

Effect Of Quality Management Systems (ISO 9001) Certification On Organizational Performance In Tanzania: A Case Of Manufacturing Industries In Morogoro

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Abstract: - In today's global environment, organizations are constantly looking for the ways to expand and improve their business in terms of quality and quantity. Adoption and subsequently certification of these organizations with ISO9001 has revealed to be the pro-active strategy to improve organizational performance. This paper seeks to assess the impact of quality management system (ISO 9001) in improving the organizational performance in terms of quality and quantity (volume) of the products. A descriptive research design using survey was adopted in this paper. The sample size of 40 respondents was selected using simple random approach. Data regarding the impact of Quality Management System (ISO 9001) certification on the organization performance with respect to quality and quantity (volume) of the products were collected mainly using questionnaires. The collected data were analyzed using descriptive analysis such as mean and standard deviation where by inferential statistics were done through Chi-square test. The findings in this paper reveal that the quality of products as well its quantity (volume) has been improved in those organizations which have been certified with Quality Management System (ISO 9001). However the paper point out some quality problems such rework and rejects of some products which do not conform to customer requirements. For the sake of quality improvement this paper recommends that; top management should be committed and active in implementing the requirement stipulated in the ISO 9000 certification, regular training as well adhering to team work approach.

Key words: ISO 9001, Manufacturing industries, Quality Management System, Organizational performance.

1. INTRODUCTION

Quality setback is among the burning and an endeavor issue that organizations make every effort in order to succeed and survive in a competitive world. Currently, the main concern of any organization be it manufacturing or service one is to reach the world class excellence through high quality products and services, customer satisfaction, and cost reduction with profit optimization (Arauz and Suzuki, 2004). Quality issues are not for individuals; instead it is the concerns of every one in any organizations. The study by Dedhia (2001) depicts that the quality climate has been changing due to a much greater emphasis on quality by businesses and by governments. Prior 1970 the quality of product was managed in ad-hoc manner where the quality control was done to the finished products and only quality department was responsible for any quality matter. However the approach seemed to be not efficient as it resulted into much quality problems such as rework and rejects which added insignificant costs to the firms. As a means to improve the quality of product/service in organizations, Edward Dermings suggested that the quality of product should be done at each stage of production process. This process of managing the quality of product at each stage of production process is termed as Statistical quality control. He added that any noted problem should be rectified before subsequently going to the next stage of production. In order to facilitate and impact the quality issues globally, the International Organization for Standardization (ISO) was first published in 1987 and was subsequently revised in 1994, 2000 and 2008. Among the ISO family was ISO 9001 which provides a series of guidelines on how to establish a quality system to manage the processes that affect its product or services. According to this standard the quality system is required to be documented and employees are expected to

follow consistently the documented procedures. After the quality system is implemented, the Organizations can be certified through an audit performed by an independent (third-party) body accredited by the accreditation body recognized by the International Accreditation Forum (IAF). ISO 9000 family of standards were developed to assist organizations, of all types and sizes, to implement and operate effective quality management systems. Currently the family of ISO 9000 standards is made up of four standards, which are: ISO 9000:2005; ISO 9001:2008; ISO 9004:2009 and ISO 19011: 2002: The requirements on the ISO 9001 series are built on the quality management principles which include; customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationship. The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for whom a technical committee has been established has the right to be presented on that committee. ISO 9000 was prepared by technical committee ISO/TC 176. Currently, ISO has 163 members have been certified worldwide. ISO also allows a company to institutionalize the right attitude by supporting it with the right policies, procedures, records, technologies, resources and structures. ISO has spread all over the world is rapidly becoming one of the most important quality standards. About a million (982,832) organizations in 176 countries Tanzania inclusive have already implemented the ISO 9001 requirements. Between 2007 and 2008 the number of certifications worldwide increased by 3% (ISO Survey, 2008). Many organizations have adopted and being certified with ISO 9000 standards so as to control or improve the quality of products and services, to reduce the cost associated with poor quality, or become more competitive. They may also

