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RESEARCH ARTICLE

Quality Control Techniques and Organizational Growth in Selected Manufacturing Firms in Enugu State

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Abstract

This study assessed quality control techniques and organizational growth in selected manufacturing firms in Enugu state. The objectives of the study were to ascertain the extent inspection technique influences organic business growth among the selected manufacturing firms in Enugu State, determine the influence of brainstorming technique on strategic business growth among the selected manufacturing firms in Enugu State and evaluate the effect of quality-at-the-source technique on acquisition business growth among the selected manufacturing firms in Enugu State. The descriptive survey research design was adopted in the study. The population of the study was 474 while the sample size of 217 was adopted using the taro yamane's formula. The data were analysed using frequencies and percentages while the hypotheses were tested using the z-test statistical tool. The findings included that inspection technique influences organic business growth among the three selected firms in Enugu State to a large extent (X value = 40.33, p value 0.0000 < 0.05), brainstorming technique has significant positive effect on strategic business growth among the three selected firms in Enugu State (X value = 37.76, p value 0.0000 < 0.05) and quality-at-the-source technique has significant positive effect on acquisition business growth among the three selected firms in Enugu State(X value = 37.76, p value 0.0000 < 0.05). This study concluded that quality control techniques had significant and positive influence on organizational growth among the three selected firms in Enugu State and it was recommended that managers should always maintain inspection technique in order to facilitate the utilization of best practices among workers within the organization, management of organizations should always see brainstorming as a good quality control technique that can help pilot the affairs of the firm globally in order to gain more ground and management of the brewery industry should adopt the technique of quality-at-the-source as the technique makes sure that quality is maintained at every stage of the production process.

Keywords	*Quality Control Techniques; Organizational Growth; Manufacturing Firms*
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Introduction

Quality control is as old as industry itself (Duncan, 2020). In the ages before the industrial revolution, good craftsmen and artisans learnt quickly through the intimate contact with their customers that quality products meant satisfied customers and satisfied customers meant continued business. However, with the industrial revolution came the mass production of products by people who rarely interacted with customers. As a result, cost decreased, the emphasis also decreased. In addition, as the products made and the services provided became more complex, the need for a formal system to ensure the quality of the final product and all its components became increasingly important.

Quality control is a process by which entities review the quality of all factors involved in production. International Standard Organization (ISO) 9000 defines quality control as "a part of quality management focused on fulfilling quality requirements. A major aspect of quality control is the establishment of well-defined measures that will help standardize production, delivery, and reactions to quality issues. In the long run, investments in quality control measures can protect the reputation of a company, prevent products from being unreliable, and increase trust on the side of consumers. These processes are determined through rigorous methodology and testing, as well as industry standards and best practices. Moreover, quality control is necessary because it ensures that a company will look at evidence-based data and research — not just anecdotal observations — to ensure that products are living up to their standard necessary for business growth.

Patel (2022) opines that business growth is a point a business reaches where it expands and requires more avenues to generate a point. This can happen when a company increases revenue produced more products or services or expands its customer base. Some types of business growth include organic business growth, strategic business growth and acquisition business growth and this noticeable or more pronounced in the manufacturing industry.

Gough (2016) posits that the manufacturing industry is heavily regulated and the reasons are obvious. Mistakes in product design or production can have severe, even fatal consequences for customers. The contemporary business environment is very dynamic and therefore quality is a moving target and one in which an organization can never cease taking aim at. Such an organization will risk of becoming uncompetitive or irrelevant.

A potentially devastating consequence is the reaction of the consumer who receives a defective or otherwise unsatisfactory product or service. Ernst and Young (2019) state that a satisfied customer will tell a few people about the experience, dissatisfied customer will tell an average of nineteen (19) others. Unfortunately, the company is the last to know of dissatisfaction. A more common response by dissatisfied consumer is simply to switch to a competing product or service. It is based on this background that this study assesses quality control techniques and its effect on organizational growth of selected manufacturing firms in Enugu State.

Statement of the Problem

Ideally, adequate quality control techniques ensure that all products are free from defects, the process reduces waste, and the product meets the customer's expectations before it leaves the manufacturing facility. Furthermore, quality control techniques develop and encourage quality consciousness among the workers in the factory which is greatly helpful in achieving desired level of quality in the product.

Unfortunately, manufacturing firms experience some pressing quality control issues like over reliance on theory, excess documentation, tight bureaucracy, supply chain complexity, lack of resources and time and resistance to technology change. More so, many different parts and materials can make it difficult to handle quality control for complicated products. This is because the likelihood of production errors and quality problems typically increases when dealing with a product that has many different components all varying in size and function.

