TOTAL QUALITY MANAGEMENT AND PERFORMANCE OF SELECTED PLASTIC MANUFACTURING FIRMS IN ANAMBRA STATE

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ABSTRACT

This study total quality management and organizational performance was an attempt to explore the implications of total quality management on performance of the selected plastic manufacturing firms in the Anambra State. The-literature review brought to limelight the imperativeness of total quality management on performance in the manufacturing firms. The specific objectives among others include: to ascertain the extent to which continuous quality improvement relates to market share, to evaluate the extent to which quality planning relates to business stability, and to explore the extent to which quality design relates to business expansion of the selected plastic manufacturing firms in the Anambra State. The study used descriptive survey-design that employed correlational design in an attempt to identify the direction and magnitude of the relationship between studied variables.

Population of 985 sample of two hundred and eighty six (284), out of which, two hundred and seventy (270) copies of the questionnaire were successfully returned, hence used for the analysis. The data collected were analyzed with Product Moment Correlation Coefficient. The study found a significant relationship between, continuous quality improvement and market share, quality planning and business stability, and quality design and business expansion as decomposed variables of total quality management and performance. From the findings therefore, the study concludes that effective implementation of total quality management will lead to enhanced organizational performance and recommended that organization should pay adequate attention to the implementation of companywide and

customer centered TQM programmes to achieve and sustain customer satisfaction and performance. Effective implementation of Total Quality Management (TQM) has the potentials of sustaining the life of organizations in the face of stiff competition in meeting their desired performance.

Keywords: Total Quantity Management, Performance, Plastic Manufacturing Firms.

BACKGROUND TO THE STUDY

The notion of quality has continued living for many years, though it's meaning has changed and develop over time. In the early twentieth century, excellence management meant examine products to ensure that they met stipulations (Philips. 2004). In the 1940s, during World War II, quality became more statistical in nature. Statistical sampling techniques were used to assess quality, and quality control charts were used to check the production process. In the 1960s, with the help of so-called "quality gurus," the idea took on a broader meaning. Quality began to be viewed as something that covers the whole organization, not only the production process. Since all functions were accountable for product excellence and all shared the costs of poor quality, quality was seen as a idea that affected the whole organization. The meaning of quality for businesses changed radically in the late 1970s, as many organizations laid stress on excellence improvement as a precondition for gaining competitive advantage (Ken and George, 2000).

Arora (2010) was necessitated by the poor quality culture and the general misconception about quality in typical traditional production setting. This growth included Joseph M. Juran in 1954 to intimate Japanese management then-responsibility to attain excellence. The purpose was to get rid of poor quality from the product. Quality management has progressed, setting up practical rather than reactive organization. A step ahead towards excellence management is total quality management (TQM). TQM is a entire system idea recognizing the need to manage sets of interacting issue; technical, cultural and political nature (Ramanathan, 2009). Total Quality Management is a attitude and a set of guiding code that represents the base of an excellent organization that guarantee survival of industrial organization in aggressive economy of today (Besterfeild, 1999). TQM is methods that emphasize the incessant improvement of good and service excellence to satisfy clients and improve productivity.

In a competitive surroundings which arises from world globalization and liberalization, firms survive with much complexity unless they generate a competitive advantage over their competitors (Adam, Flores & Macia, 2001; Samson & Terziovski, 1999). Eng and Yusof (2003) argued that excellence holds the key to competitiveness in today's international market and TQM has been extensively considered as an effectual management instrument to provide business

with constancy, development and wealth (Isaac, Rajenddran & Anatharaman, 2004). Related to this, the increasing importance is on need for a private sector driven economy through entrepreneurship which plastic manufacturing operators have continued to embrace in Nigeria mostly in Anambra State.

