

## STANDARD COSTING TECHNIQUES AND THEIR EFFECTS ON SELECTED BAKERY OPERATIONS IN RIVERS STATE

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### **A R T I C L E I N F O.**

**Keywords:** Standard Costing Techniques and Bakery Operations in Rivers State.

### **Abstract.**

The principles and techniques of standard costing as a subset of cost management, are among the cost management techniques that are adopted and practiced in most of the bakery operations in the River State. Therefore, data were gathered from 373 bakeries in operation in Port-Harcourt and tested using regression and descriptive statistics. The managers and supervisors of the 373 bakeries that are in operation in Port-Harcourt made up the target/accessible population for this study. Primary source of data and basic random sample techniques were used as the sampling method for this investigation. The research findings show that there is a significant relationship between standard cost, actual cost, efficiency and waste reduction strategies and performance of bakery operations. Also, there is a significant relationship between standard costing techniques and performance. Based on the foregoing therefore, this study arrived at the following conclusions: that standard costing is widely used in bakery businesses in the Rivers State and it enhances adequate planning, cost control and decision-making processes, Also, a good plan and practical execution would guarantee good performance. Based on the findings and conclusions of this study, it is strongly recommended that: the bakery operations in River State should ensure that standard costing techniques are the preferable method of costing practice in the bakery businesses in the Rivers State in order to achieve improved performance and achieve organizational goals.

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## INTRODUCTION

As a foundational technique within cost management that establishes predetermined costs for materials, labour, and overhead to create benchmarks for performance evaluation, standard costing techniques have been employed in bakery operations in Rivers State in order to improve performance and achieve organizational goals. Thus, the standard costing techniques which is expected to enhance inventory valuation, cost control and variance analysis, cost savings and cost reduction strategies, and profitability, have been deployed in bakery operations in Rivers State. This position which can be justified and substantiated considering a study by Sadiq Rabi A. (2016) on the "Effects of standard costing on the profitability of Telecommunication companies used the descriptive survey method and was conducted at MTN Company in Kano".

Other strategies that are applied are performance appraisal, effective selling and distribution, pricing decision making, which have strong effect on the efficiency of operations, waste reduction and cost savings in the bakery operations. Thus, this study examined mainly the standard costing techniques and performance of bakery operations in River State.

For cost control in production, especially in bakeries business, standard costing has shown to be an essential instrument. It entails establishing fixed standard prices for goods according to effective production guidelines. **In particular, it assigns manufacturing costs to product units using preset or standard rates for both direct and indirect costs, such as direct labor, direct materials, direct expenses, and manufacturing overheads and divide the total costs by the units of production.** The cost managers of bakery businesses expect to incur to produce bread or other goods or services under an operating plan assumptions, is referred to as standard costing.

According to Chartered Institute of Management Accountants' Official Terminology, Standard Costing is "a predetermined calculation of how much costs should be under specific working conditions; it is built up from an assessment of the value of cost elements and correlates technical specifications and the quantification of materials, labour and other costs of prices and/or wage rates expected to apply during the period in which the standard cost is expected to be used. Its main purposes are to provide bases for control through variance accounting for the valuation of stock and work in progress and, in some cases, for fixing selling prices".

Put differently, according to Nweze (2015), standard costing is a system of cost accounting which makes use of pre-determined cost of relating to each element of cost-layout, materials labour and overhead for each line of product manufactured or service supplied. Actual costs are usually compared with the standard costs of work proceeds, the differences between the two are known as variances; these differences are analysed by reasons so that inefficiencies may be quickly brought to notice of the to persons responsible for them so that appropriate action may be taken to prevent further off the course tendencies. In summary, therefore, standard costing is a costing system that revolves around the following four stages/steps/processes:

- I. Pre-determination stages,
- II. Execution stage,
- III. Comparison stage. This is known as variance analysis and
- IV. Corrective or remedial action stage.

High customer satisfaction is the goal of efficient bakery operations, even while cost management maximizes expenditures to increase long-term value, sustainable profitability, and accomplish cost reduction, cost savings, and cost analysis. Consistent product quality through effective manufacturing, inventory control, and providing outstanding customer service are the main goals of bakery operations. Establishing a strong local market presence, producing as much as possible to meet targeted demand, and maintaining a hygienic environment in the best interest of your present and future customers.

Cost analysis is the systematic process of identifying, measuring, and evaluating all costs associated with a project, product, service, or business decision. It involves breaking down expenses such as labor, materials, and overhead to determine the total cost of delivery, ensuring profitability and supporting informed decision-making.

The term "standard costing," which replaced the historical costing approach to cost accounting, was coined in the 1920s. Since labour was the main cost of manufactured items at the time, the standard costing approach was developed around a century ago. Despite the fact that resources frequently make up a very small portion of the overall cost, standard costing approaches place a greater emphasis on labour efficiency. Higher inventory levels will lead to increased production, which calls for faster processing speeds. This method takes longer than usual and involves more work when something goes wrong. At this stage, the manager must appear responsible for any excess, even if they have no influence over it.

For many years, cost and financial accountants have agreed that standard costing accounting should be replaced. There are no other techniques that have been found to replace traditional costing. The problem of production and profit margins was significant for many years before standard costing was developed. Standard costing was developed in the early 1900s. During that time, there were more transactions than the existing record-keeping system could handle.

According to Anderson, Needles, and Caldwell (1990), standard costing has historically been used to measure and assess operating performance in production environments. The development of standard costs, which are realistically predetermined expenses, involves analyzing historical operating costs, quantities, time, and projected resource costs.