choose this path simply because customers expect it or because government body has made it mandatory (ISO, the study by Lee, et al., (1999) in Hong Kong involving fifty eight ISO 9001 certified companies found that the main reason for seeking certification was foreign trade. Other reasons include marketing and need for continuous improvement. In Indonesia SGS (2001) found that certification was done with the belief that it will bring both external benefits such as greater increased customer satisfaction and increased market share and internal benefits such as greater productivity and operational efficiency, greater management control and greater employee awareness. In one of the largest surveys in the UK involving over 1200 companies it was found that firms sought ISO 9000 certification in order to enjoy both operational and marketing benefits, which impact on costs, revenues and by inference profits. The top three benefits sought are profit improvement, process improvement and marketing benefits (Buttle, 1997). While other countries in Africa including Kenya and Uganda adopted ISO standards and were certified in the body, Tanzania was not left behind. By the end of 2008 Tanzania had 12 certified organizations. According to Raphael (2010), Bonite Bottlers Ltd was the first company to be ISO 9001 certified in Tanzania in the year 2000. Since then, there has been increasing awareness of quality practices as evidenced by the increase in companies currently seeking to be certified under ISO 9001. The common factor to most ISO 9001 certified companies is that they all trade internationally. Hence for most of these companies the pressure to adopt the quality management standard has largely come from their overseas trade partners. The government of Tanzania is also interested in ISO 9000 certification. This can be evidenced by a number of government institutions such as Tanzania Bureau of Standards, SUMATRA and water authorities in Tanga, Arusha, Moshi and Mwanza are currently either certified to ISO 9001 or in the process of getting certified (Raphael, 2010).

2. ORGANIZATION CERTIFICATION WITH ISO 9001

The effective evaluation on ability of an organization to design produce, and deliver quality products and services consistently has been well achieved by the manufacturing organizations through adoption of ISO 9001. The standard provides guideline for organizations for establishing of their quality management systems by focusing on procedures, control, and documentation. ISO 9001's strongest point is its relationship to TQM. To properly implement a strong TQM system, one must first know everything that is happening within the company. ISO 9001 provides a tried and tested framework for taking a systematic approach to managing business practices to consistently turn out quality products. ISO 9001 Certification can serve as a key marketing tool. Certification is deemed as an official acknowledgment of a company's compliance to and its implementation quality management system. Since ISO 9001 is recognized globally, obtaining a certification imply that the company is also moving towards globalization. Its main goal is to harmonize standards around the world, which, as widely claimed, promotes trade and therefore global welfare more efficiently (Grajek, 2004). The certification is granted and verified by independent, third-party entities, giving it credibility. It also publicizes the type and degree of the TQM practice and the

date of certification. This gives a point of reference for comparison and evaluation (Morris, 2003).

3. EFFECTS OF ISO 9001 CERTIFICATIONS ON ORGANIZATIONAL PERFORMANCE

Various scholars have been arguing on the significant impact of ISO 9001 on the organizational performance. There is evidence which suggests that firms can achieve internal improvements, or that certification can help firms maintain or increase their market share, or both. Others argue that the standard is too generic to cause improvement, but can be seen as a good management tool. An empirical study in the United States by Corbett et al. (2004), however, determined that three years after certification, firms displayed strongly significant abnormal performance. The 1991 International Quality Study of the American Quality Foundation studied over 500 organizations in the USA, Canada, Germany, and Japan. It concluded that some practices, particularly supplier certification and process improvement, did have a significant effect on performance. Similar findings were reported by a 1994 Australian Manufacturing Council (AMC) study of 1,300 manufacturing sites revealed that more than 50% of the certified sites agreed that the certification process had been a significant factor in improving business performance. The AMC cautioned that certification is not a substitute for delivering high quality products and services. Certification could risk systematizing some poor practices. The study by Heras, et al. (2002) on ISO 9001 registration's impact on sales and profitability confirmed that certified companies perform better. The study by David Kirsch and Charles Corbett (2002) analyzed 7,598 publicly-traded firms listed in the New York Stock Exchange and found a direct correlation with a firm's return on assets (ROA). The certified firms improved their performance while the non-certified firms experienced substantial deterioration. They concluded that something changed specifically at the certified firms in the year prior to the actual certification. Given the magnitude of the improvements, it seems likely that other circumstances other than ISO 9001 contributed. However, the findings strongly suggest that the preparation also contributed to superior performance. Another study by Pinar, et al. (2003) examined the monthly and average 48-month market returns of sixty-seven (67) certified and thirty seven (37) non-certified firms listed in the Istanbul Stock Exchange Market (ISE) over time periods of one-year, two years, three-years, and four-years. The results of these different scenarios showed that for all time periods the certified firms had higher mean returns. The other interesting finding is that the certified firms have reduced stock returns volatility for all time periods, except one. It appeared that ISO 9000 certification also seems to reduce risk. A source of performance improvement from adopting the ISO 9001 program arises from increases in revenue as ISO 9001 certified firms are able to access new markets and increase production volume (Colbert, et al., 2005). The fact that ISO 9000 series certification may be important in gaining access to markets has been recognized in several works (Brown, et al., 1998; Aarts & Vos, 2001). According to a study carried out in the UK (Casadesus & Jimenez, 2000) depicted that among the benefits of ISO Certification include; improvement of market relations, increases the possibility of obtaining new contracts and considerably helps to enter new or international markets. Another important aspect related to the ISO 9001 certification

