

Challenges Faced by Manufacturing Companies in Sustaining Conformance to ISO9001:2008 in Zimbabwe: A Case Study of a Textiles Manufacturing Company

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Abstract: Development of the ISO 9001:2008 Quality Management System (QMS) has seen many companies willing to implement it and get certification so as to improve quality delivery. Due to the globalization phenomenon, certification to ISO9001 becomes a prerequisite. Many manufacturing companies in Zimbabwe have been certified in a quest to improve their quality delivery. The main certification body in Zimbabwe is the Standards Association of Zimbabwe (SAZ). This paper is based on a case study research for KT Textiles and it assesses the challenges that one certified manufacturing company is facing in a bid to sustain conformance to the ISO 9001: 2008QMS. Questionnaires and Interviews were the main research instruments used in the study. There was also reference to archival records and minutes of important meetings from the organization. Using stratified random sampling, questionnaires were administered to both managers and employees drawn from different departments. Employees were also interviewed to provide further information to complement the questionnaire data. The data was analyzed using statistical graphs and charts. This research identified how the organization applies the 8 principles of ISO 9001:2008 QMS. The research findings revealed that the main challenges faced by the firm in maintaining the QMS are lack of top management involvement and support, lack of employee creativity and innovation, lack of focused internal audits, preventive maintenance schedule and data analysis lack priority.

Keywords: Quality Management System, ISO 9001: 2008, Textile Manufacturing, Sustainable quality improvement.

I. INTRODUCTION

Consistence of quality delivery for both product and service is what distinguishes World Class Manufacturing

(WCM) companies from the rest. The result will be global competitiveness through satisfied customers and overall business excellence. Consistent quality products can be a deliverable from an organisation that has a robust quality management system. This will mean that the company will aspire to consistently manufacture products at the right cost, and the manufacturing processes are controlled through a set of specifications, procedures and tests for checking the capability of the process [1].

This paper is based on a research that assessed the challenges faced by manufacturing companies in Zimbabwe in sustaining conformance to the ISO 9001:2008 Quality Management System (QMS) using KT Textiles as a case study. The major activities in textile manufacturing include spinning, weaving, knitting, dyeing, and finishing, production of non-woven fabric, and interlinings from locally grown 100 percent cotton. KT Textiles produces a variety of fabrics for industrial use.

This research sought to assess the benefits of implementing ISO 9001: 2008 and its associated certification. There is need to identify the major challenges that manufacturing companies face is trying to sustain conformance to the requirement of the ISO9001 QMS standard.

Many companies that implement ISO9001 do not fully realize the associated benefits due to various factors. It is also notable that such companies manage to maintain their certification because they will be meeting the most basic requirements of the ISO 9001 standard. The effects of globalization result in stiff competition and as such there is need to voluntarily improve quality delivery and sustained conformance to ISO 9001 is critical.

II. RELATED LITERATURE

It has been realized over the years that, "Excellent Quality Management does not just happen [2]. It requires active involvement of managers from all levels of an organisation. ISO 9001 is thus a QMS standard that requires synchronization of a company's operations through documentation of operational procedures and managerial actions used to achieve customer requirements [3]. The ISO 9000 series consists of a set of international standards being used worldwide to provide a framework for quality management systems in order to eliminate country to country differences, to eliminate terminology confusion and to increase quality awareness [4].

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One of the main objectives of ISO 9001:2008 certification is to make the organization system driven rather than people dependent [5]. The QMS is mainly concerned with customer focus where organizations strive to improve product quality, reduce costs, and increase productivity to gain market share and achieve customer expectations [6]. Leadership is a key principle of ISO 9001:2008 QMS to spearhead the organization's vision and create a paradigm shift of employee focus towards meeting company objectives [7]. It was also revealed that there is a link between continuous improvement and involvement of top management [6]. A research by [5], pointed out that less than 25% of Indian ISO 9001 certified firms have their top management really involved and committed to quality issues, otherwise the QMS is given least priority during resource allocation. The ISO 9001:2008 standard highlights the fact that employees at all levels of the organization are key assets and their full involvement benefits the firm through individual creativity and innovation (ISO, 2008). Another study revealed that involvement of people creates a beneficial effect on company culture by reducing departmental isolation and fostering more teamwork [7].

