



## COST MANAGEMENT TECHNIQUES AND ORGANIZATIONAL PERFORMANCE IN OIL AND GAS INDUSTRY IN NIGERIA

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### KEYWORDS

Cost Management Techniques, Performance of Oil and Gas Companies

### ABSTRACT

This article examined the relationship between Cost Management Techniques and Organizational Performance in Oil and Gas Industry in Nigeria. Relevant data was collected and analyzed using regression method and e-view Statistical Package. The result of the first hypothesis tested reveals that cost management has a significant positive influence on Net Profit ( $p < 0.05$ ), meaning that a unit increase in CMI increases Net Profit by 0.752 units. Also, the second hypothesis showed that Cost Management has a significant positive influence on the Financial Management Systems, meaning that ( $p < 0.05$ ), a unit increase in CMI, increase FMS by 0.428 unit. The third hypothesis revealed that there is significant impacts between cost management and drilling cost ( $p < 0.05$ ), that is, better cost management reduces drilling cost shown by (negative coefficient). Based on the findings, this study concludes that efficient and effective cost management influences, net profit, financial management systems and cost reduction in oil drilling method, especially horizontal directional drilling (HDD) for midsize to large-diameter bores. Because of the enormous advantage of HDD in cost reduction and solution it provides in hostile communities, HDD has become the industry's preferred trenchless method for installing buried utilities over long distances drilling. In view of the findings, and conclusion, the study recommends that Oil and gas companies should sharpen their cost management strategies in order to achieve more net profit, better financial management systems and improved reduction in drilling cost on HDD and minimize conflict in hostile communities, among other advantages.

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### Introduction

In order to achieve effective financial Management and sustainability, cost management, which entails planning, regulating, and monitoring costs is an essential component of business operations. Effective cost management techniques have been found to have a major impact on financial performance; in fact, several studies have found a positive correlation between cost management tactics and financial results. Major aspects of cost management also deal with cost control, which is implementing

strategies to reduce unnecessary expenses and optimize resource allocation; cost reduction, which identifies areas to minimize costs without compromising product or service quality. Financial Sustainability, which ensures cost While effective cost management optimizes expenses to boost long-term value, sustainable profitability, achieve cost reduction, cost savings and cost analysis, efficient bakery operations are aimed at achieving high customer satisfaction. The focus of bakery operations are consistent product quality through efficient production, inventory management and rendering of exceptional services customers. The specific key objectives of bakery operations include production of maximum output to meet desired demand, establishing a strong local market presence, and ensuring a hygienic environment in order to attract target audience. Cost management is the process of planning and controlling the costs associated with operating any business such as bakery business. It includes the act of collecting, analyzing and reporting cost information to more effectively budget, forecast, monitor and compare costs and their effects on operations of bakery businesses in Rivers of Nigeria. Cost management practices can be applied to specific projects or to the company's overall operating model. Cost management typically focuses on generating savings, reducing costs, controlling costs and maximizing profits in the longer term.

Mamidu, and Akinola (2019) posits that Cost management is at the core of enterprise performance management, as it represents the bottom line for every company. They however, state that there are multiple reasons why cost management is of particular relevance, especially today. In most organizations, the indirect costs as part of overall costs are growing and customer self-service business models rule, so that organizations even bear the risk of losing grip on their direct cost in their business processes. They further stated that economic pressures complete the picture. In short, to preserve margins and ensure profitability, organizations need to keep their eye on the ball and monitor their business processes continuously through cost management. Most organizations go through a maturity lifecycle for profitability. This profitability maturity lifecycle is largely understood as organizations go through an evolution without realizing they are moving from one stage to another. Cost Management drives business performance by discovering drivers of cost and profitability - empowering users with visibility and flexibility, and improving resource position.

According to James and Luke (2014), the goals of goal maximization and cost minimization cannot be eliminated from the organization's overall operations in the pursuit of financial and non-financial goals. Maximizing profits is the achievement of a company's financial gain in a single fiscal year. Cost minimization is the enemy of profit maximization since, in the quest for profit, expenses will always arise and need to be controlled and balanced to avoid achieving a loss, which would put an organization's long-term viability at risk. This suggests that cost control is crucial for an organization.

Hilton, Maher and Selto (2008) posit as follows: cost management and cost-management analysis as techniques for business decision, have emerged as very

important to organizations because it is more than measuring and reporting product service costs. It is a philosophy and attitude, and a set of techniques to create more value at lower cost. This is based on the following facts that:

First, it is a **philosophy**, because cost management is philosophy of improvement since it promotes the idea of continually finding ways to help organizations make the right decisions to create more customer value at lower cost. Efficient companies, such as pursuit.Com. which provides products and services that customers want by using the minimum of organization's scarce while continuously seeking to improve value and costs.

