

Cost accounting: A tool for the management decision making process in Nigeria

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Abstract: The study, cost accounting, as a tool for management decision making process is targeted at exploring the various ways which cost accounting information could help the management of enterprises especially manufacturing and processing companies in the formation of policies and making of sound and reliable decisions. In order that this purpose could be proven, the researcher formulated various relevant research questions and also two major hypotheses were also formulated. Interview was conducted with the aid of instrument known as questionnaires which were administered to the staff of Tisco's Pharmaceutical. Chi-square (X²) method was used for testing the hypotheses under the research. Findings exposed that cost accounting is an aid to management decision making. Also, to be clear of every sentiment, relevant literatures compiled in authorities in the relevant fields were reviewed. The opinion of authorities was not different, showing that costing information is necessary for fixing selling price, valuation of inventory, inventory control, labour remuneration, waste reduction, capacity utilization, cost control ascertainment of profitability. Thus, the study proves that cost accounting is a tool for management decision making process in any organisation either in public and private sector.

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1. Introduction

Accounting as a language of business, it is used in the business world to describe the transaction entered into by all kinds of organization, Omuya (2010). An analysis of the above definition shows that accounting centres on transforming data into information that would be useful to many users. It takes care of the financial communication of the entry as it supplies the financial information in a way and, form so desired by the users. In a similar case Millichamp (1992) defined accounting as “the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are in part at least of financial statement”. These users include owners, (shareholders) managers, suppliers, customers, government employees, etc. The users of these statements are expected to read, interpret and analyse them. Objectives of financial statements are not accomplished when many users of the statement cannot understand them, let alone interpret and analyse them. The information the users attempt to gain from financial statement are the ability of the business to pay its way and survive in the long run, the quality of management and the rightness of decision made, information that guide the future.

Accounting information is the language of business as it is the basic tool for recording, reporting and evaluating economic events and transactions that affect business enterprises. It processes all documents of a business financial performance from payroll, cost, capital expenditure and other obligations to sale revenue and owners' equity. It provides financial information about ones business to the internal and external users, such as managers, investors and others. It is sometimes referred to as a means to an end, with the ending being the decision that is helped by the availability of accounting information (Arnel & Hope, 2009). The making of decision, as everyone knows from personal experience is a burdensome task (Wada, 2006). In most cases indecision is as disastrous as making a wrong one, therefore a plan of action is indispensable. Management is constantly confronted with the problem of alternative decision making especially knowing that resources are alternatively scarce and limited. It is therefore pertinent that good accounting information be made available for proper and accurate decision making, maximization of profitability and optimal utilization of scarce resources. Accounting information is not only necessary for evaluation of the past and keeping the present on course; it is useful in planning the future of the enterprise.

According to Mbanefo (2017), planning may conventionally be call budget/budgeting targets, which give meaning and direction to operations of the organization within a defined period. At the end of the budget period the external results are compared with budgeted performance and discrepancies (variance) are analysed for purposes of exposing the causes so as to prevent re-occurrence. Budgeting uncovers potential bottlenecks before occurrence, coordinates activities of the entire organization by integrating the plans and objectives of various parts. The budget ensures that these plans and objectives meant for various parts are in consistency with broad goals of the organization. It compels managers to think ahead before formalizing their planning efforts and provides defined goals and objectives which serve as benchmarks for evaluation of subsequent performance.

The management of an organisation uses both financial and non-financial information to make effective decisions that would help achieve the goals and objectives of the organization (Melissa Bushman, 2017). Financial information used by management accountants include sale growth, profits, return on capital employed and market shares, non-market shares, non-financial information include customer satisfaction level, production quality, performance of

competing products and customer loyalty. Decision making is however, the choosing of alternative courses of action using cognitive processes. Making decision is necessary when there is no one clear course of action to follow. Accounting systems can aid decision making by providing information relevant to the decision and to the decision makers. Accounting systems provides a check for the validity through the process of auditing and accountability (Gray *et al.*, 2006). Effective and efficient accounting information plays a central role in management decision making.

The management accounting is considered one of the most important components of the system of the administrative information in the company by providing the economic and financial information and collecting information taken from other systems of information in the company. Therefore, it looks as accounting for internal affairs that helps the administration in making the decisions, planning, controlling and evaluating the performance of the company's activities. Therefore, it is not restricted to the known accounting principles, but it depends on the basis and regulations concerning the content and the shape of the internal reports (Al-Matarna, 2003).

1.1. Problem statement

Regrettably, the incompetence of users of these financial statements to comprehend, interpret and analyse and still has always contributed to harmful business and investment decision by the users of these statements. As a result of these wrong business decisions, many users of these statements have been rendered poor, whereas others are afraid and show indifference to investment and business opportunities. Cases abound where these financial statements users, individual and corporate, have lost millions of naira merely because of wrong business decisions. The manufacturing sector consist of strings of financial activities whose major end is profit making, over the years the means and manner of measuring this financial performance remain issue of concern, the variables to use in the measurement of this performance is germane to growth and stability, the issue therefore is determining the variables to use in financial performance measurement and how well do these variables can measure the performance in the manufacturing sector is a concerned of Tisco's Pharmaceutical Limited.

