APPRAISAL OF JUST-IN-TIME SYSTEM IN CONTEMPORARY MANAGEMENT ACCOUNTING ENVIRONMENT: ISSUES AND CHALLENGES

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Abstract

The problems encountered in the manufacturing companies and other industrial related settings have triggered a great challenge to the industrial operators and Management Accountants alike. This study examines the effect of Just-in-Time (JIT) on the contemporary accounting management. The objectives of the study were to explain the concept of JIT, ascertain the relationship between JIT and management accounting, determine if lack of JIT system leads to low productivity. Survey research design was adopted for this study. The data collected from population sample were analyzed using Regression analysis and Pearson Moment correlation coefficient via statistical software known as the SPSS software Vision 20.0. The null hypothesis was in the first hypothesis since the p-value (0.000) is less than the level of significance (0.05) and we concluded that there is significant relationship between the implementation of JIT system and management accounting. The presence of a negative slope (2.401) in the result implies a positive relationship between the implementation of JIT system and management accounting. In the second hypothesis, the null hypothesis was also rejected since the p-value (0.000) is less than the level of significance (0.05) and we concluded that lack of JIT system significantly affects contemporary management accounting. The presence of a positive slope (0.768) in the output implies a positive relationship between the lack of JIT and management accounting. It was, therefore, recommended that organizations in Nigeria should embrace JIT as Corporate and Management strategy to continuously improve production processes, knowledge, skills and attitude required by employees.

Keyword: JIT system, contemporary management accounting, environment, issues and challenges.

A. Background of the Study

The sophistication and advancement in the dynamic environment have triggered companies to find ways to have edges and withstand competition (Terry, 2003; Vikas, 2010; Jazayeri and Hopper, 1999). In the highly dynamic and rapidly changing modern era, the global competition among organizations has lead to higher expectations from the manufacturing organizations (Kaplan and Norton, 2004). The ease to unite nations of the world into one global community has propelled global competition and ready access to high technology, which forced companies to change the way they operate (Chenhall, 2003; Grande Estebanz and Colomin, 2010). Advancement and unprecedented investment in information technology (IT) have been touted as the advantage that provide the leverage for achieving a stronger more flexible production process to deal with constant change and improve organizational performance. (Dechow Granlund and Mouritsen, 2007) claim that IT automates many control functions which use friendly systems capable of adaption to low level or line management efficient and instantaneous communication, and increased competition. Many firms have been forced to seek comparative advantage to remain viable (Langfield-Smith, Thorne and Hilton 2000; Loft, 1995). Management accounting systems and the resulting information used to assist management in its decision making process is argued to provide a comparative advantage in a dynamic and competitive environment (Chenhall and Langfield-Smith, 1998). Designing and maintaining effective management accounting systems has become a fundamental task for corporations and their management accountants.

In the advanced and developing countries today, industries settings compete on price, variety and after sell services (MacDonald and Richardson, 2002). Many industries have been trying to adopt few new business tactics in order to have an edge and thrive in the new competitive market. Inventory systems in the traditional manner is based on long production runs, stock based inventories and uninterrupted production needed to be replaced by more flexible systems in order to meet new competitive and economic challenges. Amelia, et al
noted that line manufacturing was adopted as a viable strategy for waste elimination in the manufacturing and service industry [William, 2004; Amelia, et. El, 2013].

Today, JIT system is well known throughout the world including Nigeria. Only few multinational companies adopt the JIT system. The reason why the system is so popular today is as a result of its advantages realized by the manufacturing companies. For instance, the use of JIT production system leads to better production quality, less inventory, and shorter product lead times (Swenson, 1995). Kester, et. al, (2001); Baggaley and Maskell (2003) argued that just-in-time (JIT) inventory system emerged as a substitute for the traditional inventory systems which is focused on reduction in wastage by eliminating non-value added activities.

The main objective behind the JIT is waste elimination and improvement of the operative system of industry (Chanhall, 2003). Therefore, it is imperative to adopt dependable management accounting technique that provides only what is needed by customer, when it is needed and in the quantities ordered. The manufacturing of goods ought to be done in a way that minimizes the time taken to deliver the finished goods, the man-power required, the work-space required, and it is done with the highest quality, and usually at the lowest cost, which this study attempts to explore.