The fourth principle of ISO 9001:2008 is process approach whereby a company's desired results are achieved more efficiently when activities and related resources are managed as a process [8]. Companies fully applying this principle achieve lower costs and shorter cycle times through efficient use of resources; improved, consistent, and predictable results [9]. This can be done through waste minimization if not elimination [10]. The system approach principle to management ensures long term development of the organization. There will be documentation of the company's Quality Management System and this will mean that all activities are guided by the major documents that include the policy, quality manual, procedures, control of documents, generation of records and a planned maintenance system. Understanding this principle enable firms to fully integrate and align their processes to achieve desired results, ability to focus effort on key processes, and providing confidence to stakeholders on the firm's competences in order to attain competitive advantage on the market.

A study to evaluate the effectiveness of ISO 9001 certified Contracting organizations in United Arab Emirates highlighted that the permanent objective of the organization's overall performance must be based on continual improvement [11]. This is achieved by learning from experience, using the Shewhart or Deming cycle "Plan-Do-Check/Study-Act" as the basis, and constantly searching for ways to improve the functioning of the QMS. Investigating and eliminating the causes of non-conformances at any point in the manufacturing process, distribution and storage. The principle of factual approach to decision making helps management to make informed and effective decisions based on the analysis of data, balanced with experience and intuition [5].

A research conducted [1] on Jordanian firms revealed that an organization and its suppliers are interdependent, and a mutually beneficial relationship enhances the ability of both to create value. The research found out that ISO 9001 is an important tool for improving quality outcomes, customer satisfaction and business performance. Nevertheless, the study revealed that ISO 9001 certified firms in Jordan, lack innovation capability due to sticking to standard requirements and operational procedures of the QMS.

Many researchers have studied the ability of ISO 9001 QMS to achieve its main objectives of adding value to companies in different economies and sectors globally. Yet, to attribute the success of these firms to ISO 9001 in achieving their objectives is still debate [11]. For example, [12] investigated the effects of ISO 9000 quality standard implementation on 288 Spanish firms, and the results revealed that 65% of firms had positive internal and external improvements after its implementation. Ref [13] studied the costs, benefits and the satisfaction level in 140 ISO 9000 certified firms in Saudi Arabia. Indeed, the results revealed the benefits of ISO 9001 far outweigh the costs of attaining the standard, and the QMS contributed to organizational survival and success. In addition to that, [14] conducted a survey on ISO 9001 and 14001 implementation in the Far Eastern countries namely; Japan, Taiwan, Hong Kong and South Korea, and the results revealed that there is a correlation between ISO 9001 certification, and improved corporate image, quality improvement, customers satisfaction and improved internal procedures. On the other hand, [15] investigated the relationship between ISO 9000 QMS and Australian firms' performance. The study revealed statistically insignificant relationship between customer focus and steady processes; implying that strong focus on customers could be of little value in creating steady processes.

It was noted that ISO 9001 certification in Zimbabwean Manufacturing companies has a positive impact on competitiveness, capacity utilization, employee motivation, employee retention, and organizational communication [3]. These benefits are among many others that include accident prevention and revenue generation. Despite the benefits derived by ISO 9001 certified manufacturing firms, there are common challenges faced by these companies [11]. These challenges can be broadly classified as follows:

- 1) Leadership related issues (most companies suffer from lack of commitment by Top Management, lack of employee motivation and recognition, organizational learning, and lack of strategic focus.
- 2) Strategy related issues (most organizations' vision, mission and values are not translated into meaningful benefit for the organization. There is lack of strategic planning and mapping to drive an organization's key performance indicators (KPIs) and initiatives).
- 3) Quality system related issues (most organizations exhibit a weak Plan-Do-Check/Study-Act (PDC/SA) cycle, lack of in-depth internal audit system, non value adding meetings or trainings and excessive paperwork).
- 4) Societal oriented gaps in terms of corporate social responsibility and sustainability.

The studies and researches conducted so far indicate mostly that there are benefits that accrue from implementing ISO9001 Quality Management Systems. There is however evidence that organizations that have implemented these systems have also faced challenges. The major challenges identified seem to point to management as they do not carry out effectively their Leadership role.

III. METHODOLOGY

A case study research design was used; with the unit of analysis being KT Textiles.



The research process used both quantitative and qualitative research methods to gather and analyze data. Quantitative research is scientific in approach, aims to be objective, collects and uses numerical data whereas qualitative research takes on a phenomenological perspective to the research process [16]. Data collection for the research was done through questionnaires, interviews, observations, documentation or archival records.