Standard costing is essentially used to compare actual performance for every area of operation in the production environment to the standards. When actual performance occurs, standards are compared with actual data. The difference that exists between standards and actual is known as "variance," or the actual deviating from the standard. According to Abudallahi (2004), this kind of discrepancy could be advantageous or unfavorable to the organization.

Essentially, the Primary objective of Standard costing is to ascertain how efficiently a given product is produced. Standard costing is used to describe how managers can have control over the acquisition and exploitation of resources in creating a certain quality product. It helps measure efficiency and waste reduction. According to Denton (1996), waste management is optimal to management of waste. This is so because managing waste involves more than just controlling costs, which can also result in income. Standard costs are objectives to be met as well as projections of what expenses will be. When benchmarks are established appropriately, reaching them signifies a passably effective degree of performance. The majority of production companies that create goods continuously and permanently adopt standard costing (Khan, Rizwan, Islam, & Abdean, 2016).

Standard costing is a crucial component of management accounting control approaches, which also include budgeting systems and responsibility accounting statements, according to Adeniji (as mentioned in) Abdullahji et al. He states that the conventional costing technique can be analyzed from the standpoint of either the absorption costing technique or the marginal costing technique. Using the approach of marginal costing, variance will be based on the product's entire relevant cost, excluding fixed overhead. However, when considering variance analysis within the framework of absorption costing, the organization's total product cost will be involved. These expenses demonstrate the objectives and efforts that serve as a check to ensure that extraordinary profit-oriented target performance is attained for efficient administration. Standard costing creates ready-made targets since it simplifies goal-setting and the establishment of an incentive program.

It is essential to realize that creating a standard cost requires both judgment and pragmatism when determining the kinds, amounts, and prices of labor and materials as well as the various ways that organizational overhead behaves. When an organization's standards are appropriately set, an

accomplishment exists that demonstrates a workable, efficient level of performance. Production businesses define the standard cost of direct materials, direct labor, and production overhead required to manufacture a unit in order to calculate the standard cost of each unit of the product. It should be noted and highlighted as a result that standard costing is helpful when determining selling prices. These days, conventional costing is mainly concerned with cutting expenses without considering the consequences. The specific objectives of this research are to:

1. Ascertain the relationship between the average cost and the effectiveness of Rivers State's bakery operations.
2. Determine how Rivers State bakery operations' standard costs and waste reduction relate to one another.
3. Examine the relationship between the True Cost Accounting (TCA) and the Effectiveness of Rivers State's Bakery Operations.
4. Ascertain how Rivers State bakery operations' actual costs and waste reduction relate to one another.

## LITERATURE REVIEW

### Conceptual Review

#### Standard Costing Techniques

According to Nweze (2021), standard costing is an accounting method that uses predefined costs for materials, overhead, and cost layout for each line of manufactured goods or rendered service. Therefore, the standard costing approach is a crucial component of the management accounting control technique, together with the responsibility accounting statement and budgeting system. According to Adeniji (2020), responsibility accounting statements, budgeting systems, and standard costing are all essential components of management accounting control approaches. Either the absorption costing technique or the marginal costing technique can be used to analyze the standard costing technique (Egbunike, 2020).

Efficiency ratios, which are utilized in standard costing procedures, compare the labor and resources actually used to create

#### Characteristics of Standard Costing Techniques

- i. Because it is calculated after accounting for the management's standard of efficient operations, the standard cost determined on the assumption of 80% efficiency will differ from that of a 90% assumption.
- ii. Continuously recording actual performance against standards allows for easy comparison of the two. This is one of the other aspects of standard costing.
- iii. Standard pricing ensures that standards and actuals are constantly compared and any differences between the two are resolved. The difference is known as "variance," and further analysis is needed to determine the causes of it.

#### Types of Standard

Numerous academics categorized standards into various categories. Three categories of standards have been defined by Horngren (1998): basic, currently attainable, perfect, ideal, maximum efficiency, or theoretical. Lucey, on the other hand, divided the currently attainable criteria into two categories: current standards and feasible standards. The standards used in this work can be divided into four categories: current, achievable or practical, ideal or potential, and basic.

**i. Fundamental requirement:** These are long-term norms that haven't changed over time. It could be used to display historical trends for labor rates, material prices, efficiency, and the results of establishing current standards, among other things.

This standard would typically not be included in the reporting system, other than as a background statistical exercise, since any variance that would be generated would likely be the result of an unpredictable combination of controlled and uncontrollable causes.

**ii. The perfect norm:** These are guidelines that may be based on optional operational parameters that presuppose no malfunctions, waste, stoppages, or idle time. These standards are routinely updated to reflect advancements in technology and material science. Formally speaking, an ideal standard is "one that can be attained under most favorable conditions," according to Lucey (1985). While the ideal standard may be useful for long-term development, it is not very useful for day-to-day control tasks.

**iii. Achievable standard:** This is the most widely used standard; regular material losses, waste, staff rest periods, machine breakdowns, and breakdown time are all taken into account. They could be obtained by the ordinary worker at a task through reasonable, extremely efficient efforts. Furthermore, according to Lucey, an achievable standard is one that may be reached by the effective completion of a standard work unit, the correct operation of a machine, and the appropriate use of materials.

**iv. Current standard:** A current standard is "a standard established for use over a limited short period of time, related to current condition," according to Luciey's official definition.