The effect of not adopting adequate quality control techniques like inspection technique, brainstorming and quality at the source technique could lead to lost customers, lower productivity, and increased costs. In some cases, poor quality can also lead to product liability claims and also legal action against the manufacturer. It is based on these anomalies that this study assesses Quality control techniques and organizational growth in selected manufacturing firms in Enugu state

Objectives of the Study

The broad objective of the study is to assess the Quality control techniques and organizational growth in selected manufacturing firms in Enugu state. However, the specific objectives include to:

1. Ascertain the effect of inspection technique influences organic business growth among the selected manufacturing firms in Enugu State.
2. Determine the influence of Brainstorming technique on strategic business growth among the selected manufacturing firms in Enugu State.
3. Evaluate the effect of quality-at-the-source technique on acquisition business growth among the selected manufacturing firms in Enugu State.

Research Questions

Based on the objectives of the study, the following research questions are asked

i. What is the effect of inspection technique influences organic business growth among the selected manufacturing firms in Enugu State?
ii. What is the influence of Brainstorming technique on strategic business growth among the selected manufacturing firms in Enugu State?
iii. What is the effect of quality-at-the-source technique on acquisition business growth among the selected manufacturing firms in Enugu State?

Statement of Hypotheses

In line with the research questions, the following alternate hypotheses were formulated

i. Inspection technique influences organic business growth among the selected manufacturing firms in Enugu State to a large extent.
ii. Brainstorming technique has significant positive effect on strategic business growth among the selected manufacturing firms in Enugu State.
iii. Quality-at-the-source technique has significant positive effect on acquisition business growth among the selected manufacturing firms in Enugu State.

Significance of the Study

This study will be beneficial to the management of the manufacturing industry, the general public and the government

Management of the Manufacturing Industry: The management of the brewery industry will benefit from this study because through the findings of this study the managers can utilize the various quality control techniques to improve the quality of their company's products.

General Public: The general public will benefit from this study as the quality of the products they consume is assured

Government: The government will benefit from this study as the economy of the country can be improved through the exportation of alcoholic and non-alcoholic beverages. Finally, this study can serve as a reference material for further research on this topic.

Scope of the Study

This study assesses the quality control techniques of the selected manufacturing firms in Enugu state and its effect on organizational growth. The independent variables included inspection technique, brainstorming technique and quality-at-the source technique while the dependent variables included organic business growth, strategic business growth and acquisition business growth. The geographical scope of the study was Nigeria Breweries plc, Aqua Rapha investment and Juhel pharmaceuticals. Nigeria breweries plc and Aqua Rapha Investment Nigeria Limited are located

at 9th mile corner Ngwo Enugu while Juhel Pharmaceuticals is located at Nkwubor Road Emene in Enugu East Local Government Area. This study was also conducted in 2023.

Review of Related Literature

Conceptual Review

Quality

Quality Control (QC) may be defined as a system that is used to maintain a desired level of quality in a product or service (Nnadi, Akanwonu & Okafor, 2018). It is a systematic control of various factors that affect the quality of the product. It depends on materials, tools, machines, type of labour, working conditions etc QC is a broad term, it involves inspection at particular stage but mere inspection does not mean QC. As opposed to inspection, in quality control activity emphasis is placed on the quality future production. Quality control aims at prevention of defects at the source, relies on effective feedback system and corrective action procedure. Quality control uses inspection as a valuable tool (Nnadi, Akanwonu & Okafor, 2018).

Control

The process through which the standards are established and met with standards is called control. This process consists of observing our activity performance, comparing the performance with some standard and then taking action if the observed performance is significantly too different from the standards. The control process involves a universal sequence of steps as follows: choose the control object, choose a unit of measure, set the standard value, choose a sensing device which can measure, measure actual performance, interpret the difference between actual and standard and taking action.

Quality Control Techniques

Inspection Technique

Inspection is an important tool to achieve quality concept. It is necessary to assure confidence to manufacturer and aims satisfaction to customer. Inspection is an indispensable tool of modern manufacturing process. It helps to control quality, reduces manufacturing costs, eliminate scrap losses and assignable causes of defective work. The inspection and test unit is responsible for appraising the quality of incoming raw materials and components as well as the quality of the manufactured product or service. It checks the components at various stages with reference to certain predetermined factors and detecting and sorting out the faulty or defective items. It also specified the types of inspection devices to use and the procedures to follow to measure the quality characteristics.

Inspection only measures the degree of conformance to a standard in the case of variables. In the case of attributes inspection merely separates the nonconforming from the conforming. Inspection does not show why the nonconforming units are being produced. Inspection is the most common method of attaining standardization, uniformity and quality of workmanship. It is the cost art of controlling the production quality after comparison with the established standards and specifications. It is the function of quality control. If the said item does not fall within the zone of acceptability, it will be rejected and corrective measure will be applied to see that the items in future conform to specified standards (Sunil, 2018).

