EFFECT OF TOTAL QUALITY MANAGEMENT ON THE PERFORMANCE OF BREWERY INDUSTRY IN NIGERIA: AN EMPIRICAL STUDY OF SELECTED BREWERIES IN LAGOS STATE, NIGERIA

Omogbiya O. Shulammite
Department Of Business Administration And Management, Delta State Polytechnic, Ozoro
E-mail: omogbiyashulammite@yahoo.com
GSM: 08034354162, 08055033281

Addah Grace.O
Department Of Business Administration, Delta State Polytechnic, Ogwa-Shukwu
GSM: 08108806947

Abstract
This study was carried out to investigate the impact of total quality management on performance of Brewery industry in Nigeria: An empirical study of selected breweries in Lagos State, Nigeria. TQM is a management approach which aims at incorporating awareness of quality in organizational process. A set of structured questionnaire was used as the instrument for data collection and administered to respondents of the Brewery’s industries understudy randomly selected using Yaro Yemane formula. Applying this formula, the sample size form a population of 70 is 60 respondents at 95% confidence level. Data analysis was made and the hypotheses formulated were tested using Krustal Wallis one-way analysis of variance by rank. The findings revealed that positive and significant relationship exists between the application of total quality management in increasing organizational return on investment, lowering the level of product wastage and increases in customer satisfaction. It was concluded that adopting and implementing TQM principles enhanced the organizations overall performance. The study, however, recommended the training of employees in building of total quality management philosophy, continuous TQM education to be undertaken at all levels, commitment of total quality management to be backed by action and a host of others for effective total quality management in the Brewery industry in Nigeria.

Keywords: Effect: Total Quality; management; performance; brewery industry

Introduction
Quality has been an important part of human activities since the emergence of human history. Before now, manufacturing was essentially conducted by the cottage industry and heavily relied
on craftsmen. The manufacturers were merely in sellers market. However, the trend has changed from sellers market, to the buyer’s market. The consumers have become more aware of the variety of products in the market. Thus, customers are the focus of manufacturing such that every organization has to study what customers needs are and satisfy them in order to remain in business by offering products of desired quality.

Arora (2009) stated that quality of goods are determined by customers, customers become a key factor that can create competition among organizations and this make firms to focus more on quality to sustain their competitive advantage. This is because effective quality determines the rate of productivity and thus become an important factor in organization and also contributes to the growth of the economy.

Meanwhile in the light of increasing complexities and the change from local to global tiers of market places, there have been constant pressures applied on the management to improve competitiveness by lowering operating cost and improving logistics. The customers are becoming increasingly aware of rising standards having access to wide range of products and services to choose from.

There is an ever-increasing demand for quality product and/or services and this global revolution and forced organizations to invest substantial resources in adopting and implementing total quality management (TQM) strategies. Total quality management refers to a total commitment to quality.

Statement of the Problem
Total quality management is a style of management that gives everyone in the company responsibility for delivering quality to the final consumers. Quality being described as a fitness for purpose or as a delight to the customers’ needs. TQM views each task in the organization as fundamentally a process in a customer-supplier relationship with the next process. The aim at each stage is to define and meet the customer’s requirements in order to maximize the satisfaction of the final consumer at the lowest possible cost.

Incompetence on the part of employees could result to poor quality output. This undermining of the product quality affects the standard, organization repute, quality control and patronage. However, over the years organizations have witnessed different negative impacts because of sub-standard products or fake adulterated ones. If products are not of the required specifications, this could make the products un-competitive both at national and international markets, money spent in the production may not be recovered or waste of resources and returns on investments will fall drastically. Often, lives are lost as a result of the consumption of products produced below specifications or sub-standard. Also inferior products affect the customer health and satisfaction. The organizations corporate image and profitability are also affected negatively, due to non adherence to total quality management principles. It is against this backdrop that this study seeks to x-ray the impact of total quality management on performance of Brewery industry in Nigeria- An empirical study of selected Breweries in Lagos State Nigeria.

Objectives of the Study
The two main objectives of the study are
i. To identify the extent to which total quality management help in increasing organizational return on investment.
ii. To find out whether total quality management contribute to lowering the level of product wastage and increases in customer satisfaction.
Research Questions
The following two questions were raised to guide the study.

i. To what extent does total quality management help in increasing organizational return on investment?

ii. Does total quality management contribute to lowering the level of product wastage, and increases in customer satisfaction?

Research Hypothesis
For the purpose of this study, the following hypotheses are considered relevant.

i. Total quality management significantly help in increasing organizational return on investment.

ii. Total quality management contributes to the achievement of lowering the level of product wastage and increases in customer satisfaction.

Scope of the Study
The scope of the study comprised of selected Brewery Industries in Lagos metropolis. The emphasis of the study was on the impact of total quality management on performance of Brewery industry in Nigeria.

Literature Review

Conceptual Framework
Total quality management is a system approach to quality management. It refers to complete commitment to quality in all spheres of the organization. Total quality management is a management approach of organization, centered on quality, based on the participation of all its members and aiming at long term success through customer satisfaction and benefits to the members of organization and society (Shankar, 2012).