#### **i. Evaluation of Inventory**

Inventory valuation is made simpler by using standard cost. Under standard costing, the value of inventory is equal to the number of units times the unit standard cost; standard costs do not alter in response to short-term fluctuations in volume, quantity, or input costs.

#### **ii. Analysis of Cost Flow and Variance**

It is not as necessary to follow real cost flows when standard costs are used. Units transported between departments in process costing are always priced at the same level.

#### **iii. Cost reduction**

This accounting method uses as little expense as possible. That is to say, by lowering the cost of production, accounting practices can improve a company's performance.

#### **iv. Evaluation of Performance**

Assessing the work of employees is a laborious process that involves numerous variables. Some of the characteristics may be difficult or inappropriate to utilize when comparing personnel because they are completely subjective to judgmental heuristics.

#### **v. Marketing and Distribution**

These expenses are typically particularly significant when it comes to production issues. Standard costs may be useful in raising the level of cost consciousness among individuals in charge of an organization's sales and distribution division.

#### **viii. Price Decision**

Because standard costs represent the intended or expected cost of the product while removing inefficiencies, they also help with pricing decisions when a product's cost is used to determine its selling price. Transfer pricing makes use of standard prices in this way.

#### **Standard or Predetermined Costing**

One of the main focuses of this paper is to use standard costing as a tool of cost control and cost reduction strategies. We shall approach it from practical point of view by considering the meaning, the behavioural aspects of setting standards, how standard costing techniques can be installed in any organization, its objectives, and types of standards.

### **I) Meaning of Standard Costing**

Standard costing as a tool of management is a technique, which enables management to plan and introduce control on operations. It establishes predetermined estimates of the cost of products or services, collects actual costs and output data and compares the actual results with the predetermined estimates. The

predetermined costs or costs fixed in advance are known as STANDARD COST and the difference between standard and actual is known as a VARIANCE. The process by which the total variance or the difference between standard and actual cost is subdivided into their various components is known as VARIANCE ANALYSIS.

## II). Behavioral Aspect of Standard Costing

The success of any standard costing techniques will be judged by the extent to which it encourages goal congruence of the managers who will operate it. Embarking on costing, which is aimed at cost control and cost reduction, is a very sensitive aspect of management. Therefore, such a scheme or technique should involve all area of management and their input, consent and commitment regarding what constitute standard material and labour obtained. In effect, there should be teamwork of the entire department concerned in order to achieve the necessary motivation in the staff.

For instance, the personnel manager may provide data relating to wage rates. The purchasing manager may be concerned with quality and prices of materials. The production manager may advise on methods of working, materials specification design of components, production scheduling etc.

The engineer can provide sound technical and engineering advice on specific production methods, work-study and work measurement etc. The foregoing illustration shows goal congruence in operation, which means that all employees, including management, should act in a way, which contributes to the overall objectives of the organization. That is, employees' objectives and the organizations objectives would, in ideal situation coincide or agree.

It is therefore necessary to stress that any standard costing imposed from above may not enjoy the full support of the line managers who will operate it and achieve its desired objectives. Management by objective and management by exception will be of help.

## Objectives of Standard Costing

The following are the main objectives of standard costing: -

- a. To introduce cost control by establishing standard, calculate actual figures and analyzing variances;
- b. To provide a formal basis or measurable attributes or framework against which performance and efficiency can be assessed; to assess performance and efficiency;
- c. To enable the principles of management by exception to be practiced at the detailed and operational level. That is, a principle which permits a subordinate to be given a clearly defined role and target with the requisite authority and resources to carry out the part of the overall plan assigned for him and, if activities do not proceed according to plan, the variation are reported to higher authority;
- d. To serve as a means of motivating staff and management, especially when favourable standard is achieved.
- e. To help in setting budgets
- f. To serve as a guide and for estimating etc.

## How to Set Standard

Standard setting is a process by which an organization looks at the production experiment, experience prevailing cost and economic realities and decide on what should be recognized as standard. It must be reliable, realistic and challenging depending on the type of standard being set.