Brainstorming Technique

Brainstorming has variety of popular meanings. Sometimes it is called a casual discussion for new ideas. Some people believe that the term brainstorming is universal treatment of creative problem-solving technique. According to Alex Obsorn – Brainstorming is a tool for maximizing a group's creativity in problem solving. It is a conference technique by which a group attempts to find a solution for a specific problem by amassing all the ideas spontaneously from its members. According to Webster's new World College Dictionary "Brainstorming is the unrestrained offering of ideas or suggestions by all members of a committee, conference, etc. in an effort to find a solution to a problem, generate fresh ideas, etc. Agnes Michael (Ed.). Brainstorming is creative idea generation technique. It is also a problem-solving

technique. This technique provides free environment to present individual ideas, without attracting criticism from anyone. Every generated idea is recorded and considered as solution to a problem.

Quality-at-the-Source Technique

Kaizen (2019) posits that quality at the source is an approach to quality that places the responsibility for catching errors in the hands of the operator, or at the point of build. Successful implementation of this lean tool requires a major shift in how supervisors and operators look at quality. The top four ways to assure quality at the source is: define quality, don't pass on a defect, follow standard work consistently and maintain and update standard work.

Organizational Growth

Organizational growth is a stage a company reaches when it can consider expansion and may look for additional options to generate more revenue. Organizational growth is often a function of industry growth trends, business lifecycle and the owners' desire for equity value creation. There are many ways a company or organization can achieve growth, including: Joint venture alliance, licensing products, tapping into new markets, outside financing, product expansion etc.

Organic Business Growth

Organic growth is the growth a company achieves by increasing output and enhancing sales internally. This does not include profits or growth attributable to mergers and acquisitions but rather an increase in sales and expansion through the company's own resources. Organic growth involves noticeable and real company growth stretching from the production of new products to expanding a physical store to a new location. When additional products or services are on offer, and sales go up, organic growth often requires more physical space to serve newer customers. Organic growth is when a company increases revenue as a result of using existing resources to generate sales.

Strategic Business Growth

Strategic growth is one of the types of business growth that gives more emphasis on long-term growth. A strategic growth system is an excellent choice after the successful stage of organic business growth. It is crucial to go through organic growth before entering the strategic growth stage because of the resources required to achieve it. Preferably, after going through the organic growth stage, the company would have made sufficient funds and revenue to take the business further and grow into different stages.

Acquisition Business Growth

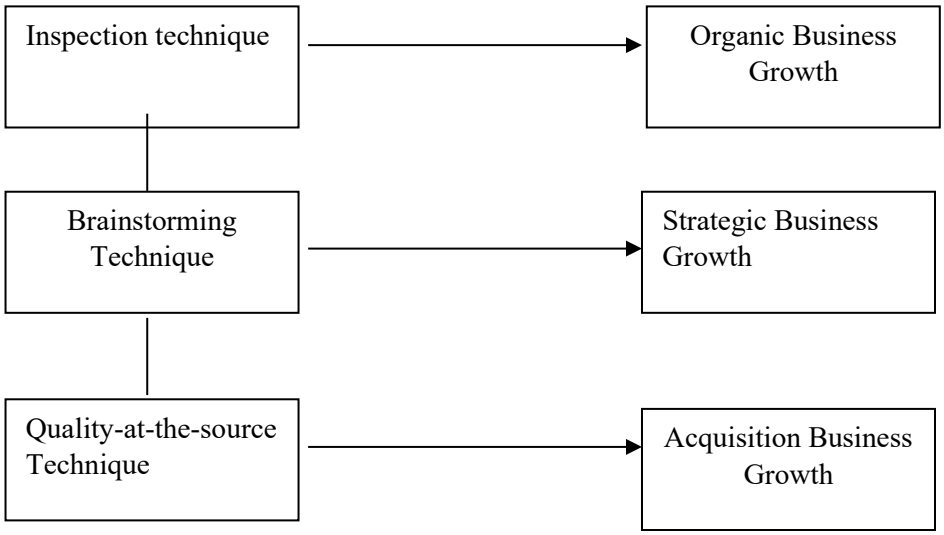
This strategy can enable easier access into a new market while expanding a prevailing customer base. Moreover, stretched-out production abilities can make the manufacturing and launching of new products pan out much more effortlessly. A further prominent benefit of implementing an acquisition, partnership, or merger is the increased capital which will help improve the company’s potential to innovate and surge the likelihood of business success through collective efforts. A well-thought-out and executed acquisition will help the business to arrive, sustain and grow in a new market and add other already existing customers of the acquired company to their business. It will also help to produce more products and resources. Mergers or acquisitions also help one business to gain customer loyalty from other companies.