is linked to the analysis of the faster reaction to the market request (McGuire, et al, 2008). All these will lead to improvement/increase in units of product produced annually. The study by Helmi (1998) stipulates that the most important factor affecting performance is the quality of products and services relative to those of the competition and there is a direct relationship between customer satisfaction and profitability. One of the major significant improvements reported as an influential impact coming from the ISO 9001 is related to the improved product/service quality (Brown, et al., 1998 and Quazi, et al., 1998). This aspect, affirming that ISO 9001 facilitates the improvement of the product quality as well as the satisfaction of customer's requirements. Many other works sustain this consensus, i.e. the product improvement and enhanced service quality and, more broadly, improvement in business productivity (Chang, et al., 2005; Sun, H., 1999; Poksinska, et al., 2002; Tan, et al., 2001; Yeung, et al., 2003). Other aspects highlighted by Casadesus and Jimenez (2000) in which the standard has positive influences are: the possibility of improving the level of delivery time, the consequential savings in production cost and finally the reduction of lead time. By standardizing the ISO 9001 program structured and detailed procedures provide a deeper understanding of the processes involved in the supply of product or service. Written procedures and instructions will provide a better process thus reducing the variability of product (Curkovic, et al., 1999).

4. PROBLEM JUSTIFICATION

Organizations are encouraged to adopt ISO 9001 requirements in their management systems so as to improve performance (ISO, 2005). An organization which is certified to ISO 9001 is expected to enhance customer satisfaction and consistently provide product that meets customer and applicable statutory and regulatory requirements. ISO survey reveals that ISO 9001 certified organizations should improve the organizational performance in terms of Quality, Volume of products, employee motivations and organizational competitiveness. While most of the firm have adopted ISO 9001 its effects on the organizational performance in Tanzania are not known by many organizations in Tanzania (ISO Survey, 2008). This paper assesses the impact of ISO 9001 certification to the organizational performance: more specifically the paper aimed at identifying if there are significant improvement effects of ISO 9001 certification to quality and quantity (volume) of the product.

5. METHODOLOGY

A descriptive research design using survey was adopted in this paper. The sample sizes of 40 respondents' selected using simple random approach were consulted. The Descriptive research design was chosen as it tried to discover answers to who, what, when, where and sometimes how questions (Mugenda and Mugenda, 1999). Data regarding the impact of ISO 9001 certification on the organization performance with respect to quality and product volume were collected mainly using questionnaires. The collected data were analyzed using descriptive analysis such as mean and standard deviation where by inferential statistics were done through Chi-square. To assess whether the quality of products and the product volume as measures of organizational performance have been improved through ISO 9001 certification, the reliability test was done. The test

was done in order to indicate the extent to which different items, measure or assessment are consistent with one another and the extent to which each measure is free from measurement error. It is assumed that measure or items will be related systematically to one another in a linear manner because they are believed to measure the same construct. In this paper, the Cronbach's Alpha was computed. The alpha for the four items used to measure if the quality of products has improved the organizational performance was found to be 0.79 which indicates that the items form a scale that has reasonable internal consistency reliability. Similarly, the alpha for the product volume as measure of organizational performance was found to be 0.80 which indicated good internal consistency as shown in table 1

Table 1: Reliability measurement

Measure of organizational performance	Cronbach's Alpha	No. of items tested
Product quality	0.79	4
Product volume	0.80	6

6. FINDINGS AND DISCUSSION

6.1 Impact of ISO 9001 Certification on Organizational Performance

In assessing the impact of ISO 9001 certification on the organizational performance in Tanzania, two measure of performance namely quality and quantity (volume) of the products were studied. In order to capture the respondents opinions, five likert scale was adopted where by 1=implied strong disagree and 5 meant strong agree. The mean score of 3.0 was set by the researcher as decision point on agreement on improvement of particular aspect.

6.1.1 Quality of product Improvement through ISO 9001 Certification in Organization

In order to capture the opinions on whether quality of products has been improved in most of the Tanzanian organization through adoption of ISO 9001, forty (40) respondents from ten organizations were consulted. Quality improvement was measured through four constructs namely such as reduction of customer complaints, product meeting local and international standard, reduction of waste and rework of jobs and elimination of potential causes of non conforming products were used. The findings as to whether quality has been improved through adopting ISO 9001 are presented on table 2.