A. Data Collection

Data was collected from a sample of employees in the organization. The participants were categorized into six strata that include the following departments; Quality Assurance (QA), Operations, Marketing, Finance, Human Resources (HR) and Engineering. The research sample had 70 participants, with 20 senior managers (2 managers from QA, 6 from Production, 3 from Marketing, 3 from Finance, 3 from HR and 3 from Engineering department) who filled-in questionnaires and 50 employees (35 employees from production and 3 from each of the five (5) departments mentioned above) who were randomly asked questions in groups of 5 employees whilst the researchers were recording data. Hence, the size of the sample was a trade-off between rising cost of data collection and the diminishing cost of sampling error.

B. Research Instruments

This study used both questionnaires and interviews in conducting the research. Observations and archival documents were also used to tap the data for the research. The researchers made sure that the respondents were guaranteed confidentiality of the information to be elicited. The researchers also randomly interviewed participants to get a general understanding of the firm’s QMS.

IV. RESULTS DISCUSSION

Data analyzed here was obtained from the Case study company with a categorized response rate shown in Fig. 1 below.

A. Response rate and demographic characteristics of participants

The research response rate from distributed case study questionnaires and interviews is indicated on Fig-1. The respondents in this study consist of 79.1% males for both the Questionnaire and Interviews. Participants were asked to provide information about their age and this was used to determine level of maturity of participants for quality strategy implementation.

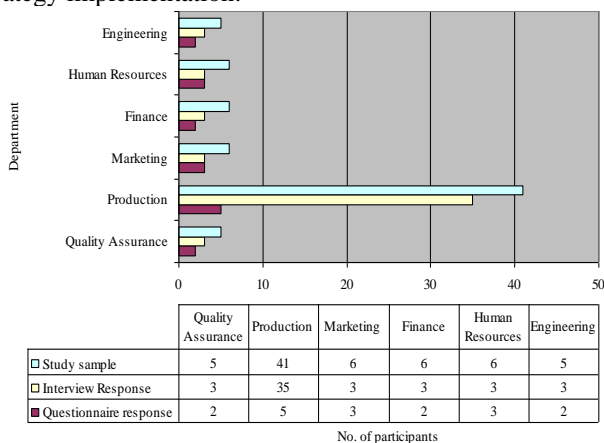


Fig-1: Participants Response rate

B. Constructs on 8 Principles of ISO9001:2008

Table 1 below shows the key performance indicators (KPIs) for each of the 8 principles of ISO 9001:2008 used to explore the QMS performance and highlight the challenges faced by the organization.

Table 1: the Scale of Measure of the Company’s Performance

PRINCIPLE	KEY PERFORMANCE INDICATORS (KPIs)
1. Customer Focus	i) Capacity Utilization, production figures against customer order fulfillment. ii) Reject rate and customer complaints iii) Customer visits and survey data
2. Leadership	i) Vision, Mission, Values and quality policy statement ii) Employee recognition and awards iii) Implementation of issues highlighted in management review meetings and allocation of resources to the QMS.
3. Involvement of people	i) Employee training and schedule records ii) Training needs analysis iii) Job descriptions and level of employee qualifications
4. Process approach	i) Records of monitoring and measuring devices ii) Non-conforming product rate iii) A firm’s asset base in terms of plant machinery and equipment.
5. System approach to management.	i) QMS Policy Manual, procedures and work instructions – (proper documentation). ii) Planned maintenance records iii) Storage, retrieval, retention and disposition of records.
6. Continual improvement	i) Plan-Do-Check/Study-Act cycle ii) External and Internal audit reports iii) Corrective action – to eliminate Non-Conformance (NC) recurrence iv) Preventive action – to eliminate NC occurrence.
7. Factual approach to decision making	i) Calibration and Maintenance records ii) Internal quality audits iii) Control of non—conforming products iv) Collection of data and analysis for decision making.
8. Mutually beneficial supplier relationships	i) List of approved suppliers ii) Proof ISO certified suppliers or methods used to approve orders to different suppliers. iii) Quotations sought from different suppliers.

Results indicate that the main pillars of a QMS are not being followed. This weakness shows that the system is there but there is no sustainability. This analysis considers the constructs outlined in Table 1 above and discussed below.