Conceptual Model of Independent and Dependent Variables

This is a schematic diagram showing the relationship between the independent and the dependent variables. In this study, inspection technique, brainstorming technique and quality at the source techniques are the independent variables, while organic business growth, strategic business growth and acquisition business growth are the dependent variables. The relationship is presented in figure 2.1

Figure 1: The Relationship between the Independent and Dependent Variables

Independent Variable **Dependent Variable**



Source: Author' Compilation, 2023

Theoretical Review

Joseph Juran's Theory

This theory was developed by Joseph Juran in 1988. Joseph Juran is responsible for what has become known as the "Quality Trilogy." The quality trilogy is made up of quality planning, quality improvement, and quality control. If a quality improvement project is to be successful, then all quality improvement actions must be carefully planned out and controlled. Juran believed there were ten steps to quality improvement. These steps are: An awareness of the opportunities and needs for improvement must be created, Improvement goals must be determined, Organization is required for reaching the goals, Training needs to be provided, Initialize projects, Monitor progress, Recognize performance, Report on results, Track achievement of improvements and Repeat.

Deming's Theory of Profound Knowledge

This theory was proposed by Edward Deming in 1986. Deming indicated that the journey from predominant management style to one of quality requires an effective understanding of the systems in the organization. A system is made of interconnected components and quality is involved the optimization of components' performance to achieve the goals and objectives of the system. This theory is related to this study because it focused on employees' success which is dependent on the capability of the management to develop a balance between different components including quality of the products of the organization.

Empirical Review

The empirical review is conducted in line with the specific objectives of the study

Inspection Technique and Organic Business Growth

In a study conducted by Demirbag (2019) on the extent inspection technique influences organic business growth in the manufacturing industry in Kuala Lumpur Malaysia, a population of 306 workers was studied using the survey

method of research and questionnaire as the instrument of data collection. The analysis of variance (ANOVA) was used to analyze the data and it was found that inspection technique influences organic business growth to a large extent.

Furthermore, Ofunya (2019) carried out similar research in Kenya on the relationship between inspection technique and organic business growth in the pharmaceutical industry, in the study a population of 113 workers was studied using the survey method of research and questionnaire as the major instrument of data collection. The Pearson Product Moment Correlation Coefficient was used to analyze the data and it was found that inspection technique has significant relationship with organic business growth in the pharmaceutical industry.

In a related study conducted by Gibson (2019) in London on the effect of inspection technique on organic business growth in the beverage industry, a population of 208 was studied using the survey method of research and questionnaire as the instrument of data collection. The regression method of analysis was used to analyse the data and it was found that inspection technique has significant relationship with organic business growth in the pharmaceutical industry.

Brainstorming Technique and Strategic Business Growth

Ricardo & Wade (2020) conducted a study in New Jersey on the influence of brainstorming technique on strategic business growth in the brewery industry, in the study a population of 321 workers was studied using the survey method of research and questionnaire as the major instrument of data collection. The Chi-Square statistical tool was used in the analysis and it was found that brainstorming technique has significant and positive influence on strategic business growth in the brewery industry.

Moreover, Waller (2020) carried out a study in Massachusetts on the effect of brainstorming technique on strategic business growth in the construction industry. In the study a population of 392 workers was studied using the survey method of research and questionnaire as the major instrument of data collection, the regression method of analysis was used to analyze the data and it was found that brainstorming technique has significant and positive effect on strategic business growth in the construction industry.

In a similar study conducted by Modebe (2020) in Lagos state on extent brainstorming technique influence strategic business growth in the manufacturing industry, a population of 208 workers was studied using the survey method of research and questionnaire as the major instrument of data collection, the analysis of co-variance (ANCOVA) was used to analyze the data and it was found that brainstorming technique affects strategic business growth in the manufacturing industry to a large extent.

Quality-at-the-Source Technique and Acquisition Business Growth

Muogbo (2021) carried out a study in Anambra state on the effect of quality-at-the-source technique on acquisition business growth in the manufacturing industry. In the study a population of 227 workers was studied using the survey method of research and questionnaire as the major instrument of data collection, the Chi- Square statistical tool was used in the analysis and it was found that quality-at-the-source technique has significant and positive effect on Acquisition Business Growth in the manufacturing industry.

Owiti (2021) conducted a study in Lagos state on the relationship between quality- at- the- source- technique on acquisition business growth in the chemical industry in the study a population of 325 workers was studied using the survey method of research and questionnaire as the instrument of data collection. The Pearson Product Moment Correlation Coefficient was used to analyze the data and it was found that quality-at the-source technique has significant positive relationship with acquisition business growth.