## Cost Control and Cost Reduction Strategies and Standard Costing

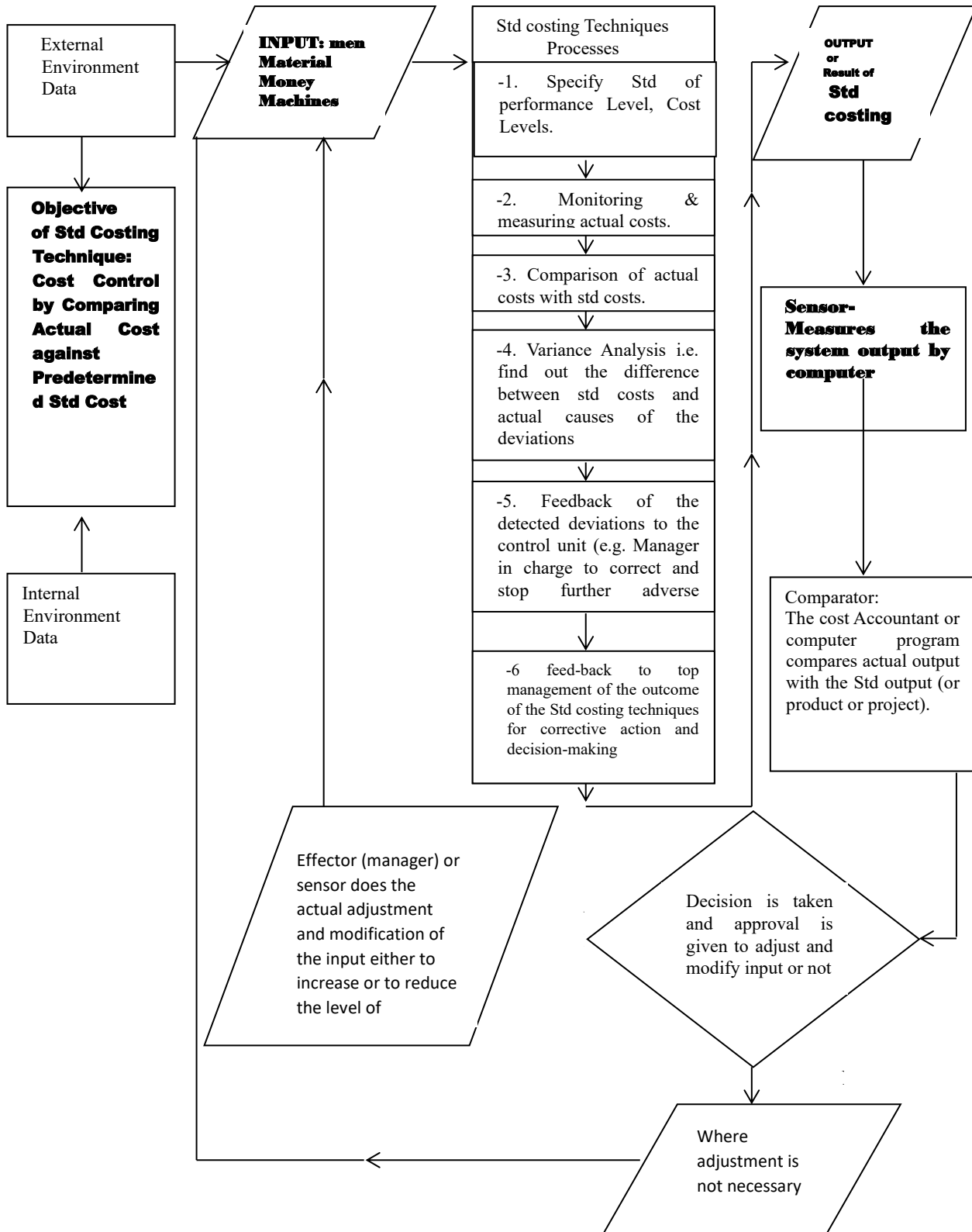
Cost control and cost reduction are two important strategies whose main objective is to reduce cost of goods and services, especially in bakery industry in order to achieve the overall goal of an organization. One method that management uses to keep expenditures and processes under control is standard costing. By establishing guidelines or budgets beforehand, it seeks to reduce waste, boost productivity, and offer useful data that will increase revenue.

Cost control is the process of controlling operating expenses by executive action, particularly when cost accounting is used as a guide. Maintaining sustainable costs for all the processes of a bakery business is the goal of cost control in the bakery industry. By pushing real costs to align with the plan through systematic measures to eliminate waste and unnecessary expenses in all their forms and prevent off-course tendencies, cost control aims to improve performance.

### **Demystifying Standard Costing**

The costs are only ascertained after they have been incurred in historical costing. This system methodically accrues labor, material, and overhead costs. The true cost of creating a good or providing a service is calculated by adding up the amounts spent on resources. Because historical cost numbers are only available after the fact, they are mostly used for postmortem evaluation. This approach provides little to no chance for prompt remedial action because reporting occurs after the costs have been incurred.

ACHIEVING COST CONTROL THROUGH STANDARD COSTING TECHNIQUE -



### **Problems Associated with Standard Costing**

Lucey (1985) draws attention to the differences and issues with both the adopted standard and the standard as a whole. These are as follows:

- i. The standards that are applied (basic, ideal, attainable, and current) directly affect the degree of variance that may occur and the interpretation that may be placed on the deviations.
- ii. Since there are genuine difficulties in ascertaining the standard's Level of Attainment, it follows that every standard includes a subjective component.

### **Limitations of Historical Costing**

There are several issues with historical costing. First, the cost statistics are not appropriate for prompt managerial response because they are only available after the expenses have been incurred. Meaningful variation or trend analysis is undermined when the business environment changes over time because cost records are not comparable. It is costly and frequently duplicates financial accounting entries to maintain comprehensive historical cost records. Critical decisions like budget creation, responsibility accounting, and price setting are not well supported by historical cost data. The information is frequently outdated and of little use for management decision-making or future planning because of its delayed availability. Historical costing is unable to facilitate proactive operational control due to the absence of forward-looking cost predictions.

### **Standard Costing Emergence**

Standard costing emerged as a result of management's desire to use cost as a control mechanism rather than just a measuring tool. The necessity of established standards became evident when decision-makers turned their attention from cost ascertainment to cost control. One method that has arisen to assist management in controlling expenses and operations is standard costing. It seeks to reduce waste, increase efficiency, and deliver useful information by establishing standards or cost plans beforehand. By regularly comparing actual costs to predetermined norms, standard costing helps identify deviations and encourage remedial action, which enhances other management strategies.

### **Standard Costing and Benchmarking Technique**

A standard pricing technique is a reference point or yardstick that has been set up under specific guidelines. The term "standard cost" describes the fixed price that a good or service should cost in a given situation, based on economic and efficiency assumptions. It shows the anticipated performance cost for every unit over a certain period of time if operations continue as planned. The multi-step procedure known as standard costing entails establishing these predefined cost, benchmarks, recording actual costs comparing them against standards in order to reduce cost

This method makes it possible to evaluate performance and recommends areas for corrective action. Although it can be included into unit costing or absorption direct process costing, standard costing works best in situations where production processes are standardized.