B. Statement of the Problem

The service and manufacturing industries in the world have passed through a tremendous change in the last three decades (Asli and Nursel, 2011). This development has triggered drastic changes in management accounting approach, techniques used in production and process, expectations of customer, attitudes of supplier, as well as competitive behavior (Alawode and Ojo, 2010; Ahuja et al., 2006). The global marketplace has witnessed an increased pressure from customers and competitors in manufacturing as well as service sector (Basu, 2001; George, 2002). So, it becomes imperative to adopt a dependable contemporary management accounting (JIT) system that will streamline your operation, ensure consistent quality and reduce on-site inventory, can quickly reveal areas that need improvement, improve efficiency and productivity, free up additional workspace and free up more working capital (Wenhhong, 2004).

Research Objectives

The main objective of this study is the appraisal of Just in Time System in the Contemporary Management Accounting Environment: Issues and Challenges. The specific objectives are to:
1. Determine whether the implementation of JIT system improves the operation of management accounting in Corporate organizations.
2. Examine the relationship between lack of JIT system and management accounting.

Research Questions

The following research questions were proffered for this study:
[1] Does implementation of JIT system improve the operation of management accounting?
[2] Does lack of JIT system have relationship with management accounting?

Research Hypotheses

Consequently, this study was guided by the following research hypotheses:
Ho1: Implementation of JIT system does not have significant effect on management accounting.
Ho2: Lack of JIT system does not significantly affect management accounting.

Just In Time and Contemporary Management Accounting

Vikas Kumar (2010) defined JIT as a Japanese management philosophy applied in manufacturing, which involves having the right item of the right quality and quantity at the right place and the time. Loft, (1995); Granlund and Lukka, (1998) argued that the benefits of contemporary management accounting techniques are evident, successful implementation remains an important and unresolved issue that constrains the benefits derived from new management accounting technologies. This occurs in part because of the contention that management accounting has not developed its own personal worth and remains merely a tool, rather than an essential component of the decision making process. Industrial challenges propel
globalized competition and fluctuating macro-economic activity may be the advantage to management accounting as industry seeks to find any advantage, no matter how insignificant (Langfield-Smith et al., 2000). Until the worth of management accounting can be categorically demonstrated, its value may not live up to its potential.

Yamashina (1995); Bhimani (2006) stressed that JIT system reduces machine set up time, ensure that each activity occurred exactly at the time required for its effective execution, and activities are always going exactly as planned. Thereby, reducing the cost of stocking, minimizing idle time for production resources and create a demand driven business. White, (1993); Wong, et.al (2006) argue that the main purpose of JIT system include elimination of non value added activities, zero inventory, zero defect and zero damage.

Taa (2010) noted that JIT system controls work flow by bringing in materials and sending out goods on demand—ideally, just enough to provide what consumers want and no more. The contemporary management accounting techniques such as Just in Time (JIT), Activity Based Costing (ABC), the Balanced Scorecard (BSC), Value Chain Analysis (VCA), Total Quality Management (TQM) are practices that have gained widespread attention in corporate organizations, particularly since the latter decades of the 20th century (Argyris and Kaplan, 1994; Bromwich, 2000; Bromwich and Bhimani, 1994; Horngren, 1995; Kaplan, 1994; Kaplan and Norton, 2004; Kapland, 1998; Scapens, Turley and Burns, 1996).

Daugherty and Sprencer (1990) said that the just in time (JIT) manufacturing system, involves having the right item of the right quality and quantity at the right place and the right time. Just-in-Time (JIT) system has been used as a veritable tool for combating increasing competition. In their contribution to the concept of JIT system, Sing and Grag (2011); Hongren et al (2005) explained that JIT is a demand- pull system that makes every component in a production line ready only when needed by the next step in the production line so that there is no deviation from the standard and output matching exactly with customers demand.

Origin of Just-In-Time

Originally, Just-in-time (JIT) system is a production model in which items are created to meet demand, not created in surplus or in advance of need; with the main purpose of avoiding the waste associated with overproduction, waiting and excess inventory (Daugherty and Sprener, 1990). JIT is the brain child of the former Vice-President of Toyota car company, Taiichi Ohno in 1940. (Keller and Kozazi, 1993; Ahuja and Khamba, 2008; Ohno, 1978). Ohno, 1982; Singh and Garg, 2011b) noted that JIT concept was initiated in Japan making the Toyota as its master piece. JIT is a system whereby the company starts manufacturing /purchasing once the customer orders the good, effectively making zero inventories. In other words, in a JIT environment, materials are purchased and produced as and when it is needed. JIT is a Japanese management philosophy which has been applied in practice since the early 1970s in many Japanese manufacturing organizations Aghazadeh (2003).