Finally, Kanorio (2021) conducted a study in New Delhi on the effect of quality-at-the-source technique on acquisition business growth in the manufacturing industry, in the study a population of 276 workers was studied using the survey method of research and questionnaire as the major instrument of data collection. The SPSS statistical tool was used in the analysis and it was found that quality-at-the-source technique has significant and positive effect on acquisition business growth in the manufacturing industry.

Gap in Empirical Review

Many studies have been conducted on assessment of quality control techniques and organizational growth but there is a lack of literature on the variables used in this study: Organic business growth, strategic business growth and acquisition business growth. Furthermore, this study adopted the descriptive survey research method unlike in other studies where experimental and secondary data analysis were used. This study used Nigeria breweries plc, Aqua Rapha investment and Juhel pharmaceuticals and the study was conducted in 2023 unlike other studies that were conducted in the previous years. Hence, the study covered the gap.

Methodology

Research Design

The study adopted descriptive survey design. The choice of the design was informed by the fact that a sample of the population would be studied for the purposes of generalizing the results for the entire population of interest. Also, as Obasi (1999) puts it, the use of survey is always adopted because it provides an important means of gathering information through instruments like the questionnaire

Area of the Study

The geographical location of the study was Nigeria breweries plc, located at Amaeke, ninth mile corner Enugu, Aqua Rapha Investment Nigeria Limited located opposite Nigeria Breweries plc and Juhel Pharmaceuticals at Nkwubor Road Emene Enugu.

Sources of Data

Data for this study were obtained from the primary and secondary sources of data. The primary source utilizes the questionnaire while the secondary sources of data are those sources of data, which are not the original material of the researcher. They include textbooks, journals, internet materials, seminar etc mainly from the various libraries in Enugu state.

Population of the Study

In this study, the target population comprised of employees of Nigeria Breweries plc, Aqua Rapha Investment Nigeria Limited and Nigeria Juhel pharmaceuticals with a total population of 474 employees. Therefore, the total population was 474. The breakdown of the population is as follows.

Table 1: Distribution of Population

Department	*NB*	*Aqua Raph*	*Juhel*	*Population*
Production	95	72	31	198
Marketing	90	35	89	214
Administration	35	10	2	47
Finance/Account	10	3	2	15
Total	**230**	**120**	**124**	**474**

Source: Personnel Department of the Selected Firms

Determination of Sample Size

The Taro Yamane's formula was used to determine the sample size. The formula is stated thus;

$n = \frac{N}{1+N\,(e)2}$ Where n = sample size, N = population of the study, 1 = Mathematical constant

e = error limit. In this study, the population of the study is 474. The error limit is 5% i.e 0.05 Substituting in the above formula, we have

$= \frac{474}{1+474(0.05)2} = \frac{474}{1+474 \times 0.0025} = \frac{474}{1+1.185} = \frac{474}{2.185}$ = 216.93

Approximately = 217, therefore, sample size = 217

Sampling Technique

The simple random sampling technique was used in the sampling technique. In the stratified random sampling technique, the researcher randomly selected the respondents and could not influence the choice of those selected.

Instruments of Data Collection

The researcher collected data through the use of structured questionnaire making use of five point lickert scale of strongly agree, agree, undecided, disagree and strongly disagree. This was conducted with the help of two research assistants and after one day the researcher with the help of those assistants collected the copies of questionnaire.

Validity of the Instrument

The instrument for data collection was both face and content validated. This was achieved by giving some copies of questionnaire to the supervisor, other senior lecturers in the faculty who are quite knowledgeable in questionnaire drafting and experts from other tertiary institutions, to criticize and comment on the structure and content. The comments and corrections made by the experts were duly reflected in the final draft of the questionnaire.

Reliability of the Instrument

Reliability of the questionnaire was ascertained by giving 20 copies of questionnaire to a group of 20 staff outside the study to answer. After an interval of two weeks, the same instrument was administered a second time on the same group of people. The first and second responses were collated and analyzed through the application of Spearman rank order correlation coefficient. The result of the analysis showed an average of 0.82 percent consistent and is therefore reliable.

Method of Data Analyses

The method of data analysis consists of descriptive and inferential statistics. The descriptive statistics such as percentages, frequency tables and mean were used while the inferential statistics using the z-test statistics was used to test the hypothesis.