1.2. Research questions

The following research questions were formulated to guide this study.

- What are the impacts of accounting ratios in the management decision making?
- Does accounting ratio aid in the effectiveness of an organization?
- What are the techniques used in analysis financial statements?
- Does the usefulness of accounting ratios in measure and predict the performance of Tisco's Pharmaceutical Limited?

1.3. Objectives of the study

The objectives of this study are to find out the following:

- To find out the impact of accounting ratios in the management decision making.
- To examine whether accounting ratio aid in the effectiveness of an organization.

- To determine the techniques used in analysis financial statements.
- To identify the usefulness of accounting ratios in measuring and predicting the performance of Tisco's Pharmaceutical Limited.

1.4. Research hypotheses

H₀₁: There is no significant relationship between the impacts of accounting ratios in the management decision making in Tisco's Pharmaceutical Limited.

H₀₂: There is no significant relationship between accounting ratio and the analysis financial statements.

H₀₃: There is no significant relationship between accounting ratio and the analysis financial statements.

H₀₄: There is no significant relationship between accounting ratio and the measuring and predicting the performance.

2. Literature review

Benjamin (2018) reported that the primary function of accounting is to accumulate the communication information essential to understanding the activities of an enterprise, whether large or small, corporate or non-corporate, private or public. Anderson and Caldware (2001), suggested that accounting is an information system for measuring, processing and communicating information that is useful in making economic decision. Contributing Needles Jr (2001) opined that accounting information is essential to decision system because it provides qualitative information for three functions: Planning, control and evaluation.

Harson and Kernut (2015), argued that accounting is a service activity, the reports of which are used in describing the activities and financial states of many different kinds of economic activities. According to Glantier and Underdown (2002), accounting is moving away from its traditional procedure base, encompassing record keeping and such related work as the preparation of budget and final accounts, towards the adoption of a role, which emphasizes its social importance.

Hubber (2017), argues that integration of accounting information leads to coordination in organization, which in-turn, increases the quality of decision. Some researchers in accounting shows that effectiveness of accounting information systems depends upon the quality of the output of the information system that can satisfy the needs of the users. Otley (2018) also argues that accounting information are important parts of the fabric of organizational and environmental information not only depends on the purposes of such systems but also depends on contingency factors of each organization.

Ahmed and Scapens (2003), argued that the role and utilization of accounting information in decision-making strategies and processes as well as managers' preferences are divergent despite the existence of external influences that might drive convergence. Moreover, we argue that there is only limited convergence towards short-term financial objectives as financial and strategic objectives and the subsequent use of accounting information are strongly influenced by decision-making strategies, processes and managers' preferences. Indeed, their studies provide evidence that convergence towards short-term financial objectives is limited in this case of a Nigerian organization and more importantly, their findings reveal that the contextual influence on the role and utilization of accounting information is driven by a complex interplay

of numerous contextual, that is exogenous and endogenous factors such as national and international market pressures, the cooperative structure, justification pressures and company objectives. As a result, their studies shows that only limited and superficial evidence of convergence of management accounting practices. There might be evidence of converging in the choice of applied management accounting practices, and this refers only to the technical level of the accounting practices. Indeed, a technical convergence has to be differentiated from the defacto convergence, which implies uniform application and interpretation of the accounting data.

Wouters and Verdaasdonk (2002) and Hall *et al.*, (2007) in their studies observed that in evidence that the complexity of financial decision-making has increased and importantly that it has resulted in an increasing implementation of sophisticated and efficient analysis techniques by managers in different nations (Zopounidis & Doumpos, 2002). Moreover, an increasing dominance of sophisticated Discounted Cash Flow (DCF) methods has been indicated, which are however less used in strategic investment decisions. Yet again, the literature on these aspects does not provide a holistic explanation when and how managers use this accounting information (Wouters & Verdaasdonk, 2002).

Jarrett (2003) revealed that an effective administrative control system is necessary to provide managers with information concerning functions and activities. That information is then used in the managerial decision-making process. The element of organization under investigation is the accounting information system. Hence, a relationship does exist between accounting information system, financial accounting, and auditing in the organization's context. To evaluate an administrative control system there are few steps which are need and to be considered as: identify potential control areas, define system objectives, document the system, and evaluate the system.

Simon (2007) in his study used the first part of the statement as measure of control for management and the second part for evaluating the effectiveness of the accounting information via continuous monitoring. Kim (2009) argues that the usage of accounting information depends on the quality of information by the user. Quality of information depends on reliability form of reporting, timeliness and relevance to the decision. Pat (2002), observe that time factor in accounting information is very important in the case of periodicity concept which defines a specific interval of time for which an entity's report is prepared which can be a fiscal year, natural year, quarterly or even monthly.

3. Conceptual framework

Management is constantly confronted with the problem of alternative decision making especially knowing that resources are relatively scarce and limited. It is therefore pertinent that good accounting information be made available for proper and accurate decision making, maximization of profitability and optimal utilization of scarce resource. Accounting is defined by Webster's ninth new collegiate dictionary, as "the system of recording and summarizing business and financial transactions and analysing, verifying and reporting the results. Accounting in view of this study can be defined ordinarily as the means by which managers are informed of both the process and financial status of a business concern.

