

Total Quality Management (TQM) and Product Standardization: A Study of Nigerian Breweries PLC

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Abstract

The quest for improvement in products and services through quality control used to be the focus of most multinationals, global and local firms but did not eliminate customers' dissatisfaction with poor quality products or services. As a result, TQM evolved as a business strategy, philosophy and attitude. This continuous process and long term internal growth strategy has been seen as a way of doing business, covering such issues as greater reductions in product defects, costs and cycle time in manufacturing and distribution, increasing worker's empowerment and encouraging customers' involvement in the bid to do the best job possible. Quite often, a good product becomes an incurable business failure through mismanagement, inappropriate strategic and tactical maneuvers and/or lack of planned maintenance of its unique qualities and features within the holistic framework of organization. But it is suggested that employees must be fully empowered to check and correct quality errors as they identify them. Product standardization is also a prevalent global concern even on records and in history. Its main concern is to draw a strong correlation between quality control and product standard that is compatible at quite high consumerist values, as recommended and regulated by International Standard Organization(ISO) and Standard Organization of Nigeria (SON). This work through an exploratory research approach, evaluated the need for product standardization to depend on total quality management with the following variables as TQM principles; Cost reduction, product standard and quality standard, adopting Nigerian Breweries Plc, as a Case for the Study.

Keywords: Total Quality Management, Product Standardization.

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Background to the study

The ever increasing desire for customers to get the best value for their money has resuscitated the responsibility of managers to provide quality tangible and for intangible goods to their customers (Akanwa, 2006). These companies and their managers are therefore not only forced with providing high quality goods, but also providing them at affordable prices. To do this, the organization must ensure that its workers are people of quality. This is because; the manager is described as the head of all management functions. His tools to achieve quality service are primarily, people. Quality is never an accident; it is always the result of intelligent research effort (Akanwa, *ibid*).

Banjoko (2005) posits that it is hard to give an all embracing definition of what quality or good quality means. Often, it depends on each observer's point of view. Consequently, he defines quality as a measure of the degree to which a particular product satisfies the expectation of customer with respect to certain “tangible and intangible attributes, inherent in the design of the product or service and its performance under normal use”.

However, many authorities in management insist that quality must be controlled. According to Banjoko (*ibid*), controlling and achieving a desirable quality level involves an integrated set of function and for set of input systems. In between the input-output systems, there are critical decision variables which must be adequately attended to as various constituents of a quality control system as also provided in Dervitsiots (1981) framework and flow chart.

Quality involves meeting or exceeding customer expectations in the products/services offered, Asika (2004) provides quality dimensions of products and services; dimensions of products as: performance, features, reliability, durability, conformance, serviceability, aesthetic and perceived quality while dimensions of services as: timelessness, courtesy, consistency, convenience, completeness and accuracy.

While there are multiple dimensions in product and service and quality begins at the top of the organization, top management must create values for quality that permeate the entire organization. These values must be built into strategies that reflect long commitments to customers and shareholders. In so doing, a process of Total Quality Management (TQM) pervades the firm in all activities and processes.

Quality and Total Quality Management are closely associated with the philosophies and teachings of (Demings and Juren 1996) which are based on the understanding that “it cost less to make quality products than deficit ridden ones”. The reason for advocacy for quality standard is synonymous with the advocacy for product standardization. No doubt, a success bound company must be able to manage its portfolio of products, or strategic business units in order to balance cash flow (Osaze, 1998). Umukoro (2006), revealed one of the major tasks of TQM as identifying projects and tracing them to the source, find out why they occurred and make appropriate corrections. Manufacturing and materials management typically have primary responsibility for this task

Banjoko (2005, *ibid*) affirms that even now, the total Quality Concept (TQC) is gaining ground in many organizations. The concept stresses increased emphasis on quality in every aspect of business operation, e.g. quality in planning, organization, coordination and control, quality in material and resources planning; quality in sales management decisions, in fact quality in virtually every decision necessary in enhancing the growth and survival of the organization.

Thus, Total Quality Management can therefore be described as a philosophy of management which is pushed by the constant attainment of customer satisfaction through the continuous improvement of all organizational processes. Banjoko (*ibid.*) citing Deming (1996) states that an organization that relates its products and services can equally improve on its needs and adjust to the growing pressures outside by bringing to a minimum, the number of errors made as a result of improving both standard and productivity which in turn yields greater output for the same level of cost. Total Quality Management is thus viewed as the drive of satisfying customers' needs and events at any given time.