Total quality management (TQM) is the popular approach to improving quality. It involves the organizations long term commitment to the continuous improvement of quality, throughout the organization and with the active participation of all members at all levels to meet and exceed customer’s expectations. This top-management driven philosophy is considered a way of organizational life. In a sense, it is simply effective management (Weihrich and Koontz, 2005).

Ciama (2012) also delineates TQM as the state in which all the activities of all the functions are designed and carried out, in such a way that all external customers requirements are met while reducing internal time and cost, thus enhancing the work place climate.

Ndiokho (2012), notes that total quality management involves making constant effort to identify what the customer wants from time to time and determining how to cater for them. This is based on the recognition of the fact that customers needs, desires, and wants normally changes overtime in relation with changes which may occur in key aspects of the environment such as social, political, economic and technological changes. In particular, TQM is a culture of continuous improvement based on continuous learning and adaptation to changes in customer demand and product or operational method.

Also, Jones (2011) sees total quality management as a management technique that focuses on improving the quality of an organizations products and services and stresses that all of an organizations functional activities should be directed towards this goal. Conceived as an organization wide management programme, total quality management requires the co-operation of managers in every function if an organization is to succeed.
Total quality management is a business philosophy that embodies the belief that the management process must focus on integrating the idea of customer-driven quality throughout an organization (Zikmund, 2013). It stresses continuous improvement of product quality and service delivery. Managers improve durability and enhance a product with additional features as the product matures. Managers also strive to speed up delivery and improve other services, in order to keep their brands competitive. The philosophy underlying the implementation of a TQM strategy is to see customers and clients as the vital key to organizational success.

Quality management principles, with growing global competition, effective quality management is becoming increasingly important to the leadership and management of all organizations. Quality management principles provide the understanding of and guidance on the application of quality management, by applying the following eight quality management principles an organization will bring benefits for customers, owners, people, suppliers and society at large (ISO TC 176), the standard could be found at ISO as follows:

1. **Customer focused organization:** Organizations depend on their customers and therefore should understand current and future customer needs meet customer requirement, and strive to exceed customers’ expectation.
2. **Leadership:** Leaders established unity of purpose and directive of organization. They could create and maintain the internal environment in which people can become fully involved in achieving the organization objectives.
3. **Involvement of people:** People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organizations benefits.
4. **Process approach:** A desired result is achieved more efficiently when related resources and activities are managed as a process.
5. **Continual improvement:** Continual improvement should be a permanent objective of the organization.
6. **Factual Approach to decision making:** Effective decision and actions are based.
7. **Mutual beneficially supplier relationships:** An organization and its suppliers are independently and a mutually beneficial relationship enhances the ability to create value.

**Benefits of Total Quality Management**

Egboh (2011) identifies the following benefits of total quality management.

i. **Effectiveness:** The goal of total quality management system is to improve the effectiveness of the organization in achieving targets and to continuously improve the quality of production and client satisfaction.

ii. **Efficiency:** The total quality management ensures a high efficiency through improving the quality of resources, using inputs and outputs without increasing capital volume.

iii. **Quality chains:** Every member of staff is part of quality chains i.e. supplier of products/services to customers. The product of one unit of an organization is an input (raw material) to another unit. Thus, every staff in the quality chains should know his/her customer and supplier expectations.

iv. **Quality costs:** These costs are an indication of success if they are low poor quality costs money.
Methodology
All the brewery industries in Nigeria constituted the population of the study. The number is somewhat infinite. Therefore, the researcher decided to limit the target population to selected breweries in Lagos, namely Nigerian Breweries and Guinness Breweries. A sample size of 60 was selected from a population of 70 using the Yaro Yamene formula which is given as:

\[ n = \frac{N}{1 + N(e)^2} \]

Where:
- \( n \) = Sample size sought
- \( e \) = Level of significance = 0.05 or 95%
- \( N \) = Population size = 70

\[ n = \frac{70}{1 + 70(0.05)^2} = \frac{70}{1 + 0.25} = \frac{70}{1.25} = 60 \text{ respondents} \]

Applying the formula, the sample size from a population of 70 is 60 respondents at 5% confidence level.

The simple random sampling method was used to select the respondents. The researcher made use of survey design. Survey design according to Olaiton, Ali, Eyo and Sowande (2000) is a plan, strategy structure that the investigator wants to adopt in order to obtain solution to research problems using questionnaire in collecting analyzing and interpreting the data. The data used in this study were obtained from both primary and secondary sources of data. The instrument of primary data collected was the questionnaire and face-to-face interview. The instruments were validated by experts in total quality management to authenticate the relevance of the instrument. Secondary data were collected from text books, and publications on total quality management. Data collected were collated and analyzed using percentages. In addition the hypotheses formulated were tested using Kruskall Wallis one-way analysis of variance by rank.

Findings and Discussions
Hypothesis one (1) was tested using Kruskall Wallis one-way analysis of variance by rank.

Test Statistic: Kruskal Wallis one-way analysis of freedom by rank.