STATEMENT OF PROBLEM

The need for operational efficiency and the desire to gained competitive advantage in the market have made most organizations to place emphasis on quality management. Arora (2010) aimed at watching a process and get rid of the causes of unacceptable performance at pertinent stages of the excellence loop in order to result into economic effectiveness. But plastic manufacturing firms seem to be experiencing quality control problem on their products. The department responsible for quality regulation and control seems to be ineffective in quality control mechanisms. The quality control techniques are left at the mercy of the plant operators who have little or no training on quality control mechanism. This situation may have undermined the organizational objective of efficient service delivery, in terms of quality products in meeting the demands of the environment and may have affected their market share.

Unfortunately, the quality control technique these companies use as observed by the study is inspection method which is relatively reactive in measuring quality control because it seldom prevents errors in their production process. This has resulted to wastage of materials which subsequently affected the profitability of these firms, in Anambra State.

The possibility of issues relating to dearth of quality control operational skills may have propulsive affect on quality planning and quality design of their products, since quality control techniques are left at the mercy of plant operators. The aforementioned, appears to have affected the business stability and business expansion of these selected plastic manufacturing firms in Anambra State. But, the degree it affects business stability and business expansion of these firms is yet to be established. It is therefore against this backdrop that this study is designed to determine the effect of total quality management on organizational performance of selected plastic manufacturing firms in Anambra state.

OBJECTIVES OF THE STUDY

The broad objective of this study is to explore the effect of TQM and business performance of selected plastic manufacturing firms in Anambra State. Specifically, this study is guided by the following objectives:

1. To ascertain the extent to which continuous quality improvement relates to market share of the selected plastic manufacturing firms in Anambra State.

2. To evaluate the extent to which quality planning relates to business stability of the selected plastic manufacturing firms in Anambra State.

3. To explore the extent to which quality design of relates to business expansion of the selected plastic manufacturing firms in Anambra State.

RESEARCH HYPOTHESES

The following research hypotheses were designed in null format to guide the study effectively.

$H0_1$: There is no significant relationship between continuous quality improvement and market share of the selected plastic manufacturing firms in Anambra State.

$H0_2$: There is no significant relationship between quality planning and business stability of the selected plastic manufacturing firms in Anambra State.

$H0_3$: There is no significant relationship between quality design and business expansion of the selected plastic manufacturing firms in Anambra State.

CONCEPTUAL REVIEW

Total quality management (TQM) is business attitudes that exemplify the faith that management process must focus on put together the idea of client ambitious quality through an organization (Aluko et al, 2004). In the view of these scholars, it means that all organizational actions initiated by the management body should be focused at satisfying clients with high quality products and services. This is to guarantee the achievement of competitive edge in the market place. TQM underscores the nonstop improvement of product excellence and service delivery. Hinton and Schaeffer (1999), TQM is a disciplined advance to keep the concentration and actions of organizational members on mission towards providing greater client contentment. This stresses that all hard work of workers and management of organizations must have the consumer in focus.

TQM is compound words which mix the team "quality" and "management". In TQM thinking, management is seen as providing momentum and the main mover for making total quality the guiding ideology of the organization, TQM is consumer satisfaction, incessant improvement of excellence and productivity. Ross (1995) TQM means thinking about excellence with admiration to all functions of the enterprise. It is a system's advances that consider every communication among the elements of the organization. Total quality management is a practical and prevention-based approach that center on organizational members and processes with consumer ambitious leadership (Arora, 2006). TQM is exclusive and an idea

that has a critical edge over the traditional hasty approach of excellence control because it brings about quality development by center on the processes, worker participation, consumer satisfaction, leadership and incessant excellence improvement.

Jarrel and Easton (1998) assert that what comprises total quality management is a theme of debate. However, the management scholars clear that total quality management consist of procedure focus, systematic development, companywide stress, consumer focus, management by reality, worker participation and growth, cross useful management, dealer performance and supplier association, and gratitude of TQM as a incessant competitive plan.