Product standardization depends largely on Total Quality Management, this is why it is gaining a global concern and consumerism in both research and development Akanwa (2005) observes that when a product specification is produced in large quantities without any particular customer in mind, the production is described as mass or standardized production. Standardized products are made to appeal a large population of people and may be targeted toward globalization, at high consumerist values. This is the more reason why some regulatory bodies like the International Standard Organization (ISO) and the Standard Organization of Nigeria (SON) are introduced to checkmate the Quality and standard of products and services in organizations, the aim is to ensure a proper regulation and inspection of both qualities and standards of manufactured or finished products. This study will contribute to knowledge by highlighting the benefits of Total Quality Management and Product Standardization to Organizations, the Government and Potential Consumers.

Statement of problem

Earlier research findings show that product standardization was seen to be a common and important reason why there is strong quest for improvement in product and services through quality control. Quite often, a good product becomes an incurable business failure through mismanagement, inappropriate strategic and tactical maneuvers and/or lack of planning maintenance of its unique qualities and unique qualities and features within the holistic framework of organization; thus, the need for total quality management. There is also dire need to avoid product defects. And improve on the total quality of products and services to match the anticipated standards of consumers.

Objective of the Study

Due to identified problems, the primary objective of this study would be:

- (i) To inquire on how to reduce costs in the process of achieving total quality management and product standard

- (ii) To ensure that all departments of the organization to observe proper regulations of dormant, rules, laws etc. governing it as a body, this will enhance in achieving Total Quality Management and Product Standard
- (iii) To further ensure that Quality Standard correlate in production management.

Research Questions

- (i) How does cost reduction affect Total Quality Management?
- (ii) How does standard compliance affect total quality management?
- (iii) How does quality standard affect total quality management?

Hypothesis

Ho: Quality Standard will not affect Total Quality Management

Hi: Quality Standard will affect Total Quality Management

Conceptual Clarification

The concept of Total Quality Management (TQM) Oxford Advanced Learner's Dictionary, ninth edition explains the following words as; (i) Total: all round entire, complete (ii) Quality: goodness or worth, it can further be defined as the ability of a product or service to meet the expectation of customers (Akanwa, 2006) while Management according to Ejiofor (2005) is the art of working, particularly through people, for the achievement of the broad goals of an organization. The great economist, Schumpeter, referred to managers and entrepreneurs as engine of growth” Drucker () called Management the life given organ of the enterprise body. Ansoff (1988) believed that the development of conducive corporate policy and the return to “basic” of good management practice will produce spectacular results for organizations, these include; Total Quality Management and Standard Products.

With the above clarifications, Total Quality Management (TQM) as a compound word can therefore be said to mean “the art of achieving satisfactory business results through all round goodness” All round in terms of equipment, raw materials and personnel. Since the quality of raw materials is directly related to the quality of goods to be produced at the end of the day, management must also ensure that the raw materials and equipments are sourced at the right time, from the right place and of the right quality. We must also ensure a sufficiently trained labour force.

The above is an entire operational or production management process, this is why Total Quality Management concept is from that background. 'Cost implication and management' must also be taken into consideration while anticipating a quality product. How effective an organization is in achieving satisfactory business result is relatively proportionate to how effectively they are managed (Akanwa, *ibid*) . This is because effective management involves avoiding and reducing wastages, that is why 'standard compliance' is also necessary by vesture of strictly adherent to organizational rules and regulation for effective operation.

If the concept of Total Quality Management must be adopted in an organization, its responsibility must be rested by in every worker led by the Chief Executive Officer(CEO) of

the organization. The CEO, in turn needs the support and existence of all members of the organization. Furthermore, the manager can be said to be the one who gives value to products. He takes resources that has less value and returns more value than were invested, in the production process (Akanwa, 2006)

Deming's theories cut across different professional fields ranging from psychology to philosophy, Management, Accounting, Sociology, Economics, Finance, Anthropology, Insurance, Microbiology, Biochemistry, Optometry, Food Science, Government etc. Deming who is known as the father of quality management helped to transform Japanese business starting from the 1950's. Today, however, quality is back in vogue in Japan. Quality circle complimented Deming's TQM theory Quality circle in Japan is a process whereby each organization was expected to sub divide its workers into smaller groups. Members of this group have different background i.e. heterogeneous nature. Each group was charged with the responsibility of brain-storming on possible quality improvement with an attendant clause to hold this discussion section only outside the official working hours. The area for discussion knows no bounds. The term of reference of each group is to discuss ways and means by which quality can be improved in the organization. Each group that came up with a workable recommendation was rewarded both materially and psychically, in this way, quality is integrated into the organization's strategic business plan. It makes quality a management responsibility. The result was competition among the different groups from then onwards the quality of Japanese products began to improve o much that, today, Japanese products are considered as one of the highest qualities in the world.