Data Presentation

Distribution and Return of Questionnaire:

Table 2: Distribution and Return of Questionnaire

Company	***Number of Questionnaire Distributed***	***Number of Questionnaire Returned***	***Number of Questionnaire Lost***	***% of Valid Questionnaire***
NB	105	93	12	43
Aqua Rapha	55	50	5	23
Juhel	57	52	5	24
Total	**217**	**195**	**22**	**90**

Source: Field Survey, 2023

Table 2 shows that out of a total of 105 copies of questionnaire distributed to the workers of Nigeria Breweries Plc, 12 copies were lost, while 93 copies representing 43% of the total copies were returned. Out of a total of 55 copies of questionnaire distributed to the workers of Aqua Rapha, 5 copies were lost while 50 copies representing 23% of the total copies were returned. Out of 57 copies of questionnaire distributed to the workers of Juhel Pharmaceuticals, 5 copies were lost while 52 copies representing 24% of the total copies were returned. Therefore, the total number of valid questionnaires is 195 copies representing 90% of the total copies of questionnaire distributed.

Data Relating to Research Questions

To what extent does inspection technique influence organic business growth among the three selected firms in Enugu State?

Table 3: Mean rating of the extent of influence of inspection technique on organic business growth among the three selected firms in Enugu State

S/N	*ITEMS*	*SA (5)*	*A (4)*	*U (3)*	*D (2)*	*SD (1)*	*Total*	*Mean*
1	Helps to control quality	55 (28%)	68 (35%)	25 (13%)	27 (14%)	20 (10%)	195	3.57
2	Reduces manufacturing costs	63 (35%)	60 (28%)	22 (19%)	26 (10%)	24 (8%)	195	3.58
3	Eliminates scrap losses	67 (36%)	59 (27%)	23 (24%)	26 (7%)	20 (6%)	195	3.65

Source: Field Survey. 2023 **Average Mean of Table = 3.60**

Table 3 shows that 55 respondents strongly agree that the influence of inspection technique on organic business growth in among the three selected firms in Enugu State is that it helps to control quality, 68 respondents agree, 25 respondents were undecided, 27 respondents disagree while 18 respondents strongly disagreed with a mean of 3.57.

Table 3 shows that 63 respondents strongly agree that the influence of inspection technique on organic business growth in among the three selected firms in Enugu State is that it reduces manufacturing costs, 60 respondents agree, 22 respondents were undecided, 26 respondents disagree while 23 respondents strongly disagree with a mean of 3.58.

Table 3 shows that 67 respondents strongly agree that the influence of inspection technique on organic business growth in among the three selected firms in Enugu State is that it eliminate scrap losses, 59 respondents agreed, 23 respondents were undecided, 26 respondents disagreed while 20 respondents strongly disagreed with a mean of 3.65. The grand mean of table is 3.60.

What is the influence of Brainstorming technique on strategic business growth among the three selected firms in Enugu State?

Table 4: Mean rating of the influence of Brainstorming technique on strategic business growth among the three selected firms in Enugu State

S/N	*ITEMS*	*SA (5)*	*A (4)*	*U (3)*	*D (2)*	*SD (1)*	*Total*	*Mean*
1	Maximizes creativity in problem solving	52 (27%)	66 (34%)	23 (12%)	32 (16%)	22 (11%)	195	3.48
2	Provides free environment to present individual ideas	68 (35%)	61 (31%)	24 (12%)	23 (12%)	19 (10%)	195	3.70
3	Gives emphasis on long-term growth	62 (32%)	57 (29%)	28 (14%)	27 (14%)	21 (11%)	195	3.54

Field Survey, 2023 **Average Mean of Table = 3.57**

Table 4 shows that 52 respondents strongly agree that influence of brainstorming technique on strategic business growth among the three selected firms in Enugu State is that it maximizes creativity in problem solving, 66 respondents agree, 23 respondents were undecided, 32 respondents disagree while 22 respondents strongly disagreed with a mean of 3.48.

Table 4 shows that 63 respondents strongly agree that influence of brainstorming technique on strategic business growth in among the three selected firms in Enugu State is that it provides free environment to present individual ideas, 61 respondents agree, 24 respondents were undecided, 23 respondents disagree while 19 respondents strongly disagree with a mean of 3.70**.**

Table 4 shows that 62 respondents strongly agree that influence of brainstorming technique on strategic business growth in among the three selected firms in Enugu State is that it provides free environment to present individual ideas, 57 respondents agreed, 28 respondents were undecided, 27 respondents disagreed while 21 respondents strongly disagreed with a mean of 3.54.

What is the effect of quality-at-the-source technique on acquisition business growth?