### **Objectives of Standard Costing Objectives**

One of the goals of standard costing systems is to give performance and efficiency a formal foundation for measurement. Management can better control expenditures by comparing actual costs to predefined criteria. By enabling management by exception reporting, the system saves managerial time and effort by ensuring that only deviations that exceed tolerance thresholds require examination. Additionally, standard pricing helps with budgeting by supplying benchmark data that informs projected plans. By holding the proper people or departments accountable for deviations, it promotes responsibility accounting. Additionally, standard costing directs possible performance enhancements and inspires employees by associating performance with quantifiable standards. When future expenditures and earnings are estimated using clear criteria, the results are more accurate.

### **Benefits of Standard Costing Techniques**

Cost containment is one of the direct benefits of standard costing. between actual and standard costs. To identify areas where expenses have gotten out of hand so that management can take corrective action. When carrying out such re-medical procedures, the variance gives management a set, quantitative goal. Second, standard costing assists in pricing and pre-forms manufacturing policies. Additionally, it permits estimating in the pre-manufacturing or product planning stages.

Moreover, standard costing helps to improve process efficiency in an indirect way. Determining typical prices necessitates a thorough examination of several company and process facets. For example, a time and motion analysis is needed to determine production charges, and a material control process study is needed to determine standard inventory costs. These investigations frequently reveal a variety of flaws and inefficiencies, giving management the chance to quickly address these issues and increase productivity. The standard costing approach allows for a trustworthy assessment of the performance of different cost centers by comparing real costs with standard costs.

Lastly, standard costing encourages management by exception, in which management sets a predetermined goal and stays out of the way as long as it is met; management be in only when there are deviations from the goal. Setting goals and putting in place an incentive system are made simple by the ready-made targets that standard costing offers.

### **Concept of Standard Cost**

In order to achieve maximum efficiency in the manufacturing process, standard costs are carefully specified expenses, goal costs that management established and use as a foundation for comparison with actual costs. Standard costs are those that have been specified, and variances are the amounts that differ between standard and actual costs. Variance analysis is the methodical process of finding variations, breaking them down into their component parts, and reporting them to management.

Standard costs do not always reflect what the costs would be if performance perfection had really been realized; rather, they indicate what costs should be under achievable good performance. Lucey (1985). Standard costs are therefore precisely calculated approximations of what labor, materials, and overhead costs ought to be for each unit based on the specifications of the product and the intended level of operating efficiency. As stated by Lucey (1985). "A standard cost can be defined as a predetermined calculation of how much costs should be under specific working conditions" .

### **Concept of Actual Cost**

The amount actually spent to purchase the asset is its actual cost. It can be understood as the quantity of supplies, labor expenses, and any other directly related overhead expenditures that are applicable to a specific project. When utilizing actual costs, the goal is to dissect the particulars of project costs and determine whether the project's production process is operating as efficiently as possible.

### **Difference Between Actual Cost and Standard Cost**

Knowing the difference between the actual cost and the standard cost is crucial when assessing the costs associated with a specific job or project.

Real cost does not just refer to the number of units produced; it also includes the expenses incurred during the process of production or project completion. Standard cost tracks the utilization of resources by assuming a standard value. The tracking, which takes the form of either hours worked or units consumed, is done with the intention of determining the difference between production and consumption. The difference between the standard cost and actual cost can be utilized for operational management or to increase prediction accuracy.

### **The Notion of Organizational Performance**

It describes how successfully an organization is achieving its vision, purpose, and objectives. It entails comparing a company's performance to its aims and objectives. Stated differently, it consists of actual outcomes or consequences as opposed to planned outcomes. Louise James states that "organization

performance relates to how successfully an organized group of people with a particular purpose perform a function" .

According to Rolstadas (1998), an organizational system's performance is a complicated relationship including seven performance criteria that have to be met: productivity, quality, effectiveness, efficiency, innovation, and so forth. Achieving the aforementioned standards, which are essentially performance targets, is strongly linked to performance. According to Bernadin (1995), performance is best described as the culmination of all work-related consequences because these have the strongest correlation with the strategic goals of the business, customer satisfaction, and financial contributions.

According to Neely (2002), performance evaluations ought to take into account measuring the efficacy and efficiency of interventions. Both qualitative and quantitative methods can be used to express this characteristic. Neely and other writers' definitions of labor state that efficacy and efficiency are directly tied to performance.

### **Concept of Efficiency**

According to Wikipedia, efficiency is the capacity to carry out a task or achieve a desired outcome without wasting resources, energy, time, money, or effort. More broadly, it is the capacity to carry out tasks efficiently, effectively, and without wasting any resources. Additionally, it represents a desired level of performance that is attained with the least amount of input and the greatest amount of output. Efficiency is the utilization of all resources, including human time and energy, to produce a particular product. The ratio of usable output to total input can be used to quantify this idea.

It achieves the intended result with the least amount of wastage of time, energy, and tangible materials. Efficiency reduces costs and saves time while boosting productivity. Miksen, Chris (2018). Paul Trujillo listed five reasons why efficiency matters:

- i. Being efficient lets you save time
- ii. You can save money when you are efficient.
- iii. Efficiency makes it possible to guarantee responsibility
- iv. Efficiency makes it possible to create the ideal environment for v. Efficiency makes it possible to enhance communication. The most precious resource you have is your workforce. The whole organization's synchronization is hampered when you provide them time-consuming and complicated systems to operate.