Deming's theory of Total Quality management became so much popular, so that, Deming now has devotees or proponents. Some of these devotees were regarded as 'masters' . A Deming master is someone who has received instruction from Deming himself. Imaga (1996) believes, that Deming masters are also people whom Deming believes will teach others labour his principles without delaying in understanding the ideas too much.

How does total quality management work?

By TQM, the scholars may be misunderstood to mean managing quality to a level of perfection. Quality in this sense does not mean perfection, but it does designate distinction and character, excellence within the boundaries of a thing - or a person - or a project. This distinction is achieved through good policies and guide-lines, rules, controls, records keeping, incentives, etc. Some of these are written while others are unwritten. With these, quality is accessed, maintained and improved. Improvement in quality is a continuous activity and therefore managers as change agents are **continuously** thinking in that direction.

Total quality management also involves the setting up of workable policies and guide-lines, such as recruitment policies, staff development policies, promotions, etc. With these policies properly implemented, the management shall guarantee solution to problems; assist poor performers to turn-out work of better quality etc. At all times, quality should pre-

occupy the minds of these professionals since whatever we do or avoid to do have quality implications. It is therefore necessary to say that effective total quality management requires total commitment and dedication on the part of all personnel.

Quality is a question of simply meeting customers at the point of their needs and requirements. Therefore, the focus should be customer satisfaction. That is why, service is and should be the main purpose of the existence of every business to bring into focus the realization of the quality; improvement training must be made a continuous affair because learning is a continuous process and the more one acquires skill, the more proficient he becomes in executing the act. A firm's customers should be its most valuable assets and to retain them should be of uppermost importance to the organization. To do this, the organization must occupy itself with *thought* to meet their requirements and expectations. This will create a long-term relationship between the customer and the organization.

Imaga (1996) asserts that companies managed along TQM lines ask everyone from the President on down to commit to change and evaluate how work gets done. TQM is not a quick fix. It requires patience on the part of management and a willingness to share power with workers. The effort to improve products and processes must be ongoing with a strict adherence to statistical benchmarking—eliminating defects, finding the sources of problems, and recording results—to ensure that improvement is mending.

TQM has also extended to school campuses. Members of the faculty in such campuses practice TQM by trying to better satisfy their student customers. In such campuses, students are asked to assess their lecturers' teaching style either annually or semi-annually. Such assessment reports give the teacher feedback about whether he is meeting his expectations and where he is not; changes are adopted by the teacher.

Nwaroh (1991) in an article asserts that "One proven method of achieving any organizational goal is for the goal to be management led; companywide; and based on the involvement of all employees". This is because the core of quality thinking is customer satisfaction. It involves all organizations, including financial organizations like banks and insurance industries". By so doing, one would have been said to have integrated TQM into organization's strategic business plans.

Production Standards and Quality Control

Standards are the normal expected levels of performance. One of the major responsibilities in planning and organizing production functions is the establishment of production standards to control the use of resources and the quality of output. Production standards commonly found in a production system are time and quality standards.

A time standard is a measure of the time required for an average worker working under normal conditions to perform a job. Time standards are established with the aid of time and

motion studies. Time standards offer numerous advantages in production management. It ensures that tasks are completed within acceptable time limits. It is also adopted in staff performance assessment for purposes of rewards and other related decisions. In addition, to the use of time and motion studies managers and supervisors can also capitalize on personal observations and experiences to establish time standards. Experience gained by performing the task provides valuable knowledge and understanding in establishing realistic time standards.

Quality standard is a measure of the quality of a product. Quality is described as the degree to which a product conforms to the requirements and satisfactions of customers. Thus, quality includes free from defects and errors in order to avoid customer dissatisfaction. Bartol and . Martin (1998 :544) define quality “as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs”. This definition recognizes a number of features, which include the fact that quality involves every aspect of a product or service, that quality underlines the ability of a product or service to satisfy needs, and that customers needs for quality may change and may not be clearly stated.

Cortada and Woods (1995) in line with the above recognize quality as dynamic and a moving target, and that processes, products and services can be improved upon continuously. They observed that what seems a high quality today can seem a mediocre tomorrow because peoples' tastes, preferences and expectations change. The concept of quality 'could be summarized in the idea of Armand Feigenbaum quoted in Cortada and Woods, (1995:287) that “quality is a customer's determination, not an engineer's determination or a general managers determination. It is based upon a customers actual experience with the product or service, measured against his or her requirements stated or unstated, consciously or merely sensed, technically operational or entirely subjective...” Thus, it is the responsibility of every organization to deliver quality products or services to its customers.