Table 5: Mean rating of the effect of quality-at-the-source technique on acquisition business growth

S/N	*ITEMS*	*SA (5)*	*A (4)*	*U (3)*	*D (2)*	*SD (1)*	*Total*	*Mean*
1	Updating standard work	53 (27%)	66 (34%)	27 (12%)	28 (16%)	21 (11%)	195	3.52
2	Following standard work	69 (35%)	57 (29%)	23 (12%)	24 (12%)	23 (12%)	195	3.66
3	No defect is passed on to the next stage	68 (35%)	59 (30%)	31 (16%)	25 (13%)	12 (6%)	195	3.75

Field Survey, 2023 **Average Mean of Table = 3.64**

Table 5 shows that 52 respondents strongly agree that updating standard work is the effect of quality-at-the-source technique on acquisition business growth among the three selected firms in Enugu State, 66 respondents agree, 27 respondents were undecided, 28 respondents disagree while 21 respondents strongly disagreed with a mean of 3.52

Table 5 shows that 69 respondents strongly agree that following standard work is the effect of quality-at-the-source technique on acquisition business growth among the three selected firms in Enugu State, 57 respondents agree, 23 respondents were undecided, 24 respondents disagree while 23 respondents strongly disagree with a mean of 3.66

Table 5 shows that 62 respondents strongly agree that no defect is passed on to the next stage is the effect of quality-at-the-source technique on acquisition business growth in Nigeria among the three selected firms in Enugu State, 59 respondents agreed, 31 respondents were undecided, 25 respondents disagreed while 12 respondents strongly disagreed with a mean of 3.74

Test of Hypotheses

Test of hypothesis One

H_{o1}: Inspection technique influences organic business growth among the three selected firms in Enugu State to a large extent.

Table 6: Contingency table for testing of Hypothesis One

S/N	*ITEMS*	*SA (5)*	*A (4)*	*U (3)*	*D (2)*	*SD (1)*	*Mean*	*Std*
1	Helps to control quality	55 (28%)	68 (35%)	25 (13%)	27 (14%)	20 (10%)	3.57	1.11
2	Reduces manufacturing costs	63 (35%)	60 (28%)	22 (19%)	26 (10%)	24 (8%)	3.58	1.09
3	Eliminates scrap losses	67 (36%)	59 (27%)	23 (24%)	26 (7%)	20 (6%)	3.66	1.07

Grand Mean of Table = 3.60 **Associated Standard Deviation =1.09**

The cluster mean of 3.60 > 3.00 (Likert mean) and associated standard deviation of 1.09< 1.581 (Likert standard deviation) indicates that the out listed are the influence of inspection technique on organic business growth among the three selected firms in Enugu State to a large extent

Level of Significance (α) = 0.05, **Test statistic: One-sample t =** $\frac{\bar{x}-\mu_o}{\frac{s}{\sqrt{n}}}$ **= 40.33, P-value** = 0.0000

Decision rule: Reject H_o if p-value $\leq$ 0.05, otherwise do not reject. OR reject H_o If the calculated value > the critical table value, otherwise, do not reject.

Interpretation: The one-sample t-test result with t-statistic value of 40.33 and associated probability value of 0.0000 < 0.05 shows that inspection technique influences organic business growth among the three selected firms in Enugu State to a large extent.

Test of Hypothesis Two

H_{o1}: Brainstorming technique has significant positive effect on strategic business growth among the three selected firms in Enugu State.

Table 7: Contingency Table for Hypothesis Two

S/N	*ITEMS*	*SA (5)*	*A (4)*	*U (3)*	*D (2)*	*SD (1)*	*Mean*	*Std*
1	Maximizes creativity in problem solving	52 (27%)	66 (34%)	23 (12%)	32 (16%)	22 (11%)	3.48	1.12
2	Provides free environment to present individual ideas	68 (35%)	61 (31%)	24 (12%)	23 (12%)	19 (10%)	3.70	1.10
3	Gives emphasis on long-term growth	62 (32%)	57 (29%)	28 (14%)	27 (14%)	21 (11%)	3.54	1.11

Grand Mean of Table = 3. 57 **Associated Standard Deviation =1.11**

The cluster mean of 3.60 > 3.00 (Likert mean) and associated standard deviation of 1.11< 1.581 (Likert standard deviation) indicates that the out listed are the influence of brainstorming technique on strategic business growth
Level of Significance (α) = 0.05, **Test statistic: One-sample t =** $\frac{\bar{x}-\mu_o}{\frac{s}{\sqrt{n}}}$ **= 37.76, P-value** = 0.0000

Decision rule: Reject H_o if p-value $\leq$ 0.05, otherwise do not reject. OR reject H_o If the calculated value > the critical table value, otherwise, do not reject.

Interpretation: The one-sample t-test result with t-statistic value of 37.76 and associated probability value of 0.0000 < 0.05 shows that brainstorming technique has significant positive effect on strategic business growth among the three selected firms in Enugu State.

Test of Hypothesis Three

H_0: Quality-at-the-source technique has significant positive effect on acquisition business growth.