Warren *et al.* (2005) defined accounting as information system that produces reports to the interesting parties about economic activities and company's condition. The primary objective

of accounting is to provide information that is useful for decision making purposes. It means that accounting is an information providing activity.

Hodggett (2012), conceptualize accounting information as the financial information about economic activities. All economic entities (e.g., businesses, government agencies, families, charitable entities) need such information because it is used for making economic decisions about those entities. An economic event of an entity is referred to as a transaction. Transactions are of two types: external and internal. Mbanefo (2007), conceptualize accounting as a measurement and communication system to provide economic and social information about an identifiable entity to permit users to make informed judgments and decisions leading to an optimum allocation of resources and the accomplishment of the organizations objectives.

Edwards (2012), defines accounting has been defined as the process of identifying, measuring, recording and communicating economic information to permit informed judgments and economic decisions. The primary purpose of accounting is to help persons make economic decisions. In our society resources must be allocated among and within all kinds of entities. Accounting information provides the basis for making decisions about resource allocation. To be useful, data must be identified, measured, recorded, classified, summarized and communicated to potential users. These are the critical elements of accounting. According to Fess and Niswonger (2008), accounting is the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information. Accounting information is a food for management planning and decision making. It refers to report of relevant financial information regarding the economic activities of an organization or business venture.

3.1. Concept of accounting information

Warren *et al.* (2015) defined accounting as information system that produces reports to the interesting parties about economic activities and company's condition. The primary objective of accounting is to provide information that is useful for decision making purposes. It means that accounting is an information providing activity. Warren *et al.* (2015) also stated that the objective of accounting is simply to produce information used by managers to run company's operation. Accounting also gives information to the interesting parties about economic performance and company's condition. According to Considine and Parkes (2010), accountings role is to gather data about a business's activities, provide a means for the data's storage and processing, and then convert those data into useful information. An accounting system consists of the personnel, procedures, technology, and records used by an organization as: (1) to develop accounting information and (2) to communicate this information to decision makers (Bettner & Carcello, 2008). Accounting information is raw data concerning transactions that have been transformed into financial numbers that can be used by economic decision makers (Werner & Doran, 2006).

- Statutory Accounting Information is the information that shall be prepared in accordance with existing regulations.
- Budgetary Information is the accounting information presented in the form of budget that is useful for internal planning, assessment, and decision making.
- Additional Accounting Information is other accounting information prepared by the company in order to increase the effectiveness of decision.

3.2. Nature of accounting information

Accounting Information has progressed through the centuries alongside civilization from exchange of goods (Trade-by-barter) using symbols and cowries unto record keeping methods, as we have today's people in all civilization maintaining various types of records of business activities. The oldest known is the clay tablets records of the payment of wages in Babylonia around 3600BC. There are numerous evidences of record keeping and system of accounting control in ancient Egypt and in the Greek city states. The earliest known English records were compiled at the direction of William the Conqueror in the eleventh century to ascertain the financial resources of the Kingdom, (Fess and Niswonger, 2008). Accounting information includes account, balance sheet, cost accounting system, fund book-keeping which dates back to the Middle Ages and a known description of the system was published in Italy in 1494 by Pacioli a Franciscan Fess and Niswonger (2008). It should be noted that the earlier known use of a complete double entry book-keeping was Geneva in the year 1840, double entry is the system that requires entries to be made in the books of a business to give effect to both aspects of the transactions. The principal book of this system is the ledger. The advantage of double entry can be stated as follows:

- It provides a complete record of every transaction, from both its personal and impersonal aspect.
- It provides an arithmetical check on the records since the total of the debit entries must equal their total of the credit entries.
- From the personal accounts the amounts owing to and by each person with whom the business deals can at any time be ascertained?
- Balance of nominal accounts can be collected together in a profits and loss accounts, which discloses the results of the operation that is the profit and loss for given period.

By means of a balance sheet in which the balance of accounts representing capital, assets and liabilities are set out, the financial position of the business at any given moment can be ascertained. With a reliable system of internal organization, it reduces the risk and facilitates the detection of errors and fraud.

3.3. Source of accounting information

The sources of accounting information are internal although there may be several departments that furnish the information depending on the types of the business. The accounts department is central. Accountants are the major suppliers of accounting information. They provide management with the needed information used in conducting the affairs of the business.

3.4. Importance of accounting information

As already noted, accounting information is indispensable in the management activities of any organization. It provides quantitative information about economic entities. The information is primarily financial in nature and intended to be useful in making economic decisions Harson (2009). Accounting information is needed not only by management in directing the affairs of the co-operation but also by shareholders, who require periodic financial statement in order to appraise management performance Fess and Niswonger (2008, p. 4). It is needed by government for efficient distribution and use of the nation's resources; thus, it plays an

important role in all economic and social systems. It helps in checking irregularities and misappropriations. Accounting information is the livewire of any organization without which it is likely to remain static or in worse cases die.