Execution of total quality management in the Nigerian Manufacturing sector is not encouraging. Chikodili (2010), one of the basic challensge of the Anambra State plastic manufacturing firm is the execution of a holistic management that develop competitiveness in the worldwide economy. As a result, the products and services of Nigeria cannot favourably compete with foreign products and services. In sight of the viewpoint of scholars on TQM, execution of total quality management in Nigerian needs aware and concentrated effort of the leadership and all workers in thought of the constituents of TQM as highlighted by excellence gurus.

TOTAL QUALITY MANAGEMENT PRINCIPLES

The ideology of TQM and excellence purpose deployment can help in developing objectives and measures. Furthermore, resources and tactical planning areas which need focus can also be acknowledged (Vasudeva, 2009). Goh and Ridgeway (1994), TQM hold that the consumer is the most significant factor in any organization. TQM is not just about executing vibrant management systems; it is also about implanting a culture of nonstop development and client focus within an organization. In addition Williams (1997), provide the following basic principles of TQM, namely:

- Performance measurement.
- customer orientation,
- continuous improvement,
- employee involvement,
- purchasing and supplier management

BENEFITS OF TQM

When organization goes aboard on methodical approach to quality development based on TQM philosophy, they gain a lot of benefits, some of which cannot be easily measured. Some of these include:

- Retention of customer's loyalty: TQM is designed to drive customers' satisfaction. This helps to retain them and possibly attract more.

- Cost Reduction: TQM reduces cost where properly implemented. Maintaining quality is expensive .However, doing otherwise would likely result in revenue lost.
- Sustained competitive advantage
- Increased organizational effectiveness
- Attainment of greater market shares
- Fostering the spirit of togetherness and unity among subunits
- Improved communication
- Increased flexibility and responsiveness ,and finally
- TQM concept aims at integrating organization members and makes them to see organization from holistic point of view. As a result; it minimizes the dysfunction associated with departmental empire building.

ORGANIZATIONAL PERFORMANCE AND ITS MEASURES

The study decomposed performance into two measurable variables to include profitability and market share within the context of this study. They include:-

- Profitability
- Market Share
- Business Stability
- Business Expansion
- Continuous Quality Improvement
- Quality Planning
- Quality Design

THEORETICAL FRAMEWORK

The underpinning theory of this study is anchored on Deming Wheel Theory propounded by Deming (1950). This theory believes that TQM creates organization system that enhance corporation and learning, the implementation of process management practices, that leads to continuous improvement of processes, products etc., that meet customers' satisfaction.

Deming (1950) advocates the move of quality away from being a purely operations activity into a major concern for whole organization. The theory laid emphasis on the important role of the top management commitment in changing processes and systems. Deming (1950) argues that top management is responsible for most quality problems, simply because it is their duty to create and disseminate a vision to move the firm towards continuous quality improvement, especially given the dynamism of business environment.

EMPIRICAL REVIEW

Hendrick and Singal (1997) examined the relationship between excellence of product and financial performance by contrasting the financial performance of firms that have won excellence awards against a control group of non-winners. Their result showed that quality reward winners outperformed the control firms on a series of operating-income based dealings.

Garvin (1991) carried out a study on the impact of TQM practices and organizational performance in Ghana. The study establishes a strong connection between TQM practices and organizational performance calculated in terms of productivity, profitability and customer relations. The result of the preceding studies clearly established the significance of excellence products and services through appliance TQM to meet customer desires and increase industrial productivity.

RESEARCH DESIGN

This study adopted a descriptive research design. This was essential because the study have to identify and make deduction about the connection between variable.

AREA OF THE STUDY

This study covered selected plastic manufacturing firms in Anambra State. The plastic manufacturing firms include Innoson Technical and Industrial Company, Nnewi, Ezenwa Plastic Company Ltd, Onitsha, Daco Plastic Company Ltd and Double Diamond Plastic Company Ltd.