Secondly, it is an **attitude** because cost management represents a proactive attitude that all of the costs of products or services result from management decisions. In other words, cost do not just happen. Therefore, analysts do not simply document decisions and record costs. Instead, they are active partners in making management decisions to develop and improve products and services and reduce costs.

Thirdly, it is a **Technique** because cost management is a set of reliable techniques that can be used individually to support a specific decision or together to support the organization's overall management. A set of cost management techniques that function together to support the organization's goals and activities is called a cost-management system.

Cost management therefore supports management's strategic decision making by identifying on organization's comparative strengths and weakness and better ways to use, improve, or eliminate their weaknesses and prevent off the course tendencies. Essentially, standard costing uses predetermined rate for both direct material, direct labour, and manufacturing overheads to assign manufacturing costs to products.

### **Cost Management Models**

The primary goal of cost management according to Oladipupo (2023), is to realize cost efficiency, which is the realization of an ideal relationship between operational costs and results (Ivana et al., 2014). The inability of Traditional Cost Management Models, such as Job Order Costing, Process Costing, Standard Costing and Variance Analysis, Traditional Budgeting and Cost Volume Profit Analysis, to successfully address the challenges of cost control and cost reduction in Modern Manufacturing Companies, resulted in the development of Modern Cost Management Models Kal plan as cited by (Ivana et al., 2014). The following Modern Cost Management Models support the concept of Cost Management and Financial Sustainability in manufacturing companies discussed in this study.

While True Cost Accounting focus on assigning all costs (direct, indirect, environmental, social) to products/services in order to reflect the full impact of production/consumption, throughput costing focus on prioritizing throughput (sales - variable costs of materials) to maximize profit and optimize production based on constraints. In essence, it means Sales revenue minus direct material costs. True Cost Accounting looks at broader impacts, while Throughput Costing focuses on profit maximization.

In recent years, according to Hilton, Maher and Selto (2008) posit as follows: some managers have been advocating throughput costing as an alternative to either absorption or variable costing and better cost management. Throughput costing assigns only the unit-leveling, argue that adding any other indirect, past, or committed costs of product cost creates improper incentives to drive down the average cost per unit by making more products than can be used or sold. Since these other costs are committed, making more units with the same level of resources spending arithmetically reduces the average cost per unit and makes the product process appear to be more efficient. Throughput costing avoids that incentive because the cost per unit depends only on unit-level spending (e.g., costs of materials), not how many units are made. Using throughput costing means of cost-management analyst must distinguish between (1) spending for resources caused by the decision to produce different levels of products and services and (2) the use of resources that the organization has committed to supply regardless of the level of products and services provided.

Hilton, Maher and Selto (2008) further state that suppose that college-Pak's cost-management team decided that only direct materials qualified as a throughput cost. This implies that college-Pak's management has committed, at least for the time being, to provide all other resources (i.e., direct labor and all manufacturing-support costs included in manufacturing overhead) regardless of how many backpacks college-Pak produces. Throughput costing considers all other indirect, dictionary, committed, or past spending for resources to be operating costs of the period (i.e., period cost). Under throughput costing, then, college-Pak's income statements for the three years in our illustration would appear as in exhibit 2-18. Notice that all costs other than the throughput cost (**only direct materials in this illustration**) are considered to operating costs of the period.

There are significant differences in the "bottom lines" for each of the three ways of each year when the reported income under throughput costing (exhibit 2-18) is compared to the reported income under either variable or absorption costing (2-16). Because committed resource costs (direct labor and manufacturing overhead in our example) are expenses of the period regardless of the number of units produced, proponents of throughput costing contend that this method alone eliminates the incentive to produce excess inventory simply to reduce unit costs.

### **Performance of Oil and Gas Industry in Nigeria**

Organizational performance refers to how effectively an organization has utilised all the resources at its disposal: materials, human and others to achieves its goals regarding the following:

**Production Efficiency:** Using Key Performance Indicators (KPIs) to compare actual production to planned production; maximizing output through the use of resources. output for each unit of input (labour, capital, etc.), The oil and gas sector has employed a range of metrics to assess performance over time, including:

- **Effectiveness:** Achieving intended outcomes, meeting objectives

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- **Operating Expenses:** Price per BOE (barrel of oil equivalent);