3.5. The nature and the use of accounting information in business organization

Business organization can be classified into small and large firms. In the part of small firms, a specialist institution is set up to provide a financial support for it, and the public will lack the enthusiasm for the purchasing securities from the small firm whose shares are not quoted on the stock exchange. Accounting information provides management with the needed information for use in concluding the affairs of the business and reporting to the owners. Five ingredients of accounting system, according to Black et al are:

- Basic business documents or forms such as cheque and invoice.
- Journals in which the effect of transaction on assets and equities are analysed in terms of debit and credit.
- Ledger which shows the results of transaction being summarized according to each asset or equities.
- The financial report which reports on how enterprise scared for that period.
- The procedures for preparing these records and report.

Studies carried out over the year indicated the importance of accounting information in a small firm and it has been proved that one quarter of small-scale business turn to their accountants when they need help this shows that even the smallest firm need to be compensated if enough expenditure is made for the purpose of acquiring an accurate accounting information. In a large firm, it is the manager or board of directors that have or own the managing and implementing of accounting information their responsibility will be seen that the decision made are put into effective use. Managers that fail to meet the expected target will frequently be replaced. Within the management there will be a management structure with a line of authority. If the management of any business makes implementations based on their accounting information, they will execute plans, controls and make decision making very effective. Over the past twenty years the nature of business organization has changed dramatically. Accounting information technology has revolutionized the ways in which information essential to the management in their decision making is processed.

3.6. Concept of decision making

Decision making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Making a decision implies that there are alternative choices to be considered, and in such a case we want not only to identify as many of these alternatives as possible but to choose the one that best fits with our goals, objectives, desires, values, and so on (Harris, 2008). Harris (2008), also mentioned that decision making is the “process of sufficiently reducing uncertainty and doubt about alternatives to allow a reasonable choice to be made from among them.” According to him, decision making emphasizes the information gathering function. It is where uncertainty is reduced rather than eliminated. In addition, very few decisions are made with “absolute certainty because complete knowledge about all the alternatives is seldom possible. Thus, every decision involves a certain amount of risk”. According to Baker *et al.* (2001), decision making should start with the identification of the

decision maker(s) and stakeholder(s) in the decision, reducing the possible disagreement about problem definition, requirements, goals and criteria.

Decision making the selection from among alternatives of a course of action is at the core of planning. A plan cannot be said to exist unless a decision - a commitment of resources, direction, or reputation – has been made. Until that point, we have only planned studies and analyses. Managers sometimes see decision making as their central job because they must constantly choose what is to be done, who is to do it, and when, where, and occasionally even how it will be done. Decision making is, however, only a step-in planning, even when done quickly and with little thought or when it influences action for only a few minutes. It is also part of everyone's daily living. Planning occurs in managing or in personal life whenever choices are made in order to gain a goal in the face of such limitations as time, money, and the desires of other people.

3.7. The decision-making process

Decision making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Making a decision implies that there are alternative choices to be considered, and in such a case we want not only to identify as many of these alternatives as possible but to choose the one that best fits with our goals, objectives, desires, values, and so on (Harris, 2008). According to Baker *et al.* (2001), decision making should start with the identification of the decision maker(s) and stakeholder(s) in the decision, reducing the possible disagreement about problem definition, requirements, goals and criteria. Then, a general decision-making process can be divided into the following steps:

3.7.1. Develop potential alternatives

Time pressures frequently cause a manager to move forward after considering only the first or most obvious answers. However, successful problem solving requires thorough examination of the challenge, and a quick answer may not result in a permanent solution. Thus, a manager should think through and investigate several alternative solutions to a single problem before making a quick decision. One of the best-known methods for developing alternatives is through brainstorming, where a group works together to generate ideas and alternative solutions. The assumption behind brainstorming is that the group dynamic stimulates thinking — one person's ideas, no matter how outrageous, can generate ideas from the others in the group. Ideally, this spawning of ideas is contagious, and before long, lots of suggestions and ideas flow. Brainstorming usually requires 30 minutes to an hour. The following specific rules should be followed during brainstorming sessions:

a). Concentrate on the problem at hand

This rule keeps the discussion very specific and avoids the group's tendency to address the events leading up to the current problem.

b. Entertain all ideas

In fact, the more ideas that come up, the better. In other words, there are no bad ideas. Encouragement of the group to freely offer all thoughts on the subject is important. Participants

should be encouraged to present ideas no matter how ridiculous they seem, because such ideas may spark a creative thought on the part of someone else.

c. Refrain from allowing members to evaluate others' ideas on the spot

All judgments should be deferred until all thoughts are presented, and the group concurs on the best ideas. Although brainstorming is the most common technique to develop alternative solutions, managers can use several other ways to help develop solutions. Here are some examples:

i). Nominal group technique

This method involves the use of a highly structured meeting, complete with an agenda, and restricts discussion or interpersonal communication during the decision-making process. This technique is useful because it ensures that every group member has equal input in the decision-making process. It also avoids some of the pitfalls, such as pressure to conform, group dominance, hostility, and conflict, which can plague a more interactive, spontaneous, unstructured forum such as brainstorming.

ii). Delphi technique

With this technique, participants never meet, but a group leader uses written questionnaires to conduct the decision making. No matter what technique is used, group decision making has clear advantages and disadvantages when compared with individual decision making. The following are among the advantages:

- Groups provide a broader perspective.
- Employees are more likely to be satisfied and to support the final decision.
- Opportunities for discussion help to answer questions and reduce uncertainties for the decision makers.