It was first developed and perfected within the Toyota manufacturing plants by Taiichi Ohno as a means of meeting consumer demands with minimum delays (Ahmed, Mehra and Pitcher, 2002; Ford, 1923); Ohno, (1978). The system was widely copied, both inside and outside Japan. In 1980’s, other companies started to integrate the JIT ideas into their own. Companies like General Electric and Kawasaki become successful using this process. Toyota was able to meet the increasing challenges of survival through an approach that focused on people, plants and systems. Toyota realized that JIT would only be successful if every individual within the organization was involved and committed to it, if the plant and processes were arranged for maximum output and efficiency, and if quality and production programs were scheduled to meet exact demands. Taiichi Ohno developed a production philosophy to meet the needs of the Japanese automobile market following World War II. There was some initial skepticism in the United States, until companies began to demonstrate that the system could be transplanted successfully into other cultures. His ideas of overproduction, idle workers, transportation costs, product defects, processing timelines and inventory came to be called “lean manufacturing” when adopted in the United States.

Singh and Garg (2011) stressed that JIT system is a strategic management system employed by companies to reduce costs, manage time and increase efficiency in the industrial operation. In this method, the producers are required to forecast demand accurately. Singh and
Garg (2011) remarked that JIT system is an inventory manufacturing strategy that is used to improve profit by reducing the amount of inventory and its associated costs like delivery and carrying costs (Vikas, 2010; Mitsutoshi, 2008; Monden, 1993). JIT involves management of materials or products and ensure that products are produced or acquired only as demand requires (Golhar and Stamm, 1991). It denotes a manufacturing system in which materials or components are delivered immediately before they are required in order to minimize inventory costs. JIT system approach for managing industrial settings become well-known in the early 21st century as suppliers and retailers collaborate to try to control inventory costs while still meeting customer requirements (Reetu, 2011; Kiok, 2011).

**Issues and Challenges of JIT**

The dynamic change in management accounting has radically transformed the role of management accountants (Bhadury, 2000). Conventionally, management accountants were playing the roles of store keeping, attention directing and problem solving, etc. Kiok, (2011), Johnson and Kaplan in (1987), Chase and Aquilano, (1992) stressed that with the changing business paradigms and intensifying global competition, theories propounded in the past face a threat of becoming irrelevant for the contemporary business scenario as the models and approaches imparted to scholars at business schools and practical applicability does not represent a concrete and explicit connection; so, corporate organizations resorted to contemporary management accounting in order to thrive in their business operations.

It is intended to avoid situations in which inventory exceeds demand and places increased burden on your business to manage the extra inventory (Kester et al, 2001: Carr, Lawler and Shank, (2002). Just-in-Time systems can be successfully implemented in large and small organizations and those that produce products or services. Colin, (2001): Fiedler, Galletly and Bicheno, 1993; Don and Maryanne (2006) noted that with adjustments, the principles of Just-in-Time inventory management and manufacturing can work in any business with ease. Companies use a Just-in-Time manufacturing and inventory management system to compete and improve the efficiency of the company and reduce costs. The modern management accounting has expanded its horizon to incorporate advanced accounting techniques such as Just-in-Time (JIT), Activity Based Costing (ABC), Value Chain Analysis (VCA), Total Quality Management (TQM), Balanced Score Card (BSC), etc; which are widely lauded by academia but the proposed relevance to business has not been realised (Baird et al, 2004: Armstrong, 2002: Burns and Vaivio, 2001; Chenhall and Langfield-Smith, 1998; Innes et al., 2000).

The contemporary management accounting is the function involving gathering and disseminating of integral accounting and statistical data to decision makers. Management accountants facilitate the management with relevant information for making suitable policies, planning and control operations (Evans et 1, 1990: Horngren, 1995). Johnson and Kaplan (1987) argued that the conservative theories of management accounting has become obsolete and have paved way for activity-based costing, economic value adding, balanced scorecard, beyond budgeting, throughput costing, target costing etc. Johnson and Kaplan (1987) are of the view that it is imperative for the modern organizations to incorporate radical alterations in the assessment and management of costs. With escalating technological advancement, dynamic international and national competition, colossal information-processing capacities, it is crucial that managers access the relevant and accurate information as and when required.