**Safety metrics include Total Recordable Injury Rate (TRIR) and**

**Lost Time Injury Frequency (LTIF).**

**Finding and development expenses in the most economical manner,**

**Reserve replacement ratio, and upstream performance;**

- **Downstream Performance:** Product yield and refinery utilization rates

**Additional Measures:** Production volumes: Variations in the following are referred to as oil reserve expansion and gas output:

**Proven Reserves:** Modifications to the anticipated amount of recoverable reserves

**Production Levels:** Changes in the amount of gas or oil produced  
**Success in Exploration:** New Findings, Reserve Additions

**Field Development:** Expanded fields and better recovery methods

**Upstream key performance indicators**

**Upstream key performance indicators** in the oil and gas industry are influenced by several factors and key determinants- such as exploration success: that is discovery of new reserves, success rate of wells and specifically addresses the following:

- **Production Efficiency:** Operational uptime, production costs reduction.
- **Reserve Base:** Proven reserves, reserve replacement ratio
- **Geological Factors:** Reservoir quality, complexity
- **Technology Adoption:** Use of advanced drilling, completion techniques
- **Efficient Operations:** Cost control, operational excellence
- **Strategic Portfolio:** Focus on high-return assets, diversification
- **Technology Adoption:** Digitalization, advanced drilling techniques
- **Strong Leadership:** Effective management, strategic decision-making
- **Adaptability:** Responding to market changes, energy transition trends
- **Regulatory Environment:** Access to resources, fiscal terms and regularly responding to regulatory controls.

**Down-stream key performance indicators (KPI)**

Also, **downstream key performance indicators (KPI)** in the oil and gas industry focuses on the following:

**Effective Refinery Utilization Rate:** Actual vs. planned processing capacity

--that is, processing crude oil into products like gasoline, diesel

- **Profitability of Operations**

- **Marketing:** Selling products to consumers, managing retail networks

- **Distribution:** Transporting products to customers safely;

- **Petrochemicals:** Producing chemicals, plastics from oil/gas feedstocks

- **Product Yield:** High-value product output (e.g., gasoline, diesel)

- **Marketing Margin:** Profitability of sales to customers
- **Safety Metrics:** Incident rates, process safety performance
- **Customer Satisfaction:** Service quality, and reliability.

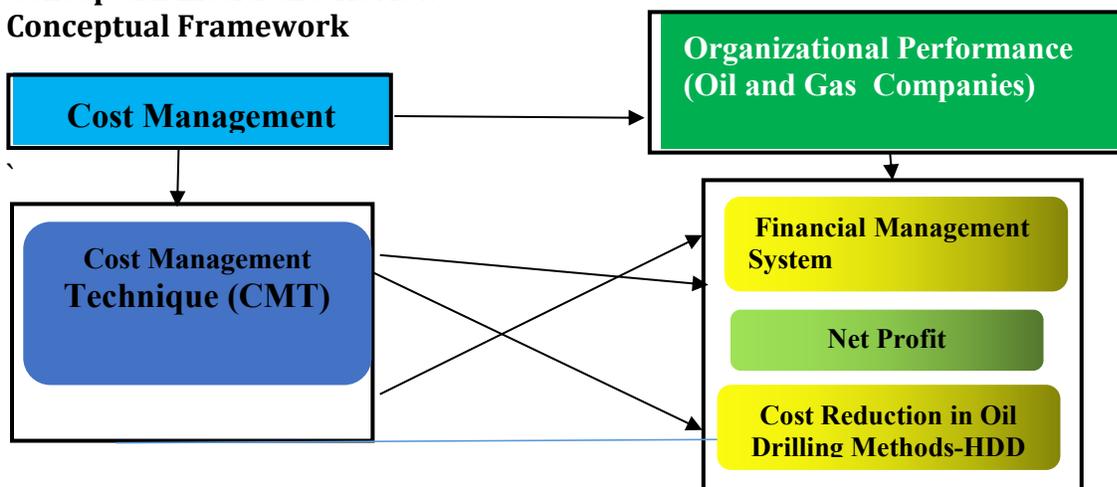
The aim of this study is to investigate the relationship between cost management Techniques and Organizational Performance in Oil and Gas Industry in Nigeria. This specific objectives of the study are to:

**i. Ascertain the relationship between Cost Management Techniques and Net Profit of Oil and Gas Companies in Nigeria,**

**ii. Determine the impact of Cost Management Techniques on Financial Management System (FMS) of Oil and Gas Companies in Nigeria.**

### Conceptual Literature Review

#### Conceptual Framework



**Figure 1: Cost Management, Organizational Performance, Financial Management System and Horizontal Directional Drilling (HDD)**

According to Garb, et al (1987: 402), cost estimation and cost analysis may be used in formulating policies for exploring and developing oil and gas properties, designing system, and other surface facilities. Usually, management's decisions are dictated and influenced by the anticipated result from an investment. In the case of project estimation in oil and gas industry, the manager or the petroleum engineer is not only expected to estimate project cost but he is also required to control it and compare such cost with the cash inflow resulting from production of barrels of oil or cubic feet of gas. In essence, every cost to be incurred must be justified by its resulting cash inflow. That is, such cost must be that which will generate more cash inflow than the cost incurred. In effect, the customer is willing to pay for such product or service.