POPULATION OF THE STUDY

The population of the study is the whole staff of the selected plastic manufacturing firms in Anambra State. Therefore, the population of the study is nine hundred and eight five (985) as at December 2019 as extracted from each of the companies personnel unit,

Table 1: Population of the Selected Plastic Manufacturing Firms.

S/n	Name of Plastic Company	Location	Population
1.	Double Diamond Plastic Company, Ltd	Nkpor	249
2.	Innoson Technical and Industrial Company	Nnewi	452
3.	Ezenwa Plastic Company Ltd	Onitsha	125
4.	Daco Plastic Company Ltd	Onitsha	159
	Total		**985**

Source: Extracted from each of the companies Personnel Department as in December, 2019

SAMPLE SIZE AND SAMPLE SIZE DETERMINATION

The sample size of 284 was determined using Taro Yamani formula (1973).

Sources of Data

Data for this study was collected from primary source. The primary data was obtained through questionnaires administered to respondents.

DATA ANALYSIS TECHNIQUE

The data collected was analyzed with Product moment correlation used to test the significance of the result of research hypotheses. Coefficient (r) and t– test was used to test the significance of the result of research hypotheses. Below is the formula for computing r:

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{(n\sum X^2 - (\sum X)^2}\,(n\sum Y^2 - (\sum Y)^2}$$

TESTING OF RESEARCH HYPOTHESES

Data were generated for the three hypotheses as follows:

Test of Hypothesis 1:

Generation of Data for Testing Hypothesis 1

Continuous quality improvement enables organizations to improve their market share (X).

Market share of these organizations is the function of effective implementation of continuous quality improvement in organizations (Y).

Step 1: Research Problem: To what extent does continuous quality improvement relate to market share of the selected plastic manufacturing firms in Anambra State?

Step 2: Assumptions: The test of this hypothesis is based on the assumption that (i) the sampling distributions are normal, and (ii) the sampling distribution is independent.

Step 3: Statement of Hypothesis

H_{02}: Continuous quality improvement does not significantly relate to the selected manufacturing firms in Anambra State.

H_{A2}: Continuous quality improvement significantly relate to market share of the selected manufacturing firms in Anambra State.

Step 4: Data and computation of r, r^2 and t_c.

Table 1: Test of Hypothesis 1: Summary of Data Derived from Appendix2

No	X	Y	XY	X^2	Y^2
270	1,098	1,443	4,658	3,727	6,163

Source: Field survey, 2019.