Product standards are maintained through quality control. Quality control can be defined as the maintenance of appropriate level of quality in the products and services offered to the customers. Customers expect each product to meet minimum acceptable standard and to be affordable as well.

A number of techniques can be adopted for quality control in a production system.

(a) **Acceptance sampling:** This involves sampling finished products to ensure that they meet the acceptable level of standard. Sampling means selecting a particular number of products that have completed the production Stages for quality analysis. When the products sampled are observed to fall short of expectations it is an indication that something is wrong with the production system. This needs to be identified and corrective action taken.

(b) **In - process sampling:** This involves close monitoring' and assessment of the product as it passes through different stages of production process. When defects are observed at any stage corrective action are taken before it passes to the next stage. Production monitoring enhances early discovery of possible problem corrective actions taken before it is late.

(c) **Quality dimensions:** Quality is observed to have strategic implication in competition. The competitive strengths or weaknesses of an organization are largely determined by its products or services offer on a wide range of customer's expectation. Bartol and Maitini 1988 identified eight important dimensions of quality of a product.

i) **Performance:** This is the operating characteristics of a product. In automobile for instance, it will include acceleration, braking, fuel consumption, stability, comfort, etc. In a service business performance is defined in terms of promptness, and fitness.

(ii) **Features:** This is defined in terms of additional benefits offered in addition to the basic functions. In automobile this includes, air conditioner, power steering, power side mirror, in built stereo and other automatic facilities. In service business this may be in the form of complementary offers like newspapers, music to listen to and television to watch while the customer is waiting or receiving the service.

(iii) **Reliability:** This is the assurance that the product will not disappoint the customer within a specific time or that the service product will serve the purpose for which it is being purchased.

(iv) **Conformance:** This is the degree to which a product conforms to stipulated standards or specifications. The standard or specification may be industrial or company established or legally established. It is expected that products and services offered to customers will meet such standards.

(v) **Durability:** This is in terms of how long the product will last before it deteriorates or breaks down to the point of replacement.

(vi) **Serviceability:** This refers to the promptness and ease of repair. This is determined by the availability of servicemen and parts, and how simple or easy it is to understand the technology.

(vii) **Aesthetics:** This refers to the look of a product, particularly the beauty and attractiveness.

(viii) **Perceived Quality:** This is in terms of the customers' assessment of the product or service. Customers' assessment of a product usually depends on their experience with it, the available information about the product or experiences narrated by other people who have used the product or service.

Methodology

The exploratory research design was adopted in this study. This is synonymous with a case study or ex-post-factor (after-the-fact) research method (Asika, 2000).

Method of Data Collection

Therefore, using the case study/exploratory research method which also according to Asika (2004) has a specific population target, the study, hence, used both primary data garnered from respondents from Nigerian Breweries Plc Onitsha and information from journals, textbooks, magazines, newspapers, even Nigerian Breweries Plc as secondary data for the study.

Sampling Technique

The population of the study precisely includes all the employees of the Nigerian Breweries Plc Onitsha. However, 40's employee's respondents were chosen as the sample size to represent the entire population of Nigerian Breweries Plc. Onitsha, using random sampling technique. The stratified sampling technique was also used to divide the sample size into two strata '20 employee respondents from the senior staff cadre and 20 from the junior staff cadre, to ensure that all opinion is fully represented.

Method of Data Analyses

Percentage statistical technique and frequency tables were adopted to analyze data generated for the study. Chi-square method was used to test hypothesis, stated for the study.

Nigerian Breweries History

Nigerian Breweries Plc is the pioneer and largest brewing company in Nigeria. It serves the Nigerian Market and exports to other parts of West Africa. The Nigerian Breweries was incorporated in 1946. Its first bottle of beer, Star Lager, rolled off the bottle lines of its Lagos brewery in June 1949. The brewery commissioned other breweries including Aba Brewery in 1957, Kaduna Brewery in 1963 and Ibadan Brewery in 1982. In September 1993, the company acquired its fifth brewery in Enugu and in October 2003, its sixth brewery, sited at Ameke in Enugu. Ama Brewery began brewing on the 22 March 2003 and at 3 million hectoliters as the largest brewery in Nigeria. Operations at Enugu brewery were discontinued in 2004, while the company acquired a Malting Plant in Aba in 2008.