The role of management accountant has transformed to meet the information requirements of the dynamic environment as well as the uncertain business environment (Johansson, 1988: Kaneko and Nojiri 2007). Management accountants have now adorned the role of business partners and information analysts enabling them to upgrade from centralized accounting function to partnering with managers in business units (Alcarazi, 2014). Cooper and Dart (2009), Bhadury, (2000) have advocated a comprehensive role of management accountants which is contemporary and business ECCentric in nature like being an internal business consultant, strategic management consultant or a hybrid accountant. Yazdifar and Tsamenyi (2005) highlighted the primary factors responsible for bringing the change in management accounting practices to include information and technology and organizational restructuring.

**C. Theoretical Framework**
Just-In-time (JIT) Production Theory

This theory describes Just-in-time (JIT) production as a system in which each component on a production line is produced immediately as needed by the next step in production line. Horngren et al (2006) asserted that demand triggers each step of the production process, starting with customer demand for a finished product at one end of the process and working all the way back to the demand for direct materials at the other end of the process. The theory shows that demand pulls a product through the production line. From the above, opinion can be concluded that just-in-time system of production produces the type of goods required, amount that is required and at the time needed by the customer. Each activity occurred exactly at the time required for effective execution and activities are always going exactly as planned, thereby reducing the cost of inventories, minimizing idle time for production resources and create a demand driven achievement.

Adeniyi (2009), mentioned successful requirements for operating JIT production to include:

i. The need for factory layout redesigned to reduce movements and flow of production.

ii. Involvement of employees in the management decision of JIT production system.

iii. Adoption of total quality management (TQM) which emphasis on doing it right the First Time “thus avoiding defects and re-working.

Atkinson et al (2001) argues on establishing long-lasting, reliable relationships with few suppliers. He asserted that if the company wants to establish JIT production system, the supplier must be able to provide high quality raw materials, because in Just-in-time production setting, there is no allowance for the work in process inventory. If suppliers offer defective raw materials, there will be problems in the production process due to poor quality raw materials. Therefore, successful JIT production emphasizes assembling a few cooperative and reliable suppliers.

Total Quality Management (TQM) Theory

The concept of quality management triggers the managers to motivate the workers to think quality first and production rate secondly and also workers have authority to halt the production line or cell, if quality problems are uncovered, Vikas (2010).

This theory holds that total quality management deals on delivering products or services of consistent high quality in a timely fashion.

Many companies considered quality to be an additional cost of manufacturing and saved money. Adeniyi (2009) argues that absence of total quality management emphasizes on production volume over quality resulting in high levels of stocks at each production stage in order to protect against shortages arising from producing an inferior quality at previous stages and excessive expenditure on inspection, rework, scrap and warrant repairs. In considering total quality management, many companies realized that it was cheaper to produce items correctly rather than wasting resources by making substandard items that would be detected, reworked scrapped and returned by the customers. Cohi (2008) argues that firms operating JIT system must develop total quality management in order to ensure smooth production and prevention of defect materials.

Cohi in his theory emphasizes on effective allocation of resources and sited that total quality management drastically reduces cost and ensures neat operation by eliminating duplication of work-in process. The theory revealed that TQM is mainly to design and build quality in rather than initiating symptoms of poor quality. According to Inman and Mhara (1991), the theory pointed out that total quality management (TQM) is extremely an important way of JIT implementation, the principle helps each and every worker in an organization who is involved throughout the process particularly related to the improvement of products and service in terms of quality but depends upon the top management commitment. TQM has spread from the production process to the whole company and suppliers - not only manufacturing.

Value Chain Analysis (VCA) Theory

This is the theory that explains the value chain of business functions in which usefulness is added to the products or services of an organization (Horngren et al 2002). Horngren et al
(2002) identifies a set of value chain business functions which added more to organizational products and services, the functions are as follows:

i. **Research and development (R & D)** - the generation of, and experimentation with, ideas related to new products, services, or processes.

ii. **Design of products, services, or processes** - the detailed planning and engineering of products, Services, processes.

iii. **Production** - the coordination and assembly of resources to produce a product or deliver a service.

iv. **Marketing** - the manner by which individuals or groups
   a) learn about value - the attributes of products or services,
   b) Purchase those products or services.

v. **Distribution** - the mechanism by which products or services are delivered to the customers.

vi. **Customers service** - the support activities provided to customers.