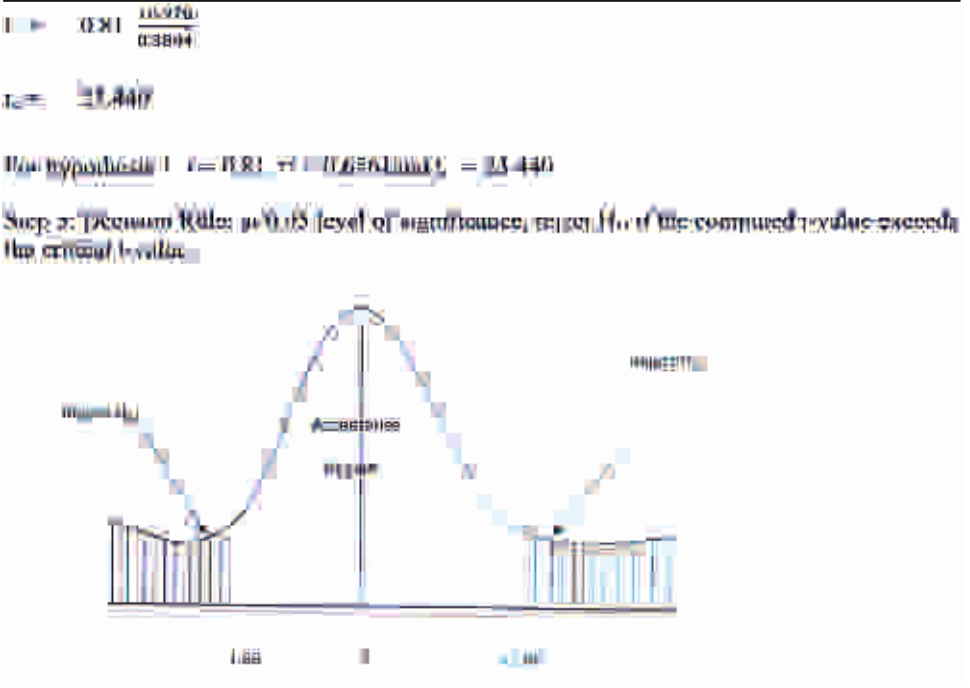


Figure 2: Normal Distribution Curve showing Rejection and Acceptance decisions for Hypothesis one.

Step 6: Decision:

At 0.05 level of significance, the calculated t-value of 23.440 is greater than the critical t-value of 1.96, so the study reject the null hypothesis that .there is no significant relationship between continuous quality improvement and market share in the selected plastic manufacturing firms in Anambra State.

Step 7: Interpretation

There is a significant relationship between continuous quality improvement and market share in the selected plastic manufacturing firms in Anambra State.

Test of Hypothesis 2

Generation of Data for Testing Hypothesis 2: Quality planning enables organization to analyze customer needs in terms of quality specification that enhances business stability (X).

Business stability largely depends on quality planning that meet customer quality specification (Y).

Step 1: Research Problem: To what extent does quality planning relates to business stability of the selected manufacturing firms in Anambra State?

Step 2: Assumptions: The test of this hypothesis is based on the assumption that (i) the sampling distributions are normal, and (ii) the sampling distributions are independent.

Step 3: Statement of Hypothesis:

H_{03}: There is no significant relationship between quality planning and business stability of the selected manufacturing firms in Anambra State.

H_{A3}: There is a significant relationship between quality planning and business stability of the selected manufacturing firms in Anambra State.

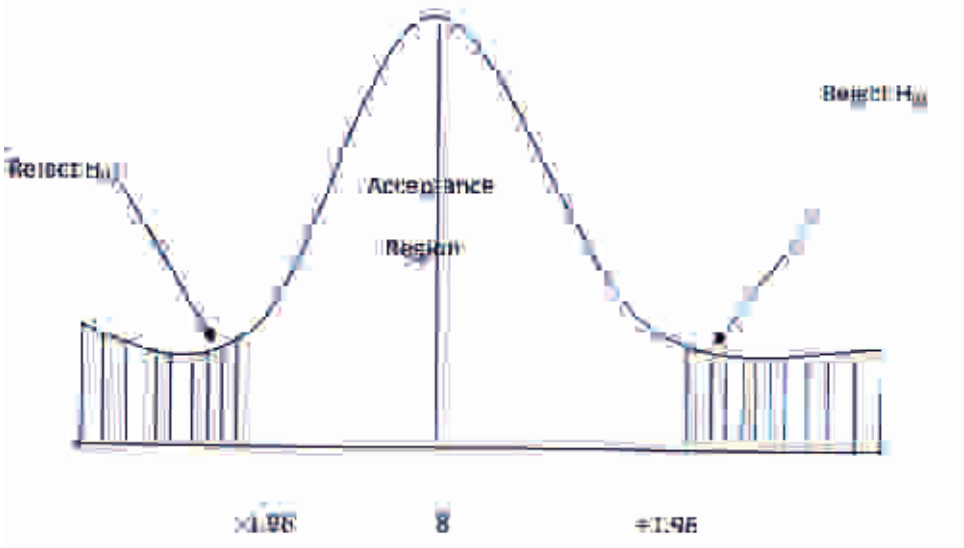
Step 4: Data and computation of r, r and tc.

Table 2: Test of Hypothesis 2: Summary of Data Derived from Appendix

No	$\bar{X}$	Y	XY	Y^2	X^2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Source: Field survey, 2015.