These points are among the disadvantages:

- This method can be more time-consuming than one individual making the decision on his own.
- The decision reached could be a compromise rather than the optimal solution.
- Individuals become guilty of groupthink — the tendency of members of a group to conform to the prevailing opinions of the group.
- Groups may have difficulty performing tasks because the group, rather than a single individual, makes the decision, resulting in confusion when it comes time to implement and evaluate the decision.

The results of dozens of individual-versus-group performance studies indicate that groups not only tend to make better decisions than a person acting alone, but also that groups tend to inspire star performers to even higher levels of productivity. So, are two (or more) heads better than one? The answer depends on several factors, such as the nature of the task, the abilities of the group members, and the form of interaction. Because a manager often has a choice between making a decision independently or including others in the decision making, she needs to understand the advantages and disadvantages of group decision making.

3.8. Performance effects of accounting information in management decision making

The need for information is basic for concrete and explicit management decision to ensure the success and survival of an organization and since the aim of any business organization is “profitability” Accounting information is indispensable to achieving this goal. It is pertinent to look at the importance of good accounting information as it relates to maximizing the profitability target of an organization. However, a business manager can assess the business’s performance using accounting information. Costs, prices, sales volume, profits, and return on investment are all accounting measurements (Williams *et al.*, 2008). Ratio analysis is one of the best tools of business performance assessment. According to Jackson (2004), each ratio provides a certain kind of information when assessing a company. Ratio analysis involves methods of calculating and interpreting financial ratios to analyse and monitor the firm’s performance (Gitman & Zutter, 2012). The four categories of ratios to be covered are:

- Liquidity ratios measure a firm’s ability to meet its current obligations (Gibson, 2011). According to White *et al.* (2003), liquidity analysis measures the adequacy of a firm’s cash resources to meet its near-term cash obligations.
- Leverage ratios measure the extent of a firm’s financing with debt relative to equity and its ability to cover interest and other fixed charges (Fraser & Ormiston, 2001). According to White *et al.* (2003), long-term debt and solvency analysis examines the firm’s capital structure, including the mix of its financing sources and the ability of the firm to satisfy its longer-term debt and investment obligations.
- Activity ratios measure the speed with which various account are converted into sales or cash-inflows or outflows. In a sense, activity ratios measure how efficiently a firm operates along a variety of dimensions such as inventory management, disbursements, and collections (Gitman & Zutter, 2012). According to White *et al.* (2003), activity analysis evaluates revenue and output generated by the firm’s assets.
- Profitability ratios measure the earning ability of a firm (Gibson, 2011). According to White *et al.* (2003), profitability analysis measures the income of the firm relative to its revenues and invested capital.

Decision is a reasoned choice among alternatives (Turban & Aronson, 2011). According to Jones and George (2011), decision making is the process by which managers respond to opportunities and threats that confront them by analysing options and making determinations about specific organizational goals and courses of action. Thus, it can be said that business decision is a reasoned choice among alternatives respond to opportunities and threats that confront them by analysing options and making determinations about business goals and courses of action. According to Romney and Steinbart (2012), businesses engage in a variety of activities. Each activity requires different types of decisions. Each decision requires different types of information. Business decision related to what activities will be accomplished as well as what information is needed. Romney and Steinbart (2012), stated that there is variation in the degree of structure used to make decisions:

- Structured Decisions are repetitive, routine, and understood well enough that they can be delegated to lower-level employees.
- Semi Structured Decisions are characterized by incomplete decision-making rules and the need for subjective assessments and judgments to supplement formal data analysis.
- Unstructured Decisions are non-recurring and non-routine decisions.

3.10. Establish a control and evaluation system

Ongoing actions need to be monitored. An evaluation system should provide feedback on how well the decision is being implemented, what the results are, and what adjustments are necessary to get the results that were intended when the solution was chosen. A manager to evaluate his decision, needs to gather information to determine its effectiveness. Was the original problem resolved? If not, is he closer to the desired situation than he was at the beginning of the decision-making process? If the plan has not resolved the problem, the manager needs to figure out what went wrong. A manager may accomplish this by asking the following questions:

- Was the wrong alternative selected? If so, one of the other alternatives generated in the decision-making process may be a wise choice.
- Was the correct alternative selected, but implemented improperly? If so, a manager should focus attention solely on the implementation step to ensure that the chosen alternative is implemented successfully.
- Was the original problem identified incorrectly? If so, the decision-making process needs to begin again, starting with a revised identification step.
- Has the implemented alternative been given enough time to be successful? If not, a manager should give the process more time and re-evaluate at a later date.

