

IMPACT OF TOTAL QUALITY MANAGEMENT ON PERFORMANCE OF BEVERAGE COMPANIES IN NIGERIA

B. A. Chukwu 

Department of Business Administration, Igbinedion University Okada, Edo State, Nigeria

benedictchukwu103@yahoo.com

Raph I. Adeghe

Department of Banking and Finance, Igbinedion University, Okada, Edo State, Nigeria

Emeka Anyasi

Sterling Bank Plc, Nigeria

Igbinedion University Okada, Edo State, Nigeria

Abstract

This study investigated the impact of total quality management on performance of Nigerian Brewery Plc and Nigerian Bottling Company Plc, Enugu state, Nigeria. Most Nigerian organizations perform abysmally because of non-implementation of Total Quality Management. They are ignorant of the programme, which reduces defect rate, and cost. Total quality management streamlines efficient and cost effective system and process that reduces overhead and improve performance. It also emphasizes error prevention in place of error correction that increases cost. The data collected from the questionnaire instrument were analyzed using percentage and multiple regression. The research findings show that a significant and positive relation lie between the independent variable, error prevention, quality improvement, cost reduction, fewer delays and the dependent variable organizational performance. This is consistent with the literature. We recommend that organizations implementing TQM should not pay lip service to error prevention in order to avoid costs associated with error correction. And also that management must focus on integrating customer driven quality.

Keywords: Total Quality Management, Organizational Performance, Customer, Organization, Continuous Improvement, Business Philosophy

INTRODUCTION

Total Quality Management (TQM) is defined as a management philosophy of managing business practices that deals with continuous improvement in all aspects of operations (Thompson & Strickland 2001). According to them, there must be hundred percent accuracy on activities performance, involvement and empowerment of employees at all levels, work design based on team, benchmarking and satisfying of customers expectation.

Total Quality Management is an integrated process that involves every staff of an organization ranging from managing director to the lowest worker. It is customer driven, and the overall objective is to satisfy his requirements, and know his changing needs. The customers may be those who purchase goods and services (external customers) and workers inside the organization (internal). Workers in the organization must design appropriate strategies to satisfy them, (Jones, George & Hillcharles, 2000)

Total Quality Management emphasizes product quality and service improvement, and stresses that all organization function should be directed towards this goals. Total Quality Management is an inseparable aspect of every employee's performance and responsibility. Total Quality Management emphasizes new improved methods of doing things, and everyone in the organization must embrace change and management must be willing to manage it successfully. All levels of management must be ready to accept and analyze suggestions for quality improvement from those below them.

Total Quality Management aims at commitment to doing things right in the organization and instilling enthusiasm. In organizations that implement TQM every person within the organization has customer or suppliers, some of who may be within and outside the organization. For instance, the director of accounts in an organization is a supplier of services to both staff and outsiders, who are his customers not only when he pay money to them but also when he provides them with relevant financial reports. The director of account is also customer to his subordinates who supply needed information to him to enable him perform his job to meet organizational demand This TQM approach enhance fewer delays, mistakes and bottleneck. (Wheelen & Hunger, 2006; Zickmund, 2003).

In order to inculcate the spirit of TQM among employees, the bosses (internal customers) must insist on efficient and timely delivery of services from their subordinate (internal suppliers). The supervisor must explain to their subordinates the standard of performance required of them and create proper working environment to enable them meet requirements. In the same vein, those who deal directly with the customers and suppliers must ensure that goods and services that leave the organization meets customer requirements, while suppliers would be informed of the requirements they have to meet in supplying goods and

services to the organization in terms of value, time delivery and reliability. The typists and receptionists must ensure they type and transmit call well respectively to avoid customers complain. This will enhance error prevention. TQM preaches error prevention and not corrections which increase cost.

Most Nigerian organizations perform abysmally because of non implementation of TQM. They are ignorant of implementing this laudable programme, and this is why they are not reaping the benefits of TQM, which includes cost reduction, defect rate reduction, quality improvement etc. Nigeria Brewery Plc and Nigerian Bottling Company Plc were chosen for this study because they are branches of conglomerates that implements TQM. They have the ideals of organizations implementing TQM.

Nigerian industries are losing huge sum of money annually through non implementation of TQM. Total Quality Management streamlines cost effective system and process that reduces overhead and improves performance. There is need to sensitize Nigerian organizations on the benefits of implementing TQM.

Motorolla one of the organizations implementing TQM won Malcolm Baldrige U.S National quality award for reducing defect rate in manufacturing by an astounding 99 percent. This reduction in defect rate generated savings currently at \$900 million a year (Hill & Yamad, 1992)

Furthermore, contribution to literature is that this study has incorporated the impact of TQM as independent variables in the model of study in order to view the impact of these variables as a whole in organizational performance.

Objectives of the Study

This study attempts to determine the impact of Total Quality Management on performance of beverage companies in Nigeria. In specific terms, the objectives of this study are to:

1. identify the extent error prevention affects organizational performance
2. determine the extent quality improvement affects organizational performance
3. ascertain the extent cost reduction affects organizational performance
4. establish the extent fewer delays affects organizational performance

Statement of Hypotheses

H₀₁: Error prevention does not positively affect organization performance

H₀₂: Quality improvement does not positively affect organization performance

H₀₃: Cost reduction does not positively affect organization performance

H₀₄: Fewer delays do not positively affect organization performance

LITERATURE REVIEW

Total Quality Management (TQM) is a business philosophy that focuses on integrating quality throughout the organization for the benefit of the organization and its customers and clients Zikmund, (2003). Zikmund (2003) also stated that total quality management enhances the improvement of product features and durability and also enables companies to be competitive through improvement of service delivery.

Total Quality Management encompasses all operations in the organization and as such involved every employee in the organization. The aim is to produce and market high quality, low-cost products that satisfy customer requirements (Jones et al, 2000).

Organizations that have adopted TQM philosophy has demonstrated that a focus on customer must include more than external customers. They believe everybody in the organization is either a customer or a supplier of services, and that everybody in the organization has a customer. And that customer is anyone whom employee provides services, information, support for product. (Jones et al ,2000; Wheelen& Hunger, 2003; Zikmund, 2003)

Quality Driven Management and Benefits of Total Quality Management

Organization that adopts Total Quality Management strategy views employees as an internal customer, and they see a chain of customers in the production / delivery system. A manager is viewed as a customer when an accountant prepares sales report for him. The manager will use the information to make decision that will be useful to the external customers who buy the company's products. Every worker in the organization should contribute to quality improvement and satisfaction of customers requirements (Wheelen& Hunger, 2006).

For TQM programs to be effective, employees should know exactly who is his or her customer and what internal output an external customer expect. It is vital to know how customers perceive their needs as being met. As an organizational philosophy and long-term strategy, it requires dedication in meeting customers' needs and expectations, and these includes, preventing and correcting defects, continuous improvements on quality of goods and services; designing quality services and products and fewer delays (Lindsay & Patrick, 1996).

Total Quality Management program involves change in organizational culture and this requires strong leadership from top management, lower level employee empowerment and employee training. Total Quality Management emphasizes prevention and correction. Quality inspection still takes place, but emphasis is on process improvement to prevent errors and deficiencies. Quality improvement team are formed to unearth problems and suggest process improvement that may be causing problems (Schonberger, 1992).

For TQM to be successful, management must move beyond defensive and tactical orientations to embrace a developmental orientation (Choi & Behling, 1997; Wheelen & Hunger, 2006).

Total Quality Management is a program that can be used to implement an overall low cost or a differential business strategy, since its aim is to reduce cost and improve quality. It is committed to being the best in all functions and in improvement of quality (Materson & Taylor, 1996).

Total Quality Management is partly technical, just –in-time inventory system and cultural. Empowerment of employee is necessary to carry out the needed change, and the shared value must emphasize continuous improvement. TQM does not accept quick fix solution for quality problem (Materson & Taylor, 1996).

It is imperative to note that quality implementation effort sometimes leaves customers dissatisfied, more especially when they expect much than it is possible for the firm to deliver. Some organizations usually fault their customers for being unreasonable. Customers are usually satisfied when the service matches their expectation and careful communication to the customer will lead to reasonable expectations (Dabholkar, Shepherd & Thorpe, 2000).

Implementation of quality must be the responsibility of managers who must be committed to doing things right to satisfied customers and to exhibit that quality is every ones job. Managers should also ensure that they give maximum support to the implementation program, without top level support some people will not get beyond their business as usual attitude and TQM will not work (Perreault & Mccarty, 2005)

Managers should develop a quality progrmm. They should clearly specify, and write out exactly what task need to be done, how, and why and by whom. People may find this unnecessary and may think that most people know what they are supposed to do. However, defining task clearly will make it easier to see what criteria should be used to measure performance (Singh, 2000; Bakabas, Yawas & Avei, 2001).

For instance, a sales manager of one organization might want to benchmark against a competitors sales representatives. A firm in which sales representatives earn superlative customer satisfaction rating, can be benchmarked by a competitor. This approach can reveal things that should be done that the sales manager failed to measure in the first instance (Elliot, 2001; Deeter-schmela & Ramsey, 2003). The benchmarking aspect of quality, which involves searching out, study, implementation and improvement on best practices has stimulated greater management awareness of the importance of TQM.

Getting every employee to work together to satisfy customers' requirement should be the route to profits. Managers should implement quality efforts that will provide the customer with

superior quality, that cost no more to provide than customer will be willing to pay (Rust, Moorman, & Bickson, 2002).

Before one can compete effectively in global economy, it must focus on quality and continuous improvement. Organizations that attained world class quality in their products and services were honoured with Malcolm. Baldrige national quality award by US government. Motorola, one of the winners of the award provided an example of a good leader in product quality. Motorola is the market leaders in the production of cellular phones, pagers, two-way radios, and some types of microprocessors. Motorola manufactures electronics with better quality at lower price. Motorola uses TQM strategies that earned the company a Baldrige award and also reduced its defects rate in manufacturing by an astounding 99 percent. This reduction in defect generated savings currently at \$900 million a year (Hilland Yamad, 1992).

TQM is committed to quality/excellence and being best in all functions and aims to reduce cost and improve quality. It streamlines efficient and cost effective systems and process that reduce overhead and improve performance (Hackman & Wagerman, 1995; Masterson & Taylor, 1996)

Effective use of continuous improvement technique has been found to be a valuable asset in company's resources portfolio, one that can produce important competitive capabilities in product design, cycle time, cost, product quality and reliability, service customer satisfaction and also be a source of competitive advantage (Powel, 1995)

Hackman & Wagerman (1995) argued that Total Quality Management focuses on meeting customer's expectations. According to them quality is defined by the customer when an organization achieves total quality, in all activities and processes are designed and carried out to meet all customers requirements while reducing both the time and cost required to provide them.

Study on the impact of Total Quality Management on organizational performance is at rudimentary stage. Most of the researches were carried out in US & UK. However impact of TQM on organizational performance had not specifically received attention. This article fills a gap in the literature.

METHODOLOGY

Survey research design was used to gather information or data from sample of beverage companies in Nigeria. The population of the study comprises staff of Nigerian Brewery Plc and Nigerian Bottling Company in Nigeria. The population of study was 1,600. A sample of 320 was selected for the study using Yamane (1964) formula. A stratified random sampling technique was used to distribute sample to Nigerian Brewery Plc and Nigerian Bottling Company plc, using

stratum allocation technique of Kumar (1976). Sampling was conducted on 320 respondents using questionnaire instrument. The questionnaire was made up of 5 points Likert scale. For each variable, there were five (items/elements) which were deployed keeping in view the questionnaire filling–culture and understanding of the population. The questionnaire is the combination of adaptation and self-development of items. The demographic data was part of the questionnaire. A total of 320 questionnaires was distributed to staff of Nigeria Brewery and Nigeria Bottling Company and 248 responses were collected, which has 77.51% response rate. There are five variables in total in the model, where there are four independent variables and one dependent variable. The independent variables are error prevention, quality improvement,, cost reduction and fewer delays and one dependent variable, organizational performance. As the data consists of single dependent variable and multiple independent variables, multiple regression analysis were deployed and SPSS 16.0 was used to generate results. Descriptive method of analysis were utilized to analyze data from questionnaire instrument using percentages. Hypothesis testing were carried out using multiple regression statistics.

For the study purpose, model was specified as:

$$OP = \beta_0 + \beta_1EP + \beta_2QI + \beta_3CR + \beta_4FD + u$$

Where,

Op = Organizational Performance

B₁EP = Error Prevention

B₂QI = Quality Improvement

B₃CR = Cost Reduction

B₄FD = Fewer Delays

μ = Error Term

ANALYSIS AND RESULTS

Table 1: Distribution of Responses to Questions on independent Variables Responses

Independent Variables	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Error Prevention	132(53.2)	60(24.2)	14(5.7)	30(12.1)	12(4.8)
Quality Improvement	72(29)	124(50)	11(4.4)	19(7.7)	22(8.9)
Cost Reduction	121(48.8)	82(33.1)	16(6.5)	14(5.6)	15(6)
Fewer delays	84(33.9)	114(45.9)	10(4)	19(7.7)	21(8.5)

Figures that are not in bracket show the number of responses.

Figures that are in bracket show the percentage of responses

Table 2: Distribution of Responses to Question on dependent Variable Responses

Dependent variable	Yes	No	No idea
Organizational Performance	188(75.8)	24(9.7)	36(14.5)

Figures that are not in bracket show the number of responses.

Figures that are in bracket show the percentage of responses

Inferential Statistics

Table 3: Multiple Regression Results

Dependent Variable:	Organizational Performance			
Variable	Standard error	Beta (β)	T	Sig
(Constant)	.641	3.334	5.201	.000
Error Prevention	.052	.306	5.763	.004
Quality Improvement	.091	.451	4.856	.003
Cost Reduction	.089	.620	6.869	.007
Fewer delays	.061	.444	7.213	.014

$R^2 = .639$

Adjusted $R^2 = .633$

Standard error = .429

$F = 32.842 = [.007$

Test of Hypotheses

Hypothesis 1

The beta value shows that 1 unit increase in the value of error prevention would result in 0.306 units (30.6%) increase in organizational performance, other variables being held constant. This in essence entails that error prevention is a function of organizational performance. Error prevention shows statistically significant unique contribution in explaining organizational performance with ($P < .01$). While t-statistics of error prevention also accounted for significant positive variation in dependent variable, that is organizational performance ($t = 5.763$, $P < .01$). Resultantly null hypothesis is rejected and the alternate hypothesis is accepted, meaning that error prevention exerts significant impact on organizational performance and have positive relationship with organizational performance. This result aligns with the theory which states that organizational processes perform better when error is prevented than when error is corrected. Error prevention saves organizational running cost and enhances quality improvement.

Hypothesis 2

The beta value shows that 1 unit increase in the value of quality improvement would result in .451 units (45.1%) increase in organizational performance, other variables being held constant. This in essence entails that quality improvement is a function of organizational performance. Quality improvement shows statistically significant unique contribution in explaining organizational performance with ($P < .01$). While t-statistics of quality improvement also accounted for significant positive variation in dependent variable, that is organizational performance ($t = 4.856$, $P < .01$). Resultantly null hypothesis is rejected and the alternate hypothesis is accepted, meaning that quality improvement exerts significant impact on organizational performance and have positive relationship with organizational performance. This result accords with the theory which states that there is significant improvement in quality, where Total Quality is implemented and that continuous improvement in quality of goods, services and processes is one of the basic principle of TQM which organization must have to adhere to in order to survive.

Hypothesis 3

The beta value shows that 1 unit increase in the value of cost reduction would result in .620 units (62%) increase in organizational performance, other variables being held constant. This in essence entails that cost reduction is a function of organizational performance. Cost reduction shows statistically significant unique contribution in explaining organizational performance with ($P < .01$). While t-statistics of cost reduction also accounted for significant positive variation in dependent variable, that is organizational performance ($t = 6.869$, $P < .01$). Resultantly null hypothesis is rejected and the alternate hypothesis is accepted, meaning that cost reduction exerts significant impact on organizational performance and have positive relationship with organizational performance. This result aligns with the theory which states that Total Quality Management streamlines efficient and cost effective system and process that reduces overhead and improve performance.

Hypothesis 4

The beta value shows that 1 unit increase in the value of fewer delay would result in 0.444 units (44.4%) increase in organizational performance, other variables being held constant. This in essence entails that fewer delay is a function of organizational performance. Fewer delay shows statistically significant unique contribution in explaining organizational performance with ($P < .01$). While t-statistics of fewer delay also accounted for significant positive variation in dependent variable, that is organizational performance ($t = 7.213$, $P < .05$). Resultantly null hypothesis is

rejected and the alternate hypothesis is accepted, meaning that fewer delay exerts significant impact on organizational performance and have positive relationship with organizational performance. This result aligns with the theory which states that fewer delay is one of the benefits organization derive from implementing TQM through prompt response to issues that will ginger economic growth of the company, such as exploiting new market opportunities without delay than their competitors and developing profitable new products and services faster without delay than their competitors can develop them and at less cost.

Discussion of results

Considering the results obtained in table 3, the individual coefficients β in case of each and every variable indicates a positive result over all.

Positive relation lies between the independent variable error prevention and the dependent variable organizational performance. This result is consistent with the researches of Hill & Yamad (1992).

Positive relation also exists between the independent variable quality improvement and the dependent variable organizational performance. This result is consistent with the researches of Jones et al (2000), Zikmund (2003) Wheelen & Hunger (2006).

There is a positive relation between the independent variable cost reduction and the dependent variable organizational performance. This result is also consistent with the researches of Materson & Taylor (1996).

A positive relation exists between the independent variable fewer delay and the dependent variable organizational performance. This result is consistent with the research of Linsay and Patrick, (1996); Wheelen & Hunger (2006); Zikmund (2003)

The whole analysis show that the independent variables, error prevention, quality improvement, cost reduction and fewer delays influences organizational performance and give a significant result as $P < .01$, $F = 32.84$ and $R^2 > .60$ whereas the standard error is less than 1. R^2 shows that the model is a fit one. $F = 32.84$ [0.007] show that the model has overall significance at 1% level. R^2 0.64 suggests that the model has a good fit. This indicates that 64% of variation in organizational performance is accounted for by variation in explanatory variables, suggesting that the model has a good explanatory power on the changes in organizational performance among variables.

CONCLUSION AND RECOMMENDATIONS

The individual coefficient β parameter of the predictor variable error prevention, quality improvement, cost reduction and fewer delays have statistically significant t- ratio. They have

positive relationship with organizational performance in Nigerian Brewery Plc and Nigerian Bottling Company Plc. The results are consistent with literature. Based on the findings, following recommendations are made.

1. Total Quality Management emphasizes error prevention and not error correction which increases cost. It is advisable for organizations implementing TQM not to pay lip service to error prevention in order to avoid incurring cost associated with error correction.
2. Total Quality Management also emphasizes quality improvement and should be seen by organizations implementing TQM as a continuous exercise to avoid delay in the process. It is advisable for Management to focus on integrating customer driven quality throughout the organization.
3. Since TQM streamlines cost effective system and process that reduce cost and overhead and improve organizational performance, organizations should endeavour to implement Total Quality Management.
4. Since Total Quality Management ensures fewer delays, mistakes, bottlenecks and misused opportunities, organization should also endeavour to implement TQM.

LIMITATIONS AND FURTHER RESEARCH

There is paucity of literature on the impact of Total Quality Management on Organizational Performance in Nigeria. Most of the reviewed Literature are not focused on Nigerian environment. Nigerian authors should endeavour to carry out research in Nigerian environment, when studying total Quality management, so that future researchers can see where to base their argument and also contribute in building meaningful literature for further researches. Furthermore, one of the limitations of this study was delay in returning the questionnaire by respondents. There was an assumption that respondents would complete the questionnaire correctly and in true and fair view without any form of bias, but it is not always the case, as error is introduced through lack of knowledge of subject matter and paucity of information. Error of 0.05% to determine sample size had its own limitation. Refusal to return questionnaire could be another source of constraint, because no data can be obtained without respondent's cooperation and perseverance.

In its scope, this study centered on Manufacturing Industry, it is hoped therefore that further research be carried out using Service Industry. The impact of Total Quality Management in Banking Industry will be studied. The study will be wider in scope in terms of issues and geographical areas covered. It will permit wider generalization and also will be useful in confirming or rejecting existing findings on issue under study.

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