Degree of freedom = \( k - 1 = 2 - 1 = 1 \)

Table value \( X^2 = 0.05 = 3.841 \)

Level of significance = 0.05

Decision rule: Reject \( H_0 \) of \( H_{calculated} > X_{tab} \).

Sample Distribution

\[ H = \frac{12}{N(N+1)} \sum_{j=1}^{k} \frac{R_j^2}{n_j} - 3(N+1) \]

Where:
- \( K \) = Number of samples
- \( n_j \) = Number of cases in jth sample
- \( N \) = \( \sum_{j=1}^{k} n_j \), the number of cases in all samples combined
- \( R_j \) = Sum K of ranks in jth sample (column)
\[ \sum_{j}^{k} \] Directs one to sum over the k Samples (column)

**Computation**

**Table 1:** Total quality management and increasing organization return on investment

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>29</td>
<td>48.3</td>
</tr>
<tr>
<td>Agree</td>
<td>25</td>
<td>41.6</td>
</tr>
<tr>
<td>Undecided</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Source:** Field Survey, 2015

Ranking all the observations for the k groups in a series assigning ranks from 1 to N we have

**Table 2:** Ranks of groups

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total R\textsubscript{1} = 23</strong></td>
<td><strong>R\textsubscript{2} = 32</strong></td>
</tr>
</tbody>
</table>

**Source:** Computation from table 1

\[ R\textsubscript{1} = \text{Sum of 1\textsuperscript{st} column of rank} = 8 + 7 + 4 + 1 + 3 = 23 \]

\[ R\textsubscript{2} = \text{Sum of 2\textsuperscript{nd} column of rank} = 10 + 9 + 6 + 2 + 5 = 32 \]

\[
H = \frac{12}{N(N+1)} \sum_{j}^{k} \frac{n_{j}^2}{n_j} - 3(N + 1)
\]

\[
= \frac{12}{10(10+1)} \left( \frac{23^2}{5} + \frac{32^2}{5} - 3(10 + 1) \right)
\]

\[
= \frac{12}{110} \left( \frac{529}{5} + \frac{1024}{5} \right) - 33
\]

\[
= 0.10909 \left( 105.8 + 204.8 \right) - 33
\]

\[
= 31.3197
\]

**Decision:** Since the calculated value of 31.3197 > \( x^2 \) table 3.841, we reject the null hypothesis and accept the alternative hypothesis. This implies that total quality management increases organizations return on investment. This finding was supported by the view of Rahman (2001) who stressed that leadership, processes, products and services, people and customer focus were significantly correlated with revenue, profit and the number of customers. Other empirical
evidence that support this result include Gaspersz, (2005) study which focuses attention to quality generates positive impact to business performance through both the impact on production costs and earnings.

**Table 3:** Total quality management and lowering the level of products wastage and increase in customer satisfaction.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Agree</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>Undecided</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>3.33</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>1.67</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Field Survey, 2015*

**Table 4:** Ranks of groups

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

| Total R₁ = 23 | R₂ = 32 |

*Source: Computation from table 3*

\[
\begin{align*}
\chi^2 &= \frac{12}{10(10 + 1)} \left( \frac{23^2}{5} + \frac{32^2}{5} - 3(10 + 1) \right) \\
&= \frac{12}{110} \left( \frac{529}{5} + \frac{1024}{5} \right) - 33 \\
&= 0.1090 \left( 105.8 + 204.8 \right) - 33 \\
&= 95.123
\end{align*}
\]

**Decision**

Since the calculated value of 95.123 > χ² table 3.841, we reject the null hypothesis and accept H₁ the alternative hypothesis. This implies that total quality management contributes significantly to the achievement of lowering the level of product wastage and increases in customers satisfaction. This is supported by the view of Oakland (1993) referring to quality as the meeting of customers requirements, and reliability as the ability of a product to continue to meet the customer requirements.

**Conclusion**

The study examined the impact of total quality management on performance of brewery industry in Nigeria – An empirical study of selected breweries in Lagos State, Nigeria: The study revealed that there is positive and significant relationship between total quality management and increasing organizational return on investment. There is also a significant relationship between total quality
management contributing to the achievement of lowering the level of product wastage and the level of product wastage and increases in customer satisfaction.

To conclude, total quality management is imperative for better organizational performance and growth.

**Recommendations**

In view of the findings and conclusion of the study, the following recommendations were proposed for effective implementation of total quality management in organizations.

1. Employees have to be trained and involved in building of total quality management philosophy.
2. Continuous TQM education should be undertaken at all levels, even for those firms that have already acquired a high degree of awareness of the concept (TQM).
3. Commitment to total quality management must be backed by action.
4. Management should embark on enlightenment campaign so that staff can be aware of the opportunities available for employees coupled with this, there should be seminars organized outside business environment on ways to handle customers’ problems, questions and answer session and innovation in the organization as a whole.
5. Management and organization should be incorporated of organizational products, as this will help to reduce challenges posed by adopting total quality management principles.

**References**


Gasperz. Z. (2005), Total Quality Management, New Delhi, Vikas Publishers