3.11. Decision making tools

In recent years, several techniques have been developed to aid decision making process. These techniques relied on the combine effort of mathematicians, statisticians and computer specialists to help us forecast possible outcomes. One of the most significant sets of tools now available for decision makers is operational research. The terms “management science and” operational research” are used interchangeably, however management science seeks to describe, understand and predict the behaviour of complex system of human beings and equipment. Operational research is the quantitative aspects of forecasting i.e., the use of mathematical and scientific techniques to study the alternatives in a problem situation with a view to providing a quantitative basis for arriving at an optimum solution in terms of the global sought. The operation research techniques use model to explain the variables involved in a decision situation and do not provide solution, they only provide quantitative data to help manages make decision. Common operation research techniques include network analysis, risk analysis, statistical decision theory etc. The procedures of management science resemble those of the rational problem-solving approach, although some key differences may be noted. The basic steps include:

- Formulate the problem in the context of the total system.
- Construct a mathematical model of the system.
- Derive a solution
- Test the model
- Install a feedback mechanism.
- Implement the solution.

Types of models and management science techniques are as follows:

a). Simulation technique

This attempts to construct a simplified version of the reality being dealt with and to manipulate the model as through dealing with reality. The technique is useful where it is costly or impossible to work with reality directly. It is a way of operating a business “on paper” or in a computer. Simulation can also be used with mathematical models to predict probable outcomes of pricing and investment decisions.

b). Resource allocation techniques

These are techniques used to make optimum allocation of resources. Such techniques include linear programming and transportation model which is used to work out best way of allocating resources within certain constraints. Specifically, it can be used to determine the combination of inputs/outputs yields the minimum/maximum results. Within the known constraints. Linear programming can be applied by means of graphic, algebraic and simplex method. Transportation model seeks to determine best method of distribution that can be used by a firm operating in different locations the model may be a minimizing or maximizing problem.

c). Statistical control models

These are the different statistical and mathematical techniques used to control inventors and quality of incoming raw materials or finished goods manufactured by an organization.

d). Queuing or waiting line model

These are used to determine how long a waiting line would be most preferable. The models are appropriate whenever a service is required to meet irregular demands. It entails the use of mathematical techniques to balance the cost of waiting lines with the cost of maintaining and efficient waiting line. For example, if customers of a bank wait too long to receive the required services, they may take their businesses to other banks. But it might be too expensive to keep a sufficiently large number of operating counters to assign quick service to every bank customer, hence a balance must be maintained to determine the appropriate course of action.

e). Game theory

Refers to the techniques used for predicting the behaviour of rational individual’s institutions of conflict. The main elements of the game are the player, the rule of the game, the outcome, the values assigned to the various pay-off by the player, the variable controlled by the player and availability of information. Game theory is widely used in military, it is also useful in business organizations operating in highly competitive environment. Such businesses use the theory to predict the reaction of competitors to price increase, new product and promotional strategies. Game theory also assists managers in designing effective strategies for competing within a competitive environment.

f). Statistical decision theory

This concerned with the evaluation of potential outcomes of various decision alternatives. An important aspect of statistical decision theory is the assignment of probabilities to various occurrences. The methods used include pay-off matrices and decision tree.

4. Research design

The research design is mainly concerned with providing a plan study that permits accurate assessment of cause-and-effect relationship between independent and dependent variable. Research design is a plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variances. Among other advantages, research design serves to provide answers on how the research questions and problems are determined, as well as control extraneous variable(s) and the errors that would be expected from randomness or measurements. Asika (2006) defined research design as the process of structuring investigation aimed at identifying variables and their relationship to one another. The design adopted for the study is survey design. This design is a process of examining the effect of the use of accounting information as a tool for management decision making, case study of Tisco's Pharmaceutical Limited. In this study, without any attempt to manipulate or control them, accounting information is independent variable, while management decision making is dependent variables. The survey research technique aimed at assessing the positive and negative effects of the use of accounting information on the management decision making.

4.1. Population of the study

A population is made up of all conceivable elements, subjects or observation relating to a particular phenomenon of interest to the researcher (Asika, 2000). Population is also an aggregation of all elements that share common characteristic. Synonyms of population are universe, census, set etc. (Asika, 2000). However, this study was carried out among the employees of Tisco's Pharmaceutical Limited, which serves as a representative of the Manufacturing Industry, Tisco's Pharmaceutical Limited. A sample is defined as any part of a population. A sample therefore is a subset of the entire population of any kind. The procedure for drawing samples from a population is known as sampling. Such a sample is thus without bias, a prerequisite for making generalizations about the universe.

The secondary data were collected from the organization's annual report and other publications. The questionnaire was drafted from the research hypotheses and questions and was distributed to the upper-level managers and lower-level managers of Tisco's Pharmaceutical Limited. The questionnaire designed is in two parts; section A requested information, the researcher was able to know the calibre of people who have responded their qualifications and number of working experiences as well as the department in which the respondent works. The researcher, for easy responses and analysis of data, set out in section B of the questionnaire, questions that deals with the provision of data from which the hypothesis is to be tested. In the course of trying to provide answer to the researcher's question, data were generated from the questionnaire, analysed, and interpreted, in a tabular form, and conclusion derived with one hundred (100) sample size.

4.2. Data analysis

In order to analyse the data collected with the aid of the questionnaire; Analysis of variance (ANOVA) was used to analyse the data. The SPSS statistical package was used for analysis in order to minimize any intended error. This is because the statistical tools show the extent and relationship that exist between variables of study. The popular of the study comprise corporate organization owing their essential duty to humanity and because they are scattered all over the country. The study will adopt a sample frame of Tisco's Pharmaceutical Limited Owo.