The forces of technology and globalization are also reshaping the basics of business and rapidly transforming markets worldwide. Technology has brought once distant markets closer, creating opportunities, competition, and offering potential for higher revenues and minimization of cost. However, globalization may also make operations more complex and complexities bring about higher costs especially in the

multinational companies. It has therefore become increasingly necessary for managers and engineers to have knowledge of costing principles and techniques, cost management, cost control, cost reduction and cost saving strategies and be able to estimate project cost.

Cost estimation according to Oladipupo (2023) is an instrument of cost management, it is the term normally used to describe the process or functions involved in determining the expected cost well in advance of production or project. Also, according to Accounting Dictionary, Cost management is a strategy for reducing manufacturing or operating expenses so that customers can buy products or services at reduced pricing. Fadare & Adegbe (2020) define cost management as the control of actual or projected expenses that a company or organization incurs. It could be used by a business to foresee future costs and avoid overspending.

To put it in another way, it describes the process that management uses to assess and optimize operational or manufacturing processes in order to manage the future and keep costs under control. According to Hansen & Mowen (2006), cost management is a process that is significantly more thorough than a costing system, which is solely focused on the price of an item or things. Cost management focuses on information for managers' internal usage.

In particular, it locates, collects, measures, classifies, and makes available data that managers may use to determine the costs of goods, customers' suppliers, and other relevant elements for planning, managing, making choices, and implementing continuous improvement. If a business wants to accomplish efficient financial management in a competitive setting, it must use cost management techniques to enhance cost control and reduction (Eneisik, 2021).

Cost management according to Oladipupo (2023), refers to a number of procedures used by an organization's management to maintain consistently low operational costs. It deals with projected, anticipated, past, and historical expenditures (DeltaCPE,2017). Cost management is a technique for lowering operational or costs of production in order to offer consumers less priced goods or services Accounting Dictionary. This concept implies that in order to maintain profitability and be financially sustainable, manufacturing enterprises must consistently keep low their expenses for raw materials, conversion, administrative, distribution, and finance charges.

Consequently, the study evaluated the effect of cost management (CM) on the net profit and financial sustainability on Oil and gas companies in Nigeria with the following specific objectives:

1. To evaluate the effect of cost management on the financial sustainability in terms of net profit,
2. To ascertain the effect of cost management on organisational performance in terms of financial management systems.

Costs are categorized and shown in oil and gas companies' financial reports as Finance Costs, Distribution and Administrative Costs, and Cost of Sales (Material and Conversion Costs) (2020 Dangote Financial Report). Cost is a measure of the financial

resources that have been or will be given up in the future to accomplish a particular objective (Delta CPE, 2017, Lawal, 2017). To preserve the quality of their products and increase profitability, businesses—particularly those in the manufacturing sector—must efficiently manage all of their expenses, including sales, administrative, and financial expenditures. Cost management can be defined as management's efforts to serve customers while continuously reducing and controlling costs (Adeniji, 2002).

**Cost Control and Cost Reduction Strategies**

Cost control and cost reduction are two important strategies whose main objective is to reduce cost of goods and services in order to achieve the overall goal of an organization.

**Comparison Between Cost Control and Cost Reduction Strategies**

S/NO	COST CONTROL	S/NO	COST REDUCTION
1.	Cost control is systematic activities designed and actions taken in advance to compel actual costs to conform to planned costs	1.	Cost reduction strategy is the reduction in the unit cost of goods and services without any reduction in quality or impairing the suitability
2.	It is a technique used by all levels of management to ensure that costs incurred fall within desired level.	2.	It aims at reducing cost from previously accepted standard or recognized normal cost to a lower level while maintaining quality and performance of the goods and services.
3.	It uses budgetary control and standard costing techniques.	3.	It tries to extract more result from factors of production without loss of efficiency and effectiveness.
4.	It is proactive in order to reflect and achieve the goal of an organization.	4.	It is more of routine practice, which focuses on factors of production to reduce or lower current cost per unit. A similar term is cost avoidance, which is effort made to avoid spending money for unnecessary cost items.
5.	<p><b>COST CONTROL STEPS/ELEMENTS:</b>                      The steps involved in cost control are:                      By having planned costs or setting standards                      By performance identification (i.e. actual)                      By comparative analysis of (1) and (2).                      By identification of deviations and their investigation                      By corrective or remedial action to ensure that events are pursued</p>	5.	<p><b>COST REDUCTION USES BENCHMARKING</b>                      Benchmark is a reference point against which comparison can be made to measure performance. It is the search for industry best practices that lead to superior performance (Robert, 1989). Benchmarking is a systematic process of comparing the activities and work procedures of an organization against those of outstanding ones within an industry. Benchmarking forces the</p>