[illegible]



Step 6 Decision: Normal Distribution Curve showing Rejection and Acceptance decisions for hypothesis three At 0.05 level of significance, the calculated t-value of 90.5 is greater than the critical t-value of 1.96, so the study reject the null hypothesis that there is no significant relationship between quality planning and business stability of the selected plastic manufacturing firms in Anambra State.

Step 7: Interpretation

There is a significant relationship between quality planning and business stability of the selected plastic manufacturing firms in Anambra State.

Test of Hypothesis 3

Quality design ensures that products meet the desired quality in line with customer specification that enhances business expansion (X).

Business expansion is necessitated when the quality design of a products attract much patronage from its target customers (Y).

Step 1: Research Problem: To what extent does quality design relates to business expansion of the selected plastic manufacturing firms in Anambra State.

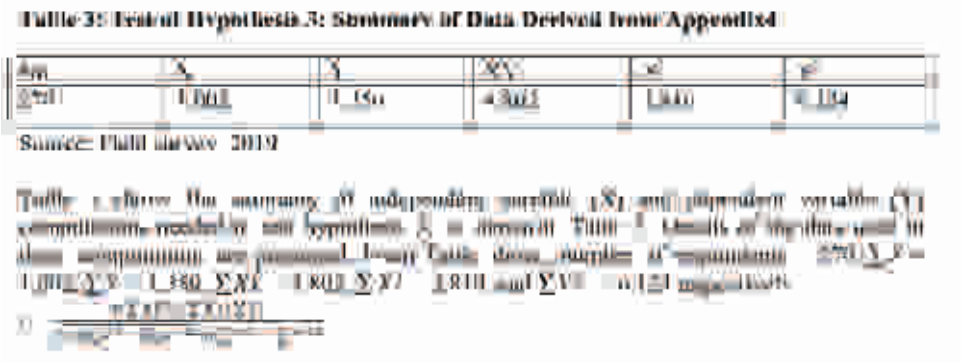
Step 2: Assumptions: The test of this hypothesis is based on the assumption that (i) the sampling distributions are normal, and (ii) the sampling distributions are dependent.

Step 3: Statement of Hypothesis:

H_{04}: There is no significant relationship between quality design and business expansion of the selected plastic manufacturing firms in Anambra State.

H_{A4}: There is a significant relationship between quality design and business expansion of the selected plastic manufacturing firms in Anambra State.

Step 4: Data and computation of r, r^2 and t_c



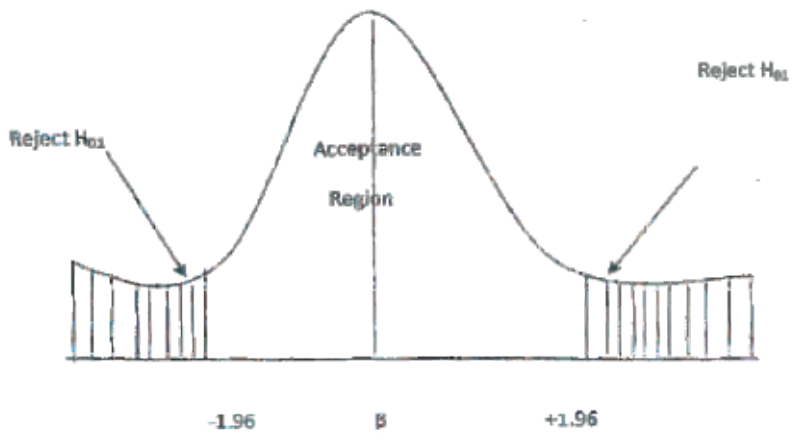

Reject H_{01}
Reject H_{01}
Acceptance
Region
-1.96
β
+1.96

Figure 4: Normal Distribution Curve showing Rejection and Acceptance decisions for hypothesis three

Step 6: Decision: At 0.05 level of significance, the calculated at-value of 22.134 is greater than the critical t-value of 1.96, so the study reject the null hypothesis that there is no significant relationship between quality design and business expansion of the selected plastic manufacturing firms in Anambra State.