5. Presentation of results

The study investigated use of accounting information as a tool for management decision making in Tisco's Pharmaceutical Limited. The research questions are measured using the homogenous scale (1=strongly disagree, to 5=strongly agree). Data analysis is undertaken at five percent level of significance. The data from the questionnaires are subjected to psychometric evaluation and validation so as to ascertain the quantitative and qualitative integrity of the questionnaires and the scale used in answering the research questions.

5.1. Inferential statistics: ANOVA

A one-way repeated measures ANOVA was conducted to compare the responses of all the respondents on the use of accounting information as a tool for management decision making, a case study of Tisco's Pharmaceutical Limited Owo.

Table-1: Multivariate tests

| Effect | Value | F | Hypothesis Df | Sig. | Partial Eta Squared |
|--------------------|-------|--------------------|---------------|-------|---------------------|
| Pillai's Trace | 0.627 | 8.294 ^a | 17.000 | 0.000 | 0.627 |
| Wilks' Lambda | 0.373 | 8.294 ^a | 17.000 | 0.000 | 0.627 |
| Hotelling's Trace | 1.679 | 8.294 ^a | 17.000 | 0.000 | 0.627 |
| Roy's Largest Root | 1.679 | 8.294 ^a | 17.000 | 0.000 | 0.627 |

Source: Computer SPSS version 25.0 Output, field survey 2021

5.2. Data interpretation

From the above table-1 the value for Wilks' Lambda is 0.373, with a probability value of 0.000 (which really means $p < 0.005$). The p value is less than 0.05; therefore, we can conclude that there is a statistically significant effect of the use of accounting information as a useful tool for management decision making. However, there is more to research than just obtaining statistical significance. What the probability values do not tell us is the degree to which the two variables are associated with one another. One way to assess the importance of this finding is to calculate the 'effect size' (also known as 'strength of association'). This is a set of statistics that indicates the relative magnitude of the differences between means, or the amount of the total variance in the dependent variable that is predictable from knowledge of the levels of the independent variable (Tabachnick & Fidell, 2007). From the table-1 above, the value obtained for "effect size" of this study as denoted by the Partial eta square is 0.627. Using the commonly used guidelines proposed by (Cohen, 2018) (0.01=small, 0.06=moderate, 0.14=large effect), this result suggests a very large effect size.

5.3. One way analysis of variance

5.3.1. Test of hypothesis

Table-2: Effect of accounting information on management decision making.

| | Sum of Squares | Df | Mean Square | F | Sig. |
|----------------|----------------|-----|-------------|-------|------|
| Between Groups | 5.623 | 4 | 1.406 | 2.867 | .027 |
| Within Groups | 47.070 | 96 | 0.490 | | |
| Total | 52.693 | 100 | | | |

Source: Computer SPSS version 25.0 output, field survey 2021.

The analysis showed that the use of accounting information significantly enhances management decision making in Tisco’s Pharmaceutical Limited Owo at ($P \leq 0.05$) confidence interval. This revealed that statistically the values of the responses were different at F-probability value of 0.027 hence the null hypothesis was rejected.

Table-3: Effect of accounting information on perception of employees.

| Description | Sum of Squares | Df | Mean Square | F | Sig. |
|----------------|----------------|-----|-------------|-------|----------|
| Between Groups | 12.026 | 2 | 6.013 | 9.063 | 0.000245 |
| Within Groups | 65.023 | 98 | 0.664 | | |
| Total | 77.050 | 100 | | | |

Source: Computer SPSS version 25.0 output, field survey 2021.

This hypothesis was intended to identify the strength of the effect of accounting information on Perception of employees in Dangote Nigeria. The ANOVA table-3 shows that the use of accounting information strongly affects employee’s perception in Dangote Nigeria at ($P \leq 0.05$) since the F-value is 0.000245. The null hypothesis was rejected.

Table-4: Effect of accounting information on company’s performance.

| Description | Sum of Squares | Df | Mean Square | F | Sig. |
|----------------|----------------|-----|-------------|--------|-----------|
| Between Groups | 13.996 | 3 | 4.665 | 11.927 | 0.0000010 |
| Within Groups | 37.944 | 97 | 0.391 | | |
| Total | 51.941 | 100 | | | |

Source: Computer SPSS version 25.0 output, field survey 2021.

The analysis showed that the use of accounting information significantly affects company’s performance in Tisco’s Pharmaceutical Limited Owo at ($P \leq 0.05$) confidence interval. This revealed that statistically the values of the responses were different at F-probability value of 0.027 hence the null hypothesis was rejected.

5.3.2. Reliability test

Table-5: Reliability statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|----------------------------------------------|------------|
| 0.844 | 0.848 | 18 |

One of the main issues concerns the scale’s internal consistency. This refers to the degree to which the items that make up the scale ‘hang together.’ One of the most commonly used indicators of internal consistency is Cronbach’s alpha coefficient. Ideally, the Cronbach alpha coefficient of a scale should be above 0.7 (DeVellis, 2003). For this analysis, Cronbach’s Alpha value shown in the Reliability Statistics table-5 is 0.844, suggesting a very good internal consistency reliability for the scale with this sample.