	according to plan and avoid off the course tendencies.		organization to become more aware of the costs that are in excess of what is necessary and therefore takes steps to reduce them.
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**Definition of Cost Control and Cost Management**

Cost management cuts across all elements of cost in any organisation. These realities can be addressed as follows as captured by Buyers and Holmes, (1979):

The regulation of operating expenses through executive policies and actions, particularly when those actions are informed by cost accounting principles, is known as cost control. In the petroleum sector, cost control is to keep exploration, drilling, development, production, facilities, and transportation costs within reasonable bounds. The fundamental goal of cost control is to increase performance by forcing actual costs to match the plan through methodical steps to get rid of waste and needless expenses in all their forms.

Every professional engineer depends on the use of scientific knowledge of cost accounting and engineering capabilities to estimate costs and effect control. Progress and success in reducing costs and achieving organizational objectives depend on the engineer’s ability to predict and control costs as he designs and fabricates equipment and tools.

For petroleum engineers to realize the economic objectives of exploration, exploitation and production of oil and gas, there is need to apply the essential elements of cost management and control strategies as follows:

- a) **Designing components, products, plants and machinery with materials and chemicals that are not expensive** but can achieve the required standard quality. That is, imbibing the culture of cost consciousness in everything an engineer does.
- b) **Identifying and controlling the cause of cost increase or cost drivers.** For example, the following are some of the cost drivers:
  - 1. **Resource Driver:** This arises as a result of increase in the quantity of resources being used in the act of production. To eliminate unnecessary costs, ensure that only quantities of resources that are very necessary and appropriate are used.
  - 2. **Activity Driver:** This refers to the costs incurred by the activities required to complete a particular task, project or process. Here the characteristic features of the engineering work or activities or operation involved should be streamlined such that unnecessary ones will be eliminated.

3. **Change Drivers:** If there is anything that is constant in life and in business, it is change, for it will always occur. Some may be internal, within the organization while others may be external, outside the organization. Therefore, the question to address is what changes will the organization experience in its business environment in its quest to achieve its plan?

4. **Some of the changes that will affect cost are as follows:**

**Internal Changes:**

Change in efficiency, change in volume of production or service, occurrence of oil spillage and environmental pollution and their cost implications, host community crises, labour union pressure on increase of salaries and wages, change in method of production, introduction of new product or modification of an existing one etc.

**External Changes:**

Change in cost of raw materials, government policies, economic and political changes, change due to competitors' action, change due to technology, change due to scarcity of factors of production, change due to the age of the product, unfavorable climatic condition that may affect the production of vital source of raw materials, global economic downturn etc.

**Use appropriate materials and qualified labour for casing and well cementing to avoid mistakes** or poor-quality work that may lead to collapse of the oil well and cause increase in cost. For example:

a. When poor quality pipe is used, it could get stocked and this will require pumping in chemical fluid into the oil well to free the pipe. This remedial action involves increase in cost.

b. Also, when an oil well collapses, there will be need to plug back or cover the collapsed part with cement. It may require coming out above the point where the well collapsed in order to carry out remedial actions to correct the defect. All these activities have cost implications'

c) Use the most appropriate drilling method that will give least cost. For example, slim-hole drilling or any other type of drilling that may be most suitable and give minimum cost, depending on the situation.

d) Ensuring proper internal control in the requisition, purchasing, receiving and issuing of materials for usage, in order to avoid fraudulent practices. Some of the actions to take are:

- Avoiding over-stocking, under-stocking, over-requisition, materials wastage and pilferage;
- Ensuring bulk buying of quality materials with discount and at least possible costs;
- Maintaining appropriate stock levels, such as maximum stock level, minimum stock level,

Re-order level, re-order quantity (or Economic Order Quantity, which is defined as the ordering quantity which minimizes the balance of cost between inventory holding costs and ordering cost)

### **Cost-Management Methods**

Cost management, which involves keeping costs associated with all aspects of operations under control, is an essential part of any business. This method to increase productivity, profitability, and competitiveness includes cost-cutting, planning, and management. Companies use cost management techniques as tools to keep costs under control and reduce waste. There are many different cost management techniques that businesses can use, and each has advantages and disadvantages. In this section, we will discuss the various cost management techniques and their applications.