Step 7: Interpretation: There is a significant relationship between quality design and business expansion of the selected plastic manufacturing firms in Anambra State.

Summary of Findings

The result of hypothesis one reveals that there is a strong relationship between continuous quality improvement and market share in the selected plastic manufacturing firms in Anambra State. This was shown on the result of r = 0.81. In addition, the coefficient of determination (r) is 0.6561. This implies that 66% total variation in market share of the selected plastic manufacturing firms is accounted for, by continuous-quality improvement of these organizations.

Therefore, the continuous quality improvement has a significant effect on organizational profitability of the selected plastic manufacturing firms in Anambra State. Aside the result of the coefficient of determination (r), the test of the significance of correlation coefficient (t_c) shows that the calculated critical value of t_c is 23.440 which is greater than the critical (table) value, at 5% level of significance.

In addition, the result on the test of hypothesis two shows that there is significant relationship between quality planning and business stability of the selected plastic manufacturing firms in Anambra State. The result of the correlation coefficient (r) is 0.83. This, however, indicates that there is strong relationship between quality planning and business stability of the selected plastic manufacturing firms in Anambra State.

Furthermore, the coefficient of determination (r^2) is 0,6889. The implication of the aforementioned coefficient of determination is that 66% total variation in business stability of the plastic manufacturing firms is accounted for, by the quality planning in organization. Therefore, quality planning has a significant effect on the business stability of the selected plastic manufacturing firms in Anambra State. However, the coefficient of determination (r^2), the test of the significance of correlation coefficient (t_c) shows that the calculated critical value of t_c is 27.39 > 1.96, at 5% level of significance.

The result on the test of hypothesis three shows that there is significant relationship between quality design and business expansion of the selected plastic manufacturing firms in Anambra State. The result of the correlation coefficient (r) is

0.69. This, however, indicates that there is strong relationship between quality design and business expansion of the selected manufacturing firms. Furthermore, the coefficient of determination (r^2) is 0.471.

The implication of the aforementioned coefficient of determination is that 47% total variation on business expansion in the selected plastic manufacturing firms is accounted for, by quality design in organization. Therefore, quality design has a significant effect on business expansion of the selected plastic manufacturing firms in Anambra State. Aside, the coefficient of determination (r), the test of the significance of correlation coefficient (t_c) shows that the calculated critical value of t_c is 22.134> 1.96, at 5% level of significance.

CONCLUSION

From the findings of this study, it is absolutely necessary to conclude that there is a strong correlation between TQM and organizational performance. The insinuation of this strong correlation is that effective execution of TQM will significantly enhance organizational performance, vice versa. The study provided empirical proof of continuous excellence improvement, excellence planning and excellence design as decomposed variables of TQM that predict organizational performance. The correlation outcome point to the fact that organizations, especially plastic manufacturing firms in Anambra State pay a intensive concentration on TQM as an vital policy variable essential for attractive organizational performance, especially giving the dynamism of business setting. Top management plays a critical role in executing effectual TQM because they start the idea, while others follow suit.

RECOMMENDATION

Based on the summary of the findings, the following are recommended The management of these firms should pay sufficient concentration to the execution of companywide and client centered TQM programmes to attain and maintain client satisfaction and performance. Effective execution of total quality management has the potentials of supporting the life of organizations in the face of rigid competition in meeting their desired performance.

The management of these firms should take effectual procedures in make certain that the spending on quality control management is necessary through effective monitoring and examination to prevent customer's complaint, and loss of self-assurance on their products, which may have a propulsive affect on their performance.

The management of these organizations should persist to improve on their excellence control mechanisms to ensure conformity to stipulations or principles in meeting the demands of the changing business surroundings.

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