In October 2011, Nigerian Breweries acquired majority equally interest in Sona Systems Associated Business Management Limited, (Sona Systems) and Life Breweries Limited from Heineken N.V. this followed Heineken's acquisition of controlling interests in five breweries in Nigeria from Sona Group in January 2011. Sona System's two breweries in Ota and Kaduna and Life Breweries in Onitsha have known become part of Nigerian Breweries Plc, together with the three brands: Goldberg Lager, Malta Gold and Life Continental Lager.

In December 31st 2014, Nigerian Breweries Plc completed the merger with Consolidated Breweries Plc which added the three breweries in Ijebu-Ode, Awo-Omamma and Makurdi. The brands 33 export larger, Williams Dark Ale, Tubor King Stout, Mora Lager, Breezer, Himalt and Maltex (the first Nigerian Malt Drink) were all added.

In November 2015, Nigerian Breweries launched the international brand Strongbow Cider which makes the first in Nigeria to produce and bottle the cider category beverage. Nigerian Breweries Plc not hasten operational breweries from which its products are distributed to all parts of Nigeria, in addition to the malting plants in Aba and Kaduna. Nigerian Breweries also supports in Champion Breweries Plc, Uyo.

The Nigerian Breweries now brands like Heineken, Star Lager Climax Energy Drink, Gulder, Goldberg, 33 export, Legend Extra Stout, Amstel Malta, Maltina, Malta Gold, Maltex, Hi malt, Strong bow Apple cider and Fayrouz

Data presentation and analysis

Tables 1: Distribution of Responses

Question (Q)	True (T)	False (F)	Total (%)
Cost reduction affect TQM positively	4 (10%)	36 (90%)	40 (100)
Standard compliance affects TQM positively	33 (82.5%)	7 (17.5%)	40 (100)
Quality standard affects TQM positively	32 (80%)	8 (20%)	40 (100)
Total	69	51	120

Source: Survey 2019.

Table 1 shows that 4(10%) of the respondents agreed that cost reduction affects total quality management positively while 36(90%) disagreed that it does not affect total quality management positively.

Tables 2 also shows that 33(82.5%) of the respondents indicated that standard compliance affects total quality management positively while 7(17.5%) of the respondents indicated that standard compliance does not affect total quality management positively.

Table 3 finally shows that 32(80%) of the respondents indicated that quality standard affects Total Quality Management positively while (20%) indicated that it affects it negatively.

Results

The findings of the research revealed:

- (i) Cost reduction affects Total Quality Management negatively.
- (ii) Standard compliance affects Total Quality Management positively.
- (iii) Quality standard affects Total Quality Management positively

Hypothesis

Ho = Product Quality Standard will not affect organizational performance

Hi = Product Quality Standard will affect organizational performance

To test the hypothesis, response to question 3 as analyzed in table 1 which then states: How does Quality Standard affect Total Quality management” would be brought forward.

Variables	O	E	(O-E)	(O-E) ²	<u>(O-E)²</u>
Yes	32	20	12	144	7.2
No	8	20	-12	144	7.2
Total	40				14.4

Source: Survey 2019.

Decision rule

Since $X^2_e > X^2_t$, i.e. chi-square calculated is greater than chi-square tabulated; the alternate hypothesis should be accepted. It states that quality standard affects total quality management.

Conclusions

This exploratory study concludes that products standardization largely depends on total quality management. The research investigation with the following substantive facts therefore concludes that;

1. Consequentially, cost reduction in production affects total quality management negatively. This can eventually lead to poor quality control and production of sub-standard goods and services.
2. Product standard compliance and regulation also affect total quality management positively, this can equally result to good standard products that can measure-up with the regulations of organizations like: Standard Organization of Nigeria (SON) and International Standard Organization (ISO).
3. Finally, quality standard as an internal policy and regulation of any visionary organization affects total quality management, also positively. This is because with greater reduction in products' defects, cost and cycled time in manufacturing and distribution, increasing workers' empowerments
4. and encouraging customers' participation in possible best jobs, good quality could be consistently monitored and ensured to secure a good market edge and position, in competitive advantage.

Recommendations

- (i) Organizations are required consequently to improve on cost implication and management in operations and production research. Organizational annual budget should equally be intensively directed or concentrate on cost improvement
- (ii) Employees of senior cadre eg CEOs and operation supervisors should ensure that factory workers and other staff members must obey all the rules and regulations for strict adherence or compliance in achieving total quality management.

- (iii) For a strong competitive advantage, it is recommended that organizations should ensure quality standards in production, to reduce promotional costs in marketing budgets. This is another effective way of achieving total quality management.

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