1) Customer focus

a. Capacity utilization and production figures against customer orders

KT Textiles’ plant has a capacity of producing 8,900,000 meters of fabric a year. Figure 2 below shows low levels of capacity utilization for the organization. The organization operated at utilization of 55 percent and 63 percent capacity utilization for years 2011 and 2012 respectively. Management gave an average forecast of 70 percent and 80 percent capacity utilization for year 2013 and 2014 respectively. This shows a desire to improve on meeting customer requirements as shown on Fig. 2.



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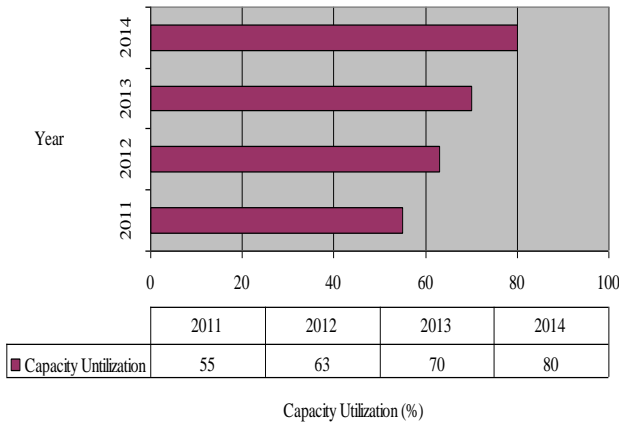


Fig. 2: Capacity utilization at KT Textiles

In addition to the respondents’ views, archival records were analysed to check the production levels of the organization against customer orders. Two scenarios were considered and these are before the ISO 9001:2000 certification (2002) and after the ISO 9001:2000 certification (2003 to 2011). The production figures are as shown in Fig. 3 below.

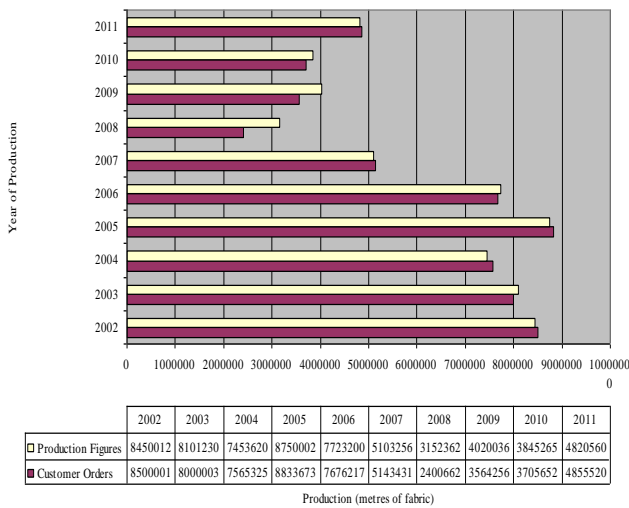


Fig. 3 Production figures against Customer orders – 2002 to 2011

Fig. 3 shows that there is a general ability to meet customer orders. There is a positive variance of 1,174,703 meters from 2002 to 2011 showing that the company’s production figures outweighed customer orders, with the extra production being sent to the firm’s warehouses for sale to the general public.

b. Reject rate and customer complaints

Fig. 4 below shows the reject rate for the organization for the period 2002 to 2011. This information was obtained from archival records. The point at which ISO9001 certification was obtained is noted in this discussion.

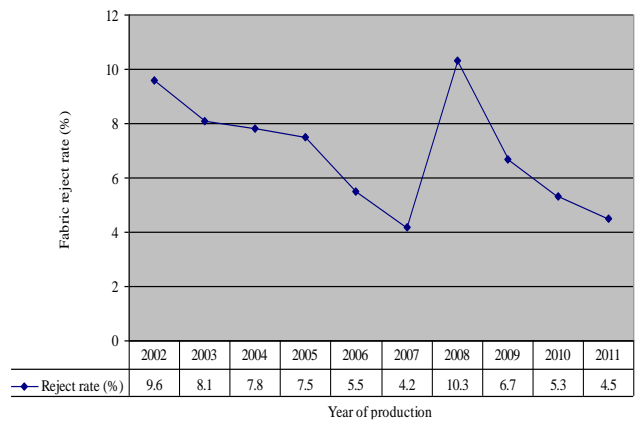


Fig. 4: Reject rate for the company – 2002 to 2011

There was a generally decrease of fabric reject rate from 9.6 percent in 2002 to 8.3 percent in 2003 after ISO 9001:2000 certification as shown in Fig. 4 above. The reject rate shows a general decrease to attain the least rate in 2007. There was however a sudden rise in 2008. This sharp rise is explained by the impact of the economic hardships that were being faced by employees. The economy had basically come to a stand-still in that year and hence it was difficult for the organization together with its employees to perform.

After ISO 9001:2008 certification in 2009 there was a marked decline in reject rate for the firm. The respondents cited the marked reduction in reject rate from 2002 to 2012 as the driving force for the firm’s products on the Zimbabwean and International market. It was revealed that the adoption of ISO 9001:2000 in 2003 and ISO 9001:2008 in 2009 instilled a sense of quality awareness to employees in terms of avoiding and dealing with quality problems at the source during manufacturing.

c. Customer visits and survey data

The research team sought the minutes of meetings held by company representatives with different customers as a KPI relating to customer perception. The study found out that the organization had in place, a system for analyzing sales data, visit reports and customer complaints. This would be the basis for identifying the root causes of customer complaints or any underperformance in this KPI so as to take the necessary corrective and preventive actions. This is supported by questionnaire responses that highlight the fact that the company does meetings with customers. There are individual visits by the Quality Assurance and Marketing teams to customers so as to understand their needs, complaints and suggestions for further improvement.

However, the interview responses revealed that customer complaints are not well communicated to all levels of employees to raise awareness of the problem as well as involving them to find a solution to the problem at hand. They gave an example of recent customer complaints which were not communicated to them but only to management. There is thus no structure for effective resolution of customer complaints. This has a negative impact on service delivery. The tricky part is that the customer complaint system is in place but the sustainability of the QMS is compromised by the effectiveness of the system.

2) Leadership

Leadership plays a very critical role in the sustenance of a QMS.

a. Vision, Mission, core values and quality policy.

The formulation of the company's vision, mission, values and quality policy shows the initial application of the leadership principle. However, the questionnaire and interview responses highlighted the fact that top management's involvement in the QMS need to be more visible. There is lack of top management commitment to some elements of ISO 9001:2008 QMS. The responses to the interviews highlight lack of shared vision in resource allocation towards quality issues. There is need to provide resources to the QMS so as to implement a fully planned and integrated strategy, derived from the mission of the organization. This was supported by a realization that only 10% of the quality budget was sponsored by management in the year 2011. The other 90 percent was diverted to other projects like water reticulation, coal storage facilities, warehouse expansion and energy management system among others.

b. Quality Policy

The research checked how the policy is used to achieve continual improvement by addressing top management's vision and strategy for the firm's future. The policy has not been in sync with the situation on the ground. Policy implementation on development of the human resources to ensure direct involvement and responsibility for quality was lagging behind. Employees raised the issue that their QMS improvement suggestions are not being implemented and no resources are allocated to these suggestions. While the organisation has a quality policy in place as required by ISO 9001, its implementation is not being effective. As such the anticipated results will not be obtained.

c. Quality objectives

Quality objectives are supposed to be reviewed periodically to come up with new or improved ones. Most departments in the organization have not been paying attention to the objectives. They have been failing to meet the quality objectives for the past 3 years, and there are no improved objectives. Management highlighted that they are yet to achieve them and no proper implementation plans have been put in place. This is detrimental to the principle of continual improvement highlighting the failure to make it an objective for every individual in the company.

d. Employee recognition and awards

The questionnaire and interview responses revealed that employee recognition and reward systems are not properly motivating employees. There is an indication that top management withdrew some monthly reward and recognition incentives for employees. The organization used to appraise individuals and teams once every month on quality improvement issues and reward them accordingly. This is now being done once a year and employees feel shortchanged. It thus has an effect on quality improvement and generally the delivery of the QMS is compromised.

Recognition of achievements through appraisal must be the key determinant of employees' remuneration to motivate, creating a changing culture, aligning employees to the organization's vision, communicating strategy and inspiring them to meet quality objectives.

e. Implementation of management review minutes and resource allocation to the QMS

Respondents revealed that the top management's allocation of resources to support the QMS is not enough. For example, it was cited that: Internal Quality Auditors were paid a certain amount from 2003 to 2010 for every audit engaged which is no longer the case. In order to ensure a proper functioning QMS, Internal quality audits are used to check its performance and highlight areas which need special attention. The management withdrew this payment which they considered as a cost to the firm. External training programs are no longer valued as pivotal to firm growth by top management, the participants' highlighted lack of funding to train senior staff outside the firm at seminars, colleges, and universities; among others. According to Davies et al. (2003), the firm is trying to run away from appraisal costs of maintaining the QMS.

Results show that management withdrew critical resourcing that was available to support the QMS. This includes incentives for Internal Quality Auditors as well as continuous training of employees that support the QMS. Archival records revealed consistency in employee training from 2003 to 2010 and thereafter the training records were missing and thus showing inconsistency. This shows a slack in training needs analysis. The human resource files for most employees or machine operators showed that training was done before a job title was given through a 3 months training and induction period after which a test was written to assess competence. Training of employees to cover for new technology was missing.

3) Process approach

a. Non-conforming (NC) product rate

Non-conforming products coming from a system are a measure of quality delivery of the organisation. The general trend should be that when you implement a QMS, there should be a decline in the number of non-conforming product. Fig. 5 below shows a general decrease in non-conforming product rate from 2002 to 2006, followed by a rise in the years leading to 2009. There was a decrease thereafter from 2010 to 2011. It is imperative that adoption and implementation of ISO 9001:2008 has given a general understanding of ensuring that the process must be consistent in quality provision.

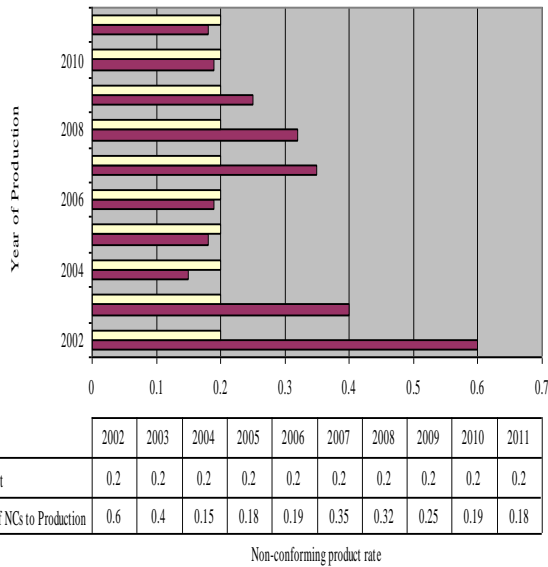


Fig. 5: The Company's non-conforming product rate against target

Results depicted in Fig. 5 above show that there is inconsistency in attaining quality improvement. This is inconsistent with the QMS which should show a continuous decline in non-conforming product.

4) Continual Improvement

a. Internal Audits

One critical aspect of a QMS is the Internal Audit system. The internal auditors if well trained can ensure that the AMS remains sustainable in an organization. The QMS require a company to gain improvement actions from the audit results. Their unique advantage against external auditors is that they have knowledge of the particular management system that they are auditing. This gives them a chance to properly identify non-conformances.

b. Corrective Action

Corrective actions are used as a tool for improvement by focusing on eliminating causes of NCs in order to avoid recurrence. The researchers sought archival records on NC reports, audit reports, process monitoring and measurement results, outputs from data analysis, minutes of management reviews and customer complaints. It was noted that the organization has plenty of information to highlight areas which need management attention. This information is however not being utilized to derive the required results. Very little has been done to reduce NCs in most departments as proven by number of NCs raised in the NC report book. Most of the NCs were not closed and no action plans have been developed. This shows that while the system identifies NCs, management is not following through to close them out.

c. Preventive Action

This is loss prevention which is applied to all processes, activities and products to avoid recurrence of NCs. The study found out that there is little use of information generated in the company to analyze and evaluate data to highlight areas which need special attention to prevent NCs. For example, the organization needs a plant audit to examine losses due to steam and condensate leakages, water usage, cleaning of machines and electricity consumption.

5) Factual approach to decision making

a. Calibration and Maintenance records

The organization has a system in place for calibration, maintenance and controlling measuring devices. This ensures that results obtained from equipment and measuring devices are valid. This is important because these results are the basis of many decisions on the system, processes and products. Most of the company's equipment is controlled by external calibration bodies and research observations through the plant revealed that the current calibration status is being met.

Although maintenance schedule records showed frequent preventive plant and machinery maintenance, the annual downtime records revealed an increase in machine breakdowns from 2007 to 2011 as depicted on Fig. 6 below.

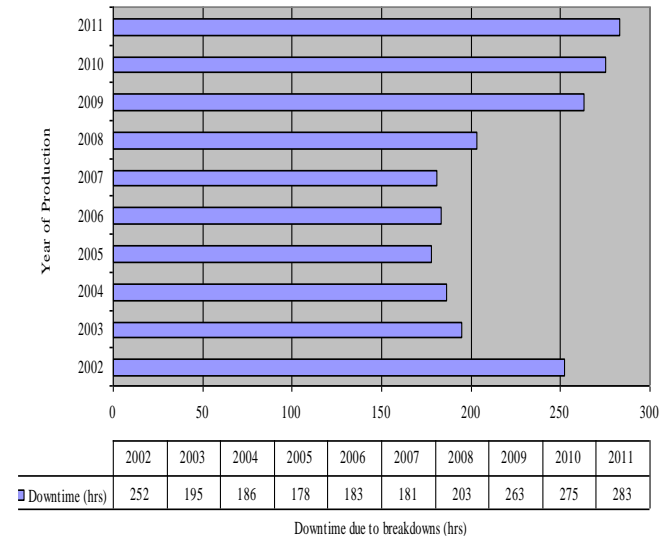


Fig. 6: Plant annual downtime due to breakdowns

V. CONCLUSION

The study established that implementation of ISO 9001:2008 QMS is important in improving quality performance. KT Textiles benefited from its implementation though there are challenges during operation. The system has brought a substantial reduction in time spent on fire fighting at the company. Firefighting is usually a characteristic of organizations operating without procedures and line of command.

It was highlighted in the study that there are benefits that manufacturing firms can derive from ISO 9001:2008 certification, in terms of improved product quality, customer satisfaction, improved efficiency, reduced waste, and meeting stakeholder expectations. Nevertheless, the study found out that there are challenges which the manufacturing organization must overcome in order to conform to ISO 9001:2008 QMS. Such challenges are as outlined below:

- Inadequate resource allocation to the QMS as some of the quality development budgeted funds are diverted to other projects.
- Customer complaints and some other information relating to customers are not well communicated to low level employees.

- Withdrawal of weekly and monthly employee recognition and awards to once a year, and also the withdrawal of Internal Quality Auditors' fees by top management which was paid as a motivation incentive for every audit performed.
- Minimal resource allocation to employee training and training syllabus not relevant to employee needs in tandem with new plant machinery.
- Employee suggestions are not being implemented and no resource allocation to these suggestions to drive continual improvement.
- Failing to meet quality objectives in some departments for the past 3 years. The company has set unrealistic quality objective targets.
- Internal audits lack focus on key issues due to little effort or work being done on NCs raised to improve system performance.
- NC report book for most departments highlighted that over 40 percent of NCs raised were not closed, showing lack of commitment towards corrective action to eliminate causes of NCs in order to avoid recurrence. There is also less focus on data analysis to highlight areas which need special attention to prevent NCs.
- Erosion of the supplier base for the firm due to the devastating economic meltdown of 2007 to 2008. Many companies have shut down operations during this period and for those that remained operational, there was massive compromise on the requirements of the QMS
- The company failed to accept that ISO 9001:2008 QMS is a continuum, that is, it is an ongoing project. As the QMS matured the employees and management slackened in their drive towards quality improvement. This is exhibited by increase in plant downtime from 2008 to 2011, missing employee training records and failure to close NCs in the report book.

VI. RECOMMENDATIONS

This research has been exploratory in nature which limited the scope of the theory testing process to a single manufacturing firm and this approach was essentially controlled for the organization's specific factors. This framework captured key benefits derived from the implementation of ISO 9001:2008 QMS certification which could be adopted by other manufacturing firms, as well as challenges which must be dealt with. However, the framework can be modified to handle firm specific contingencies and be developed into a model which can be applied across the manufacturing industry. Despite the research's limited focus on quality management systems, the researchers believe that the findings of this study may be applicable to other industries in Zimbabwe. Therefore, further research need to be done to test the framework on other industries especially with the current economic conditions prevailing in the country.

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