Table 8: Contingency Table Hypothesis Three

S/N	*ITEMS*	*SA (5)*	*A (4)*	*U (3)*	*D (2)*	*SD (1)*	*Mean*	*Std*
1	Updating standard work	53 (27%)	66 (34%)	27 (12%)	28 (16%)	21 (11%)	3.52	1.07
2	Following standard work	69 (35%)	57 (29%)	23 (12%)	24 (12%)	23 (12%)	3.66	1.05
3	No defect is passed on to the next stage	68 (35%)	59 (30%)	31 (16%)	25 (13%)	12 (6%)	3.75	1.03

Grand Mean of Table = 3.64 **Associated Standard Deviation =1.11**

The cluster mean of 3.64 > 3.00 (Likert mean) and associated standard deviation of 1.11< 1.581 (Likert standard deviation) indicates that the out listed are the influence of quality-at-the-source technique on acquisition business growth. **Level of Significance (α)** = 0.05, **Test statistic: One-sample t =** $\frac{\bar{x}-\mu_o}{\frac{s}{\sqrt{n}}}$ **= 32.57, P-value** = 0.0000

Decision rule: Reject H_o if p-value $\leq$ 0.05, otherwise do not reject. OR reject H_o If the calculated value > the critical table value, otherwise, do not reject.

Interpretation: The one-sample t-test result with t-statistic value of 32.57 and associated probability value of 0.0000 < 0.05 shows that quality-at-the-source technique has significant positive effect on acquisition business growth in among the three selected firms in Enugu State.

Discussion of Findings

Inspection Technique influences Organic Business Growth to a Large Extent

Inspection technique influences organic business growth among the three selected firms in Enugu State to a large extent. The evidence is shown in the (X value = 40.33, p value 0.0000 < 0.05). In the empirical review conducted by Demirbag (2019) on the effect of inspection technique on organic business growth of manufacturing firms, although both studies were conducted using different analytical method and different locations, it was found that Inspection technique influences organic business growth among the three selected firms in Enugu State to a large extent.

Brainstorming Technique has significant Positive effect on Strategic Business Growth

Brainstorming technique has significant positive effect on strategic business growth among the three selected firms in Enugu State. The evidence is shown in the (X value = 37.76, p value 0.0000 < 0.05). In the empirical review conducted by Ricardo and Wade (2020) on the effect of brainstorming technique on strategic business growth and it was discovered that brainstorming technique has significant positive effect on strategic business growth among the three selected firms in Enugu State.

Quality-at-the-source technique has significant positive effect on acquisition business growth

Quality-at-the-source technique has significant positive effect on acquisition business growth among the three selected firms in Enugu State. The evidence is shown in the (X value = 32.57, p value 0.0000 < 0.05). In the empirical review conducted by Kanorio (2020) on the effect of quality-at-the-source technique on acquisition business growth and it was discovered that quality-at-the-source technique has significant positive effect on acquisition business growth among the three selected firms in Enugu State.

Summary of Findings

1. Inspection technique influences organic business growth among the three selected firms in Enugu State to a large extent (X value = 40.33, p value 0.0000 < 0.05).
2. Brainstorming technique has significant positive effect on strategic business growth among the three selected firms in Enugu State (X value = 37.76, p value 0.0000 < 0.05).
3. Quality-at-the-source technique has significant positive effect on acquisition business growth among the three selected firms in Enugu State (X value = 37.76, p value 0.0000 < 0.05).

Conclusion

Quality control refers to an activity in the brewery industries which aim to establish that quality standard checks are being adhered to in order to take corrective action where necessary and set improved standard where possible. Generally, once customers' requirements are defined, a quick reporting process is needed which should be maintained through inspection, brainstorming and quality –the-source technique. Based on these findings, the study concluded that quality control techniques had significant and positive influence on organizational growth among the three selected firms in Enugu State**.**

Recommendations

The following recommendations were made

1. Managers should always maintain inspection technique in order to facilitate the utilization of best practices among workers within the organization.
2. Management of organizations should always see brainstorming as a good quality control technique that can help pilot the affairs of the firm globally in order to gain more ground.
3. Management of the brewery industry should adopt the technique of quality-at-the-source as the technique makes sure that quality is maintained at every stage of the production process.

Contribution to Knowledge

The study made some contributions to knowledge. This included:

1. **Design**: The researcher adopted the survey research method on the subject matter (Assessment of quality control techniques and organizational growth of Nigeria Breweries plc) unlike other researchers that used Ex-post Facto research method and experimental research method.
2. **Variables:** The following constructs were adopted, inspection, brainstorming and quality-at-the-source technique. This could be compared with studies conducted by other researchers where they used statistical quality control technique and statistical process control technique
3. **Analytical Tool**: The researcher adopted the z-test statistical tool in the analysis. Other researchers that have carried out similar studies used the chi-square and Pearson product moment correlation.

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