### **The Waste Reduction Concept**

An essential tool is waste management. This is so that a business can save costs if trash is reduced and waste management is done correctly. One crucial component of performance management is cost control. There are several ways to manage waste, such as properly disposing of it, recycling or reusing it if it still has value, or reducing the amount of waste that businesses produce. Additionally, it can help businesses strengthen their competitive edge (Denton 1996, Pitt 2005, Ravi et al 2005).

Businesses might sell their recycled products or materials with residual value in secondary markets to generate additional money (Dainty and Brooke 2004).

Garbage reduction is the practice of minimizing the quantity of garbage that an individual, a community, or an organization produces. It also has to do with using as little energy and resources as possible when producing a product. There is less waste created when fewer resources are needed to get the same result. Waste output can be decreased by employing better materials and more effective manufacturing techniques. Waste management, according to Denton (1996), is preferable to waste control. This is due to the fact that waste management has the potential to generate income in addition to cost control. The businesses that focus solely on waste control make sure they abide by all applicable laws and regulations, and their short-term objective is to minimize trash disposal costs. Long-term waste management entails investing in new products, procedures, technology, and training that can increase production efficiency and decrease waste.

### **Standard Costing Techniques and Performance of Bakery Operations**

According to the survey, normal costing procedures are used in bakery operations to handle decisions about pricing, selling and distribution, inventory valuation, cost flow and variations, and cost reduction. According to Nweze (2021), standard costing is an accounting method that uses predefined costs for materials, overhead, and cost layout for each line of manufactured goods or rendered service. Therefore, the standard costing approach is a crucial component of the management accounting control technique, together with the responsibility accounting statement and budgeting system.

The resource-based view (RBV), according to Pearce 11 and Robinson (2021), is a technique for evaluating and determining a company's strategic advantages by looking at its unique blend of organizational assets, competencies, and intangibles. This theory examines the elements unique to bakeries and how they affect output. Grant (2019), sees the bakery as a collection of resources that, when put together, provide organizational capabilities that it can utilize to achieve above-average performance. These materials help bakeries build their skills, which, when well-developed, provide the bakery with a competitive edge. Penrose (2021) elucidates the significance of resources, encompassing the bakery's organizational procedures, assets, capabilities, information, and expertise. According to Daft 2020, these resources increase efficacy and efficiency, which raises bakeries' operational performance. The goal of comprehending how the features of Standard Costing Techniques affect bakery operations performance has generated a great deal of debate in the scientific community. There are many who contend that the structural features of the bakery have an impact on the success of its operations, while others contend that resources unique to the bakery have an impact (Bain, 2019–2021). As the foundation for the bakeries' cost analysis, standard costing techniques' characteristics at the bakery level have received a lot of attention lately.

Since standard costing techniques are a component of bakeries' structural characteristics, they will be the primary focus of this study. The resource-based view (RBV) is the idea that explains how internal organizational elements, such as a firm's features, affect operational success.

### **Variance Analysis and Behavioural Pattern**

Significant behavioural pattern and ramifications inside an organization can also result from variance analysis. When properly applied, it encourages workers to fulfil performance goals and work effectively. On the other hand, dysfunctional behaviours like data manipulation or reluctance to change might result from improper handling.

### **Empirical Review**

This problem has been the subject of empirical research in a few different countries. Sadiq Rabi A. (2016) conducted a study using the descriptive survey approach at MTN business Kano titled "Effects of standard costing on the profitability of Telecommunication companies." According to the study's conclusions, standard costing is widely used by Nigerian telecom firms and enhances their capacity for planning, managing, and decision-making.

Descriptive statistical method was applied by Md. Mamunur Rashid (2016) in his study "standard costing practices in listed pharmaceutical and chemical industries in Bangladesh". In contrast to other academicians who believed that standard costing is an outmoded and outdated tool, the researcher in this study came to the conclusion that standard costing is still a useful tool in the hands of management in controlling cost and in making many managerial decisions. This is demonstrated by the fact that standard costing survives in the modern manufacturing environment.

Snowball sampling was employed by MulaNazar Khan et al. (2016) in their paper "The extent of Application of Standard costing: A comparison of Chinese and Pakistani manufacturing firms". According to the study's findings, 71 percent of Chinese businesses and 69 percent of Pakistani businesses employ conventional costing in their operations. Standard costing is used by 71% of Chinese businesses to

calculate product costs for decision-making and as a tool for budgetary support. Their standards are based on design, average prior performance standards, and reviews.

However, 69 percent of Chinese businesses utilize conventional costing for performance evaluation and cost control. This means that these businesses compare their actual costs with predicted costs in order to identify areas that are out of control and depart from expected outcomes. Standard costing is still employed by businesses in China and Pakistan, despite widespread criticism.

### Identification of Gap

In conclusion, other researchers have written about and recorded their findings about how standard costing approaches have improved manufacturing companies' performance; but, no research of this kind has been done in the baking sector. Thus, the purpose of this effort is to close the gap.

## METHODOLOGY

According to Andrew Kirumbi (2018), a research design is a collection of techniques and protocols used in gathering and examining measurements of the variables listed in the research topic. The framework developed to find answers to research questions is known as research design. Broadly speaking, there are two ways to approach research design: quantitative research design and qualitative research design. Additionally, it is a proof model that enables the researcher to deduce conclusions about the causal relationships between the variables being studied. The survey was one of the research designs employed in this study as a strategy.