**Table 1-1 The Value Chain of Business Functions**

![Diagram of the Value Chain of Business Functions](image)

**Source Horngren et al (2002)**

The framework is a strategy analytical and decision support tool that highlights the bases where businesses can create value for their customers. It is of the senior managers to decide on its overall strategy how resources are to be obtained, used and methods of rewards are to be given in order to achieve their primary objectives of profit maximization. Porter (1985) pointed that most companies optimize value by managing the flow of production and scale from inbound logistics to operations outbound logistics, marketing and sales and services.

**Empirical Studies**

Many research works carried out in the area of JIT stressed on basis for its implementation and importance. Muhammad (2013) conducted a study on the key strategies for successful implementation of just-in-time (JIT) Management Philosophy on cement industry of Pakistan. The study applied survey research design. Four hundred operations management of cement industry were used to carry out the study in order to find out the advantages and benefits that cement industry have experienced by the application of Just in time (JIT) system of production.

The study shows that implementation of the quality, product design inventory management supply chain and production plans drawn from the just-in-time system increased the performance of the cement industry in Pakistan and JIT reduces inventory cost, eliminates wastage and unnecessary productions. The study recommended that all manufacturing companies and industries should adopt the JIT system. The reason why the system is so popular today is as a result of its advantages realized by the manufacturing companies. Implementation of JIT system increases performance by reducing inventories, eliminate wastage from the processes and reduced unnecessary production which is a serious challenge for manufacturers.
of products in different industries to maintain the continuous flow processes. The article commended the need for top management commitment in order to achieve the necessary changes needed in the cement industry.

Hongren et al (1993) carried out a study on production measures and control in JIT production. The study stressed that to manage and reduce inventories, the management accountant involved must design performance measures to evaluate and control just -in-time production.

This study revealed five essential information which the management accountant should use in performance measures and control in JIT production. They are as follows:

i. The use of personal observation by production line worker and leaders.

ii. Introduction of turn-over rations on financial performance measures based on standard materials cost and conversion costs,

iii. Identification of non-financial performance measures of time, inventory and quality, such as manufacturing lead time, units produced per hour, day’s inventory on hand also involved.

iv Application of:
   a. Total set up time for machine
   b. Total Manufacturing time

v. Application of:
   Number of Units requiring rework or crap
   Total number of Units started and completed

The study recommended that management accountants should design performance measures to evaluate and control JIT production by the use of financial performance measures such as inventory turnover ratios and variances based on standard material costs and conversion costs and nonfinancial performance measure of time, inventory, and quality measures.

D. Methodology

The methodology adopted in conducting this research, include survey research design, collection of data from primary and secondary sources, and application of techniques and methods of analyzing data. The target population for this study comprised the employees of the Cocoa Cola Nigeria Plc, Owerri, Imo State, Cadbury Nigeria Plc., Ikeja, Lagos, Pepsi Cola Nigeria Plc, Aba, Abia State, and Innoson Motors Plc, Nnewi, Anambra State, Nigeria; put at 2000. The sample was made up of one hundred employees randomly selected from the said population for this study. The selection of the employees was carried out with the help of the Human Resource Department of the respective companies. The population consists of operations and administrative staff. The sampling process gave every member of the population equal chance or probability of being included in the sample.

The Semantic Differential Technique was adopted for this research. Osgood, Suci and Tannenbaum (1957) developed the technique. It consists of pairs of antonyms-bipolar adjectives or phrase with cues spaced in between (Okpara, 1998). By using a number of bipolar adjectives and respondents requested to rate the objects, subjects and events against the bipolar adjectives, a pattern of one’s attitude emerges. The rating has a degree ranging from positive to negative. The rating model containing seven points can be shown as follows:

+5    strongly agree
+4    Agree
+3    Slightly agree
0     Neutral
-3    Slightly disagree
-4    Disagree
-5    Strongly disagree

The respondent or rater is expected to rate each behavior either from the positive standpoint or negative standpoint. At the extreme left, +5 indicates a strong agreement of effect, 0 is the point of neutrality while - 5 at the extreme right indicates strong disagreement. The sum of all the rating which might either fall in the negative or positive side will indicate how effective JIT system on contemporary management accounting is.
Discussion of Findings

Based on the research questions and corresponding hypotheses, the following findings emerged from the Study.