### **Goal pricing**

Goal costing is a cost control technique in which the target cost of a good or service is determined and then pursued. This cost-cutting strategy focuses on lowering costs during the design and development phase. Target costing may be useful when a business intends to introduce a new product or service and wants to ensure that it is profitable. By setting a target cost, a business can produce a profitable and competitive good or service.

### **Typical pricing**

Standard costing is a cost-management strategy that establishes a product or service's price based on predefined expenses. It is a cost control technique that entails establishing guidelines for labor, materials, and overhead expenses. When a company wishes to keep expenses under control and produces a lot of goods, standard costing can be helpful. A company might find inefficiencies by comparing actual expenses to planned expenditures and establishing standards.

### **Accounting that is lean**

Lean accounting is a cost-management approach that prioritizes waste reduction and efficiency improvements. It's an accounting method that supports lean manufacturing concepts. Lean accounting may be useful when a business wants to reduce costs and increase productivity. A business can increase profitability and reduce costs by identifying and reducing waste.

life-cycle expenses. identification and reduction, a company can save expenses and boost profitability.

### **life-cycle expenses.**

Life-cycle costing is a cost-management technique that considers an item or service's total cost over the duration of its entire life. This method of cost control accounts for the costs of design, development, manufacturing, distribution, and disposal. Life-cycle costing is useful when a business wants to develop an environmentally friendly product or service. By considering the entire life cycle of a product or service, a business can reduce costs and increase profits.

When weighing several cost management strategies, it is critical to select the one best suited for the business. Every technique has advantages and disadvantages, so businesses should consider their own needs and goals. For example, if a business has complex procedures, activity-based costing can be the ideal approach. When a business wants to introduce a new product or service, target costing might be the best course of action. The ultimate goal of cost management is to lower costs and increase profitability, and employing the right approach can help businesses do this.

A cost-management strategy called life-cycle costing takes into account the overall cost of a good or service over the course of its full existence. It is a cost-control technique that takes into account the expenses associated with design, development, production, distribution, and disposal. When a company wishes to create a good or service that is environmentally sustainable, life-cycle costing is helpful. A company can cut expenses and boost profits by taking into account a product or service's whole life cycle.

It is crucial to choose the cost management strategy that is most suited for the company when evaluating various approaches. Every strategy has benefits and drawbacks, so companies should think about their unique requirements and objectives. For instance, activity-based costing might be the best method if a company has complicated processes. Target costing could be the best strategy when a company wishes to launch a new good or service. Reducing expenses and raising profitability is the ultimate aim of cost management, and using the appropriate strategy can assist companies in achieving this.

### **Theoretical Framework**

The key theories driving cost management and financial performance studies in the oil and gas (O&G) sector focus on maximizing shareholder value, which is the ultimate objective of any firm through operational efficiency, environmental responsibility, and stakeholder management.

The key frameworks include Environmental Cost Management, Agency Theory, and Stakeholder Theory, which analyze how expenses like remediation, compliance, and community development impact profitability and reputation. Agency theory attempts to explain and resolve disputes between principals and their agents so that those involved can achieve optimal results. Principals rely on agents to execute financial transactions for them. Agents must do so without regard for their Principals. The principal-agent problem arises from different priorities and interests between agents and principals. It's important to understand that conflicts of interest can occur. This can cause problems for the relationship. Examples of common principal-agent relationships include shareholders and management, clients and financial planners, clients and financial advisors, and lessees and lessors.

Stephen Ross and Barry Mitnick independently originated the theory of agency in the early 1970s. Ross focused on economic agency through compensation contracting; Mitnick emphasized institutional agency surrounding agency imperfections. The first scholars to propose, explicitly, that a theory of agency be created, and to actually begin its creation, were Stephen Ross and Barry Mitnick,

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independently and roughly concurrently. Ross is responsible for the origin of the economic theory of agency, and Mitnick for the institutional theory of agency, though the basic concepts underlying these approaches are similar. Indeed, the approaches can be seen as complementary in their uses of similar concepts under different assumptions. In short, Ross introduced the study of agency in terms of problems of compensation contracting; agency was seen, in essence, as an incentives problem. Mitnick introduced the now common insight that institutions form around agency, and evolve to deal with agency, in response to the essential imperfection of agency relationships: Behavior never occurs as it is preferred by the principal because it does not pay to make it perfect. But society creates institutions that attend to these imperfections, managing or buffering them, adapting to them, or becoming chronically distorted by them. Thus, to fully understand agency, we need both streams -- to see the incentives as well as the institutional structures.