According to Vconnect (2018), there are 373 bakeries in operation in Port-Harcourt. The managers and supervisors of the 373 bakeries that are open in Port-Harcourt make up the target/accessible population for this study.

Since it is extremely difficulty to study the complete population, a sample that is representative of the accessible population has been chosen. The following formula, developed by Taro Yamen, was used to calculate the sample size:

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

Where; n= Sample size being sought

N=Total number of bakeries

e=Level of significance

$$n = \frac{373}{(1 + 373[0.05]^2)}$$

$$n = \frac{373}{1 + 373[0.0025]}$$

$$n = \frac{373}{1 + 0.9325}$$

$$n = \frac{373}{1.9325}$$

$$n = 193$$

### Basic random sample techniques

Basic random sample techniques were used as the sampling method for this investigation. The primary source provided the information needed for this investigation. In each of the 193 bakeries, two (2) managers and a supervisor were given questionnaires to complete in order to collect the primary data for the study. This study uses two fundamental variables: dependent and independent. The standard

costing technique is the independent variable in this study, and organizational performance is the dependent variable. A few characteristics, such as efficiency and waste reduction, were used to quantify the performance of the organization. The Likert 5-point scale format was used in the questionnaire design to elicit ordinal data, which was then used to generate the data for quantifying these variables.

The supervisor was shown the instrument in order to verify its content correctness. The final draft of the questionnaire used to collect data was prepared using his corrections and remarks.

The test-retest method was used by the researcher to determine the instrument's reliability. A total of 386 respondents who were part of the study were given copies of the questionnaire. After a two-week break, the same responders were given the instrument again. The instrument's reliability coefficient (RC), which was determined to be 73% using an exploratory factor analysis, validated the instrument's internal consistency and dependability for data collocation. All of the gathered data was edited and coded before being subjected to qualitative analysis techniques. The statistics package for social sciences (SPSS) is the statistical analysis software used by researchers.

To obtain respondents' opinions outside of the formal surveys, a qualitative assessment technique was utilized. **Descriptive statistics, such frequency and percentages**, were employed in the study to help transform the raw data into a format that was simple to comprehend and analyze in connection to the study variables. To explain the link between the dependent and independent variables, a straightforward **regression approach** was created and put to the test. The study variables were compared using the simple regression method to determine their association.

**Model Specifications**

**Functional form of the model**

Where

$$P = f(SC, AC, EF, WR) \dots\dots\dots 1$$

Mathematical expression of model

$$EFF = f(SC, AC) \dots\dots\dots 2$$

$$WAR = f(SC, AC) \dots\dots\dots 3$$

$$ORP = \alpha_0 + X_1SC + X_2AC + e \dots\dots\dots 4$$

Where;

EF = Efficiency

SC = Standard cost

AC = Actual cost

WR = Waste reduction.

**Data Presentation and Analysis**

The presentation and analysis of the data that was gathered throughout the study were used for the analysis as stated below in the Table:

**Data Presentation**

Questionnaire items	SA	A	N	D	SD	Total	Mean
STANDARD COST							
Estimating the cost of a product improves efficiency	56	134	17	35	22	959	3.632576
Setting standards improves the organizational focus of your bakery	41	189	33	0	1	1061	4.018939
Controlling cost reduces waste	67	176	13	2	6	1088	4.121212

Setting standards improves the efficiency of employees' at work.	51	199	11	2	1	1089	4.125
ACTUAL COST						0	0
Actual cost has affected the efficiency of your bakery.	112	134	4	10	4	1132	4.287879
Actual cost affect waste reduction in your bakery	124	86	18	20	16	1074	4.068182
Actual cost will cause an increase in revenue.	87	145	23	4	5	1097	4.155303
EFFICIENCY						0	0
Efficiency affect actual cost in your bakery	122	132	1	2	7	1152	4.363636
Level of efficiency will be sustained if standards are attained.	88	133	23	12	8	1073	4.064394
Efficiency minimizes the waste of resources	88	133	24	12	8	1076	4.075758
Efficiency is attained when cost of production is minimized	77	171	15	1	0	1116	4.227273
WASTE REDUCTION						0	0
Standards set has led to less wastage.	88	153	20	0	3	1115	4.223485
Reduced wastage has led to less labour cost.	69	167	12	12	4	1077	4.079545
Wastage in your bakery affect actual cost.	111	132	15	2	4	1136	4.30303
Measures used to reduce waste has led to less obsolescence.	77	171	15	1	0	1116	4.227273

### Test of Hypotheses

The analysis and interpretation of the test hypothesis outcomes are the focus of this section of the study. The analysis employed the OLS approach, or simple regression.

### First Hypothesis:

**Ho1: In Rivers State, there is no discernible correlation between the average cost and productivity of bakery operations.**

EFF is equal to f (SC, AC).

Table4.2 Presentation of Model Result

Variable	Coefficient	Std. Error	t- statistic
(Constant)	3.216	.000	
Standard Cost	-.420	.000	-.638

Actual Cost	.623	.000	.407

Dependent Variable: Efficiency

R= 1.00

R2 =1.00

Adj.R2 = 0.000

Fcal = 2.406

tcal = 6.638

F (2, 5) = 10.13

t0.025 = 1.960

n = 5

DW=1.045

The Co-efficient result

As can be seen in table 4.2 above, the co-efficient result shows that standard cost, real cost, and efficiency are positively correlated. Furthermore, the calculated result above indicates that R2 is 1.00, indicating that the difference between Standard and Actual costs accounts for approximately 1% of the total efficiency difference. The remaining 99 percent, which is brought on by extraneous variables not taken into consideration by the model, is explained by the error term. The 10.13 table value is higher than the calculated F value of 2.406.