- The findings of the research revealed that JIT system has aided the successful implementation of contemporary management accounting in the industrial sector.
- In the research hypothesis I, the findings revealed that implementation of JIT system has a significant effect on the operation of management accounting. The presence of a negative slope (2.401) in the output implies a positive relationship between the implementation of JIT and management accounting, the study shows that the implementation of JIT reduced scrap, network and lead to a decrease with regards to time in the production system.
- There was a Statistical conclusion that lack of JIT system significantly affects management accounting by the presence of a positive slope (0.768) in the output, implying a positive relationship between the lack of JIT and management accounting.

E. Conclusion

This research found that there is significant relationship between the implementation of JIT and management accounting; and that lack of JIT system significantly affects management accounting. The contemporary management accounting practices are very important for efficient and effective operation of the industrial sector. Financial sector which is the sub sector of service sector can get competitive edge by utilizing management accounting practices. So, managers should adopt management accounting practices at different stages and use them for the benefits of organization, especially advanced practices like target activity based budgeting and activity based costing. The study pointed out that the use of JIT system leads to drastic reduction of waste, setup time, costs, ensures smooth operation of contemporary management accounting and quick service delivery in the industrial settings. Nevertheless, numerous industrial operations are confronted with obstacles and challenges, which deterred industrial operations. This is in conformity with the negative sign in the calculated value of the correlation coefficient.

Recommendations

In consideration the numerous issues and challenges encountered during implementation of the JIT system, therefore, it is recommended that:

1) Industrial organizations in Nigeria should embrace JIT as Corporate and Management strategy to continuously improve production processes, knowledge, skills and attitude required by employees.
2) Adequate monitoring system should be provided to ensure effective and efficient industrial operations.
3) Machinery should be put in place to educate and create awareness of JIT system among industrial operators.
4) The government is implored to provide facilities in order to boost adequate implementation of JIT system.

References


manufacturing: An overview", vol.38, no.2.


Appendix

This result from the analysis of the opinion of thirty experts on item by item basis vis-a-vis the relevant hypotheses. Test re-test were administered and re-administered at one week interval. A reliability coefficient of 0.814 was established using the Cronbach’s Alpha statistical tool. The SPSS output is shown below;

Table 2. Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach Alpha</th>
<th>Crunbach’s Alpha Based on Standardized Items</th>
<th>No of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.814</td>
<td>.792</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 3. Item Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>JIT</td>
<td>3.4000</td>
<td>2.69866</td>
<td>30</td>
</tr>
<tr>
<td>Management</td>
<td>4.0667</td>
<td>2.11617</td>
<td>30</td>
</tr>
<tr>
<td>Accounting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Summary Item Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
<th>Maximum / Minimum</th>
<th>Variance</th>
<th>N of Items</th>
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</thead>
<tbody>
<tr>
<td>Item Means</td>
<td>3.733</td>
<td>3.400</td>
<td>4.067</td>
<td>.667</td>
<td>1.196</td>
<td>.222</td>
<td>2</td>
</tr>
<tr>
<td>Item Variances</td>
<td>5.880</td>
<td>4.478</td>
<td>7.283</td>
<td>2.805</td>
<td>1.626</td>
<td>3.933</td>
<td>2</td>
</tr>
</tbody>
</table>

Data Analysis and Interpretation

The information obtained from the field are presented and analyzed for decision making and
recorded as: Does implementation of JIT system improve the operation of management accounting?

**Research Hypothesis 1**

H01: Implementation of JIT system does not have significant effect on management accounting.

### Table 5. Company and Respondents

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>UNIT</th>
<th>RESPONDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCOA COLA</td>
<td>PRODUCTION</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MARKETING</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>INVENTORY</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>STORES</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>ACCOUNTS</td>
<td>5</td>
</tr>
<tr>
<td>CADBURY</td>
<td>PRODUCTION</td>
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</tr>
<tr>
<td></td>
<td>MARKETING</td>
<td>5</td>
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<tr>
<td></td>
<td>INVENTORY</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>STORES</td>
<td>5</td>
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<tr>
<td></td>
<td>ACCOUNTS</td>
<td>5</td>
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<tr>
<td>PEPSI COLA</td>
<td>PRODUCTION</td>
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<tr>
<td></td>
<td>MARKETING</td>
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<tr>
<td></td>
<td>INVENTORY</td>
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<td></td>
<td>STORES</td>
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<td></td>
<td>ACCOUNTS</td>
<td>5</td>
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<tr>
<td>INNOSON</td>
<td>PRODUCTION</td>
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<tr>
<td></td>
<td>MARKETING</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>STORES</td>
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<tr>
<td></td>
<td>ACCOUNTS</td>
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</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>