### **Empirical Review**

Akpe, Nuan Solanke and Iriogbe (2024) who studied Development and implementation of cost control strategies in oil and gas engineering projects posit that: this review delves into the development and implementation of cost control strategies in oil and gas engineering projects, an area critical for maintaining project viability and profitability amidst fluctuating market conditions. They state that effective cost control is essential in the oil and gas sector, where projects are often capital-intensive and subject to economic and operational uncertainties. This review examines various cost control methodologies and their application throughout the project lifecycle, from initial planning and budgeting to execution and closure. The paper highlights key cost control strategies, including detailed project cost estimation, budget forecasting, and variance analysis. It discusses the use of advanced project management tools and technologies, such as software for real-time cost tracking and predictive analytics, which enhance decision-making and financial oversight. The review also covers the importance of risk management practices in identifying and mitigating potential cost overruns, emphasizing the role of contingency planning and risk assessment in maintaining financial control.

This Technology according to Oladipupo (2023). has revolutionized the process of manufacturing in world class Manufacturing Companies, (AMT) which includes Automated Production Technology, Computer Associated Design and Manufacturing (CAD/CAM), Flexible Manufacturing System (FMS), Robotics Systems, Total Quality Control (TQC), Advanced Production Management which include Material requirement and Manufacturing planning and Just in Time(JIT). The application of Advanced Manufacturing Technology by Manufacturing Companies would enhance efficiency in Cost Management Process as a result of; greater control over manufacturing process, reduction in set up times, better production quality, reduction of rework and scrap items, less reliance on direct labor, efficient planning of raw material order and efficient scheduling of product manufacturing and assembly.

Case studies carried out by Akpe, Nuan Solanke & Iriogbe ,(2024) demonstrate how successful implementation of these strategies can lead to significant cost savings,

improved project efficiency, and enhanced financial performance. The challenges associated with cost control, including dealing with unexpected price fluctuations, scope changes, and regulatory compliance issues, are also addressed. Solutions to these challenges, such as adopting flexible budgeting techniques and leveraging data-driven insights, are discussed. The review concludes with recommendations for refining cost control practices in oil and gas engineering projects, including the need for continuous monitoring and adjustment of cost control measures, integrating cost management with overall project strategy, and fostering collaboration among project stakeholders to ensure alignment and accountability (Akpe, Nuan Solanke & Iriogbe, 2024).

The current value of the oil price per barrel according to Menhat, Jeevan et al (2020), has severely impacted the oil and gas industry around the world. Apart from oil price fluctuation, there are multiple external factors that affect this industry such as oil resources availability, high transportation cost, as well as exposure to high uncertainties. In dealing with these external factors, it is crucial for the oil and gas practitioner to shift their focus into managing resources and capabilities. This can be conducted through performance management. As this industry relies mostly on the supply chain to deliver their services and products, it is important to understand the challenges faced by the oil and gas practitioners in managing their supply chain.

Tod Michael (2021), supports horizontal directional drilling (HDD) and posits that product manager for trenchless products at Vermeer, and Dave Gasmovic, business development manager at Vermeer MV Solutions Inc., should use horizontal directional drilling and auger boring to complement each other for larger diameter boring projects. "While directional drilling is used for everything from small fiberoptic conduit to large oil and gas pipeline installations, once the utility being installed is around the 60.9-cm to 152.4-cm diameter range or larger, auger boring begins to be a viable option," said Gasmovic.

According to Tod Michael (2021), advantages of Horizontal directional drilling for midsize to large-diameter bores is enormous. Horizontal directional drilling is the industry's preferred trenchless method for installing buried utilities over long distances. "The distance and diameter of product midsize and large maxi-rig drills can handle, as well as the ability to steer, are the main reasons why HDD is so widely used," said Michael. "HDD bores up to 2,438.4 m and over 76.2 cm in diameter are becoming more and more common these days. These types of bores are being done in urban areas, as well as in more rural areas, where there may be environmental concerns about digging."

### **Cost Management of Fixed Assets**

An effective and efficient internal control procedures should be established over the acquisition, recording, usage and disposal of fixed assets in order to order to safe guard and protect the assets of the company.

1. Maintenance of a well kept up- to -date and fully computerized Fixed Assets Register that contains the following

- Name and description of the assets; -Identification code / reference number
- Date of purchase / acquisition and cost; -Supplier's name, address and Location
- Depreciation rate and applicable policy; -Disposal details, e.g. sale proceeds, date
- Net book value and Insurance claims (if any) etc.

1. **Maintenance of Fixed Assets movement Register to keep track of the movements** and whereabouts of the assets at any point in time. Here the officer or driver using the vehicle, for instance, must fill the movement register indicating name, purpose of usage, location, time of collection, time of return etc.

2. **Assets Transfer Note record** has to be completed each time a fixed asset is to be transferred from one branch or department to another and necessary charge effected by the use of Debit Note.

3. **Maintenance Of Fixed Assets Disposal And Determine Profit Or Loss** on disposal. This register should contain cost, written down value and amount realized from disposal.

To achieve this objective, the following needs to be done.

### **Stock Control**

What is stock control? For the fact that materials constitute a significant percentage of cost of input in the production of any product, adequate records, effective and efficient stock control measures need to be maintained. Stock control inventory control is the regulation of stock levels with respect to quantity, cost, turnover which will be consistent with the maintenance of sufficient stock to meet all the necessary production requirements without excessive storage cost . there should be effective integration of different stages of production from raw materials to finished goods.

### **Stock Turn-Over**

Stock turn-over refers to the number of times stock or materials are turned over within a particular period. This is calculated by dividing the cost of goods sold by average stock. Cost of goods sold is opening material plus purchases less closing stock. Average stock is the opening stock plus closing stock divided by 2.

### **Material Control**

This is a system that ensures the provision of the required quantity of material of the required quantity at the required time with the minimum amount of capital tied up in stock. It covers essentially the following functions:

- Stock control; Scheduling of material requirements; Purchasing; Receiving and inspecting
- Storing and issuing.

### **Need For Material Cost Control**

For any cost control measure to achieve its desired objective, there must be a proper system of internal control of materials machoism from the time of placing order with a supplier until the material is issued to production. Material is the most valuable input item in the production process. Experience and research have shown that material is the largest single item of cost and constitutes over fifty percent of input

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items. Therefore, the success or failure of any business largely depends on the effective and efficient material purchasing, storage, utilization, and proper accounting.

### **Requirements of a System of Material Control**

The major requirements of a satisfactory system of material control according to Buyers and Holmes (1979: 26) are as follows:

- 1) Co-ordination between the departments involved in the buying, receiving, inspection and storage of materials and in accounting for them;
- 2) Centralization of purchasing under the authority of a competent buyer. Centralized buying leads to bulk purchase and its advantages.
- 3) The planning and programming of material requirements;
- 4) Material standardization and simplification when standard is maintained, quality product is achieved.
- 5) The proper classification and where applicable, coding of materials;
- 6) The use of standard forms for orders, requisitions, etc upon which written and signed instructions are given; equipment purchases;
- 7) Control by budget of material and equipment purchases;
- 8) The operation of internal check to ensure that all transactions involving materials and equipment are checked by reliable and independent officials;
- 9) The storage of all materials in well planned and properly designated stores, subject to adequate safeguards and supervision;
- 10) The operation of efficient stock control procedures and records;
- 11) Adequate records to control materials during production and the quantities manufactured for stock;
- 12) Regular reports to management upon purchases of materials, issues, stocks, and in particular obsolete stocks, returns to suppliers,

### **Purchasing Procedure**

For proper and effective material control, the following procedures need to be observed:

1. **Need for material arises**
2. Requisition for material is raised, using standard material requisition form;
3. Order is prepared, signed by at least two responsible officials
4. Material are received from suppliers
5. Materials are checked against the specifications contained in the order;
6. A goods received note (GRN) is used to properly document the items of materials received;
7. Invoices are passed to the accounts section for payment;
8. The necessary accounting entries are made in the financial and costing books.

### **Effective Material Control**

The practice of methodically managing materials during the stages of acquisition, storage, and use in order to support the consistent and continuous flow of materials in the production pipeline is known as material control. Without an efficient material

control system, no costing system is complete. A technique called material control makes sure that the...

This is underscored by Buyers and Holmes (1979: 26) which states that for effective and efficient material control, the following systems and standard forms need to be used:-

### **1. Perpetual Inventory System**

The control of stock can be effected by means of perpetual inventory records which is kept for the each material stocked. The system of recording can be incorporated in the computer accounting and financial system. Sometimes a loose leaf or card form of records are used.

**A Perpetual inventory system shows the following:**

- **The name and description of materials;** Code numbers, components, or part numbers
- **Location in the stores; Units of measurements** e.g. dozen