through Theory Development

JAMES W. DEAN, JR. University of Cincinnati DAVID E. BOWEN The authors of this research James W. and David E. Bowen. introduce this theory-development forum by comparing total quality and management theory at both global and topic-specific levels. There, analysis suggests that management research could be enhanced by incorporating some insights of total quality into management theory. To conclude, they have written that management practice could be improved by incorporating insights from management theory into total quality efforts, and that, in fact, total quality has already incorporated many such Finally, we suggest some directions for theory development and research on total quality.

E. Don't Wait for Standards before Moving Closer to Smart Manufacturing, Cleveland 2015.

This article talks about how manufactures should not wait Standards Before Moving Closer to Smart Manufacturing. Smart Manufacturing is not a moment in time. A good strategy thinks about how to use current standards to facilitate change that matters today - and support future evolution. The goals a firm is trying to achieve which is meeting standards should be meet through smart manufacturing rather than changing the way manufacturing is being done. Smart manufacturing has evolved since the first concept was introduced. Hence this article calls for shifting to smart manufacturing and not meet the standards first but achieve both the things jointly.

F. A Program for Managing Productivity and Quality Edosomwan, Johnson Aimie. Vol. 19, 1, (Jan 1987): 64.

This article talks about the correlation productivity and quality in organizations. It states certain benefits which the customer receives such as lower prices to consumers,

effective utilization of resources, higher real earnings for employees. Productivity and quality management is an integrated process that involves both management and employees with the ultimate goal of managing the design, development, production, transfer, and use of products or services. This is illustrated by the productivity and quality management triangle. To which it has suggested productivity and quality improvement program has Got management and employee commitment to productivity and quality management. Implement measurement, control, and evaluation techniques. Implement planning and analysis for productivity and quality. Implement improvement and monitoring techniques. Provide training for directing productivity and quality management. Institute a productivity and quality team. Allow for goals that are measurable.

G. Determinants of feedback effectiveness in production planning Letmathe, Peter; Zielinski, Marc. Bradford Vol. 36, Iss. 7, (2016): 825-848.

This study provides important information about feedback design taking individual characteristics of decision makers (educational background, work experience) into account. It helps us understand how effective feedback helps in production planning. Production planning tasks are regarded as complex decision-making problems because of this reason an effective feedback plays a equally important role. When the results of this study are applied there is a increase in decision-making performance and enhance learning of production planning tasks. It also shows that the quality of knowledge being acquired is strongly determined by information-processing capabilities and the educational background of the decision maker which plays a direct role in how effectively is the feedback used.

H. Joint production and quality control in production systems Ioannidis, Stratos. IIE Transactions; Norcross Vol. 45, Iss. 6, (2013): 605.

This article takes in considerations a single-product, make-to-stock manufacturing system facing random demand from two customer classes with different quality cost and profit parameters. Each outgoing product is inspected and graded on the basis of quality. Each customer class can only be served from the inventory of products of certain quality grades, This article solves the problem which is of finding a product quality grading plan and production and inventory rationing policies to maximize the mean profit rate of the system. Based on this investigation, it proposes certain simple and efficient threshold-type control policies. Through numerical results it concludes, the proposed approach of coordinated quality, production control, and inventory control achieves higher profit than other manufacturing practices, in which there is little or no coordination between the production and quality control departments.

IV. CONCLUSION

In the work we have made an effort to look into the insights of the effects of ISO 9001 adoption in production

management. The inclusion of ISO has 3 effects. First ISO 9001 may hamper the impact of production process as a managerial input to the production process, similar to that of capital and labor. Secondly, it leads to reduction managerial inefficiencies. Thirdly, it has an impact on the input to the production process and, at the same time as a factor reducing managerial inefficiency.

This paper fully for adoption of ISO 9001. It is very evident that the exact effects has direct impact on capital and labor as well as reducing managerial inefficiencies.

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