Table 2: Quality improvement through QMS (ISO 9001) certification

Product variables	quality	No of response	Mean response	Standard deviation
Reduction of customer complains		40	4.13	0.883
Products are meeting local and international standards		40	4.25	1.006
Reduction of waste and rework jobs		40	3.60	0.928
Elimination of potential causes of nonconforming products		40	3.98	0.832
Grand mean score (response)			3.99	

The results from table 2 reveal that the quality of products in manufacturing firms in Tanzania has been significantly improved following the adoption and being certified by ISO 9001 (grand mean score = 3.99; $3.99/5 = 79.8\%$). In other words 79.8% responses revealed that the quality of products in manufacturing firms have been improved through their organizations being certified by ISO 9001. More specifically the findings depict that quality product has been well improved in terms of reduced customer complaints' (Mean response score = 4.13), the ability of product to meet the local and international standards (mean score = 4.10), while little improvement was observed on the aspects of reduction of waste and rework of jobs as well as eliminations of potential causes of non conforming products. Further analysis using Chi- Square test was done to reveal if ISO 9001 certification contributed to each of the performance indicators on quality of products using. The Chi- Square test results are outlined in table 3.

Table 3: The Chi- Square test results on quality improvement through QMS (ISO 9001) Certification

Variable(Quality of products)	Chi-Square	df	Significance level (P-Value)
Reduction of customer complains	82.118	4	0.000
Products are meeting local and international standards	32.310	3	0.000
Reduction of waste and rework jobs	16.976	3	0.001
Elimination of potential causes of nonconforming products	26.706	4	0.001

The Chi-square test using SPSS software shows that all aspects (variables) used to measure the improvement of quality of product through ISO certification to the Tanzanian firms are significantly associated at 0.05 levels. This indicates that ISO certification has significant impact on the

quality of product as it reduces customer complaints on the produced/service provided, the number of reject/reworks have also been reduced and most of the produced products meets the local and international standard.

6.1.2 Increase of product volume in an organization through adoption of ISO 9001 certification

The study by Colbert, et al., (2005) depict that performance improvement from adopting the ISO 9001 program arises from the increase of the product volume which eventually lead to increases in revenue. The volume of the product in the study was measured by considering aspects such as increase in demand of products, increase in production capacity internal efficiency and cost reduction as well as reduction in down time. The opinions were also captured from 40 respondents on whether product volume has been increased following the adoption of ISO certification in the organizations. The findings from respondents are presented on table 4

Table 4: Product volume increase through QMS (ISO 9001) certification

Product volume variables	No of response	Mean response	Standard deviation
Increase in demand of products	40	3.75	1.171
Increase in production capacity	40	3.68	1.071
Internal efficiency and reducing cost	40	3.85	0.802
Reduction of downtime	40	3.65	0.864
Grand mean score (response)		3.73	

Table 4 indicate that the volume of produced products in manufacturing firms in Tanzania has been significantly increased following the adoption and being certified by ISO 9001 (Grand mean score = 3.73; $3.73/5 = 74.60\%$). In other words 74.60% respondents revealed that the volume of the products in manufacturing firms had increased by being certified by ISO 9001. More specifically, the findings depict that the product volume has been increased as result of increase in internal efficiency and reduced cost of production (Mean response score = 3.85; $3.85/5 = 77\%$), increase in demand of product (mean score response = 3.75; $3.75/5 = 75\%$), increase on production capacity (mean score response = 3.68; $3.68/5 = 73.6\%$), while little improvement was observed on the aspects of down time costs during production process (mean response score = 3.65). Further analysis using Chi- Square test was done to reveal if ISO 9001 certification contributed to product volume increase from the organizations which have adopted it. The Chi-Square test results are outlined in table 5.

Table 5: The Chi- Square test results on product volume increase through QMS (ISO 9001) Certification

Variable(Quality of products)	Chi-Square	df	Significance level (P-Value)
Increase in demand of products	82.118	4	0.000
Increase in production capacity	32.310	3	0.045
Internal efficiency and reducing cost	16.976	3	0.001
Reduction of downtime	26.706	4	0.001

The Chi-square test results from table 5 show that all aspects (variables) used to measure whether product volume increase through ISO certification in the Tanzanian firms are significantly associated at 0.05 levels. This indicates that ISO certification has significant impact on the increasing the volume of product. The increase in product volume is ascribed by the increase in demand of products, production capacity as well as the reduction in downtime costs.

7. CONCLUSION AND RECOMMENDATIONS

The paper concludes that the QMS (ISO 9001) certified organizations show much improvement on the performance in terms of quality as well as the quantity of product. The paper point out that following the certification by ISO 9001, the demand of the product has increased due to its quality, the efficiency while also reducing the production costs. The paper further conclude that if an organization will be certified by the ISO 9001 and become active and committed, then the quantity(volume) of the product will be increased and hence customers will be satisfied and become loyal. By so doing the organization will have competitive advantages over the competitors.

ACKNOWLEDGMENT

The authors wish to thank the academic staff from Mzumbe university and University of Dar es Salaam for both Moral and material support they provided in order to accomplish this work.

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