5.4. Result findings

The study revealed that the accounting information system has significant effect on management decision making at a statistically significant level of 0.05 also revealed that the manufacturing industry needs informed financial decisions that would enhance overall performance. Likewise, revealed that cost accounting information obviate the necessity of remembering various transactions in Tisco’s Pharmaceutical Limited. Furthermore, it was also

revealed that there is a relationship between the perception of employees and accounting information as a result of the fact that employees and their representative are interested in the information which enables them to assess the ability of the enterprise to provide remuneration, retirement benefits etc.

The study shows that accounting information depends on the perception of the quality of information by the user. Besides the result of the study disclosed that there is a significant relationship between time factor and accounting information as supported by the findings of Choe (1998) who posited that cost accounting information improve efficiency of operation. Findings of the study revealed that time factor is very important in the case of periodicity concept which defines a specific interval of time for which an entity's reports are prepared. Consequent on the above, the findings of the study shows that the timing can be a fiscal year, natural year, quarterly or monthly. The study also revealed through the result of the last hypotheses that accounting information has effects on company's performance through profitability, productivity and effectiveness.

5.5. Summary

The accounting information is aimed at an information system that produces reports to the interesting parties about the economic activities and the company's financial condition. The primary objective of accounting is to provide information that is useful for decision making purposes. It means that accounting is an information providing activity. The objective of accounting is simply to produce information used by managers to run company's operation. Accounting also gives information to the interesting parties about economic performance and company's condition. Accounting's role is to gather data about a business's activities, provide a means for the data's storage and processing, and then convert those data into useful information. An accounting system consists of the personnel, procedures, technology, and records used by an organization as: (1) to develop accounting information and (2) to communicate this information to decision makers. Accounting information is raw data concerning transactions that have been transformed into financial numbers that can be used by economic decision makers. However, accounting information is knowledge or news about a reckoning of financial matters.

The accounting information is central to different activities within and outside of an organization. Accounting information is essential to business operations. The types of accounting information that a company develops vary with such factors as the size of the organization, whether it is publicly owned, and the information needs of management. The types of accounting information required depend on the types of business decision made by management. It means that the role of accounting information is assist manager in making business decisions. Accounting information is classified in to three different types according to the benefits for the users: 1. Statutory Accounting Information is the information shall be prepared in accordance with existing regulations. 2. Budgetary Information is the accounting information presented in the form of budget that is useful for internal planning, assessment, and decision making. 3. Additional Accounting Information is other accounting information prepared by the company in order to increase the effectiveness of decision making. The study tried to address the problem with the improper use of accounting information by managers and employees which serves as a major shackle hindering the effectiveness of management decision making.

6. Conclusion

The study reveals that cost accounting information performs a crucial role on management decisions and organization performances, which has been shown to be major force in decision making. This is achieved by implementing the best fundamental concepts of accounting suitable for each company. The company used as case study made the researcher to understand that, for any company to be successful, it should endeavour to make use of cost accounting information because accounting itself is a language of business, and before venturing into any business, one must know the right method to achieve the stated goals and objectives. Also, studies have shown that successful utilization of accounting information requires a fit between three factors. First, a fit must be achieved with dominant view in the organization or perception of the situation. Second, the accounting system must fit when problems are normally solved, i.e., the technology of the organization. Third, the cost accounting information must fit with the culture of the organization i.e., the norms and value system that characterizes the organization. Finally, there is also a high level of awareness pertaining the role of accounting information system and managerial efficiency which is not limited to senior and management staffs alone but also cut across intermediate and junior staffs whose operations are also governed by the accounting information system. It is evident that the cost accounting information factors looms large among factors, which contribute to the overall corporate efficiency. The following recommendations are made:

- Companies should consult professional accountants when starting a business to learn about the various laws that affect them also to familiarize themselves with the variety of financial records that they will need to maintain.
- Clear-cut definition of long-term corporate objective, within which the cost accounting information system will operate should be provided.
- Decision making should be administered in flexible and variable rigid adherences to accounting information, which are clearly appropriated for current conditions. This will cause the whole accounting system to gain credibility and effectiveness.
- The company should always keep records of events in case of future purpose, this can be possible with the use of computer or by fully automating the company's operation.
- A professional accountant should be employed by the company in order to keep valuable information and keep accurate records of the company's account.
- Employees should be encouraged to develop themselves by becoming professionals in their chosen career, this will affect the company to grow positively.
- Effective communication and information flow is important for a good accounting system, and organizations should provide communication channels between top and lower levels of management regarding long-term and short-term objectives and the practical problems of implementing those objectives.
- Efforts should be made to measure the effects of currently employed accounting concept on management decision making.
- Regular meeting with staff should be organized to disseminate information about the company and also elicit feedback that help to improve the company.
- Co-ordination from the top management will ensure proper interpretation and implementation of the accounting information in decision making. Therefore, every personnel should know where he/she belongs in the entire organization and also see himself as part of the corporate whole. These individuals must take part in decision making process at least at the functional level.

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