The questionnaire constructed using Semantic Differential Technique was compiled for the hundred respondents and analyzed using regression analysis and Pearson correlation coefficient via software known as SPSS. Using the SPSS software version 20.0, the output is displayed below;

**Regression**

### Table 6. Descriptive Statistics

<table>
<thead>
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<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>JIT Management Accounting</td>
<td>3.8200</td>
<td>1.58834</td>
<td>100</td>
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<td>Management Accounting</td>
<td>3.1550</td>
<td>2.12125</td>
<td>100</td>
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</tbody>
</table>
Table 7. Model Summary

<table>
<thead>
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<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.600</td>
<td>.361</td>
<td>.354</td>
<td>1.27658</td>
<td></td>
</tr>
</tbody>
</table>

- a. Predictors: (Constant), Management Accounting

Table 8. Correlations

<table>
<thead>
<tr>
<th></th>
<th>JIT</th>
<th>Management Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>.600</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 9. Variables Entered/Removed

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Management Accounting</td>
<td></td>
<td>Enter</td>
</tr>
</tbody>
</table>

- a. All requested variables entered,
- b. Dependent Variable: JIT

Table 10. ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>90.053</td>
<td>1</td>
<td>55.259</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>159.707</td>
<td>98</td>
<td>1.630</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>249.760</td>
<td>99</td>
<td></td>
</tr>
</tbody>
</table>

- a. Predictors: (Constant), Management Accounting

Table 11. Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td></td>
<td></td>
<td>2.401</td>
<td>.230</td>
<td>10.460</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Management Accounting</td>
<td>.450</td>
<td>.060</td>
<td>.600</td>
<td>7.434</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

15
a. Dependent Variable: JIT

To check for the validity and reliability of the relationship of the implementation of JIT and management accounting, Regression analysis, together with Pearson correlation coefficient is used to test for the significance, so:

The decision rule: The null hypothesis should be rejected, if \( p \)-value is less than the level of significance (0.05), otherwise it should be accepted. At 5% level of significance, we reject the null hypothesis since the \( p \)-value (0.000) is less than the level of significance (0.05) and conclude that there is significant relationship between the implementation of JIT and management accounting. The presence of a negative slope (2.401) in the output implies a positive relationship between the implementation of JIT and management accounting.

**Research Hypothesis Two**

Ho2: Lack of JIT system does not significantly affect management accounting

### Regression

**Table 12. Descriptive Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of JIT</td>
<td>4.0000</td>
<td>1.38899</td>
<td>100</td>
</tr>
<tr>
<td>Management Accounting</td>
<td>3.9350</td>
<td>1.60004</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 13. Correlations**

<table>
<thead>
<tr>
<th></th>
<th>Lack of JIT</th>
<th>Management Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>.885</td>
</tr>
<tr>
<td>Management Accounting</td>
<td>.885</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 14. Variables Entered/Removed**

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Management Accounting</td>
<td></td>
<td>Enter</td>
</tr>
</tbody>
</table>

- a. All requested variables entered.
- b. Dependent Variable: Lack of JIT

**Table 15. Model Summary**

<table>
<thead>
<tr>
<th>Mo Del</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.885*</td>
<td>.783</td>
<td>.781</td>
<td>.64962</td>
<td>.783</td>
<td>354.603</td>
<td>1</td>
<td>98</td>
<td>.000</td>
</tr>
</tbody>
</table>
a. Predictors: (Constant), Management Accounting

Table 16. ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>149.644</td>
<td>1</td>
<td>149.644</td>
<td>354.603</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>41.356</td>
<td>98</td>
<td>.422</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>191.000</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Management Accounting
b. Dependent Variable: Lack of JIT

Table 17. Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.976</td>
<td>.173</td>
<td></td>
<td>5.637</td>
</tr>
<tr>
<td>Management Accounting</td>
<td>.768</td>
<td>.041</td>
<td>.885</td>
<td>18.831</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Lack of JIT

The decision rule: The null hypothesis should be rejected, if p-value is less than the level of significance (0.05), otherwise it should be accepted. At 0.05 level of significance, we reject the null hypothesis since the p-value (0.000) is less than the level of significance (0.05) and conclude that lack of JIT system significantly affects management accounting. The presence of a positive slope (0.768) in the output implies a positive relationship between the lack of JIT and management accounting.