This implies that, at the five percent significance level, the model as a whole is significant. Once again, the estimated DW of 1.283 is less than 2, which suggests a higher level of serial autocorrelation and exposes a model instability. Given that the computed t-value of -6.638 is higher than the table value of 1.960, it can be concluded that the performance of specific bakery operations in Rivers State is impacted by the size of conventional costing approaches. As a result, we adopt the alternative hypothesis, which contends that there is a substantial correlation between the standard cost, real cost, and efficiency of bakery operations in Rivers State, based on the analysis's findings.

The Second Hypothesis,

**The second hypothesis, or Ho2, holds that there is no meaningful correlation between Rivers State bread operations' standard costs and waste reduction.**

**Ho2:** In Rivers State, there is no discernible correlation between the true cost and productivity of bakery operations.

]EFF is equal to f (SC, AC).

Table4.2 Presentation of Model Result

Variable	Coefficient	Std. Error	t- statistic
(Constant)	3.216	.000	

Standard Cost	-.420	.000	-.638
Actual Cost	.623	.000	.407

Dependent Variable: Efficiency

R= 1.00

R2 =1.00

Adj.R2 = 0.000

Fcal = 2.406

tcal = 6.638

F (2, 5) = 10.13

t0.025 = 1.960

n = 5

DW=1.045

#### The Co-Efficient Result

As can be seen in table 4.2 above, the co-efficient result shows that standard cost, real cost, and efficiency are positively correlated. Furthermore, the calculated result above indicates that R2 is 1.00, indicating that the difference between Standard and Actual costs accounts for approximately 1% of the total efficiency difference. The remaining 99 percent, which is brought on by extraneous variables not taken into consideration by the model, is explained by the error term. The 10.13 table value is higher than the calculated F value of 2.406.

This implies that, at the five percent significance level, the model as a whole is significant. Once again, the estimated DW of 1.283 is less than 2, which suggests a higher level of serial autocorrelation and exposes a model instability. Given that the computed t-value of -6.638 is higher than the table value of 1.960, it can be concluded that the performance of specific bakery operations in Rivers State is impacted by the size of conventional costing approaches. As a result, we adopt the alternative hypothesis, which contends that there is a substantial correlation between the standard cost, real cost, and efficiency of bakery operations in Rivers State, based on the analysis's findings.

#### Discussion of Findings

The results of the study indicate a strong correlation between the performance of bakery operations and standard cost, real cost, efficiency, and waste reduction. This viewpoint, which is supported by a study conducted by Sadiq Rabi (2016) that standard costing is widely used in Nigerian telecommunications companies, and it improves the company's planning, control, and decision-making processes, according to a 2016 study on the "Effects of standard costing on the profitability of Telecommunication companies" that was carried out at MTN Company Kano using the descriptive survey method. Therefore, it follows that a good plan and a good choice will ensure good performance, given that performance is a product of planning and decision making. Thus, it can be said that performance and typical costing methods are significantly correlated.

#### CONCLUSION

In conclusion, after a thorough analysis of standard costing and bakery operations, it is clear that standard costing is crucial for all bakeries in River State. The adoption and application of standard costing principles

and procedures in River State will serve as a tool for performance improvement. This is because it improves the bakery's processes for selling and distribution, pricing, performance evaluation, cost reduction, adequate inventory value, and cost flow and variation analysis. It should be mentioned that maintaining accurate accounting records is directly necessary in order to gauge how much standard costing enhances bakery operations performance. The results of this study demonstrate that when the concepts and methods of standard costing are consistently implemented in the bakery, it helps the management make better decisions, achieves higher performance, greatly aids in cost control, aids in the removal of unprofitable products, and strengthens the connection between standard costing and performance in manufacturing firms. Based on the research's findings, it is also reasonable to conclude that the implementation of standard costing has a greater impact on bakeries' operational performance and that River State bakeries are adopting and using standard costing principles and techniques to reduce cost and improve performance.

### Recommendations

In view of the findings and conclusions of this study, it is strongly recommended that:

1. The bakery operations in River State should ensure standard costing techniques is a considered practice in the organization to help keep the organizational goals and objectives in view.
2. The management of the organization, especially those in charge of the organizational planning, and cost control should adopt standard costing techniques to ensure improved overall performance.
3. In order to create more awareness of the concept, scholars and accounting professionals should take up platform to ensure that the message of standard costing techniques is being preached and it gains brought to bear, as this would help Nigeria drive for economic development via bakeries operations or SMESs.

### Suggestions for Further Study

In order to establish the core value of the concept of real impact of standard costing techniques on performance, the subject matter of this study is by no means exhausted in this work; therefore the researchers recommend further research to be carried out on the following topics:

1. The impact of standard costing techniques on waste management and control in selected bakeries in Nigeria.
2. The impact of cost management and standard cost on financial performance of selected bakery operations in Nigeria
3. The impact of standard costing techniques on the efficiency of performance of selected manufacturing and oil companies in Nigeria

### Contribution to Knowledge

Considering the findings of the study, the following contribution was made to knowledge:

1. Performance is a function of organizational effective internal control system, planning and consistent execution put in place.
2. Standard costing techniques as a control dimension is vital in driving organizational goal and objectives.

In the absence of effective cost control, poor business decision can be made and the business is exposed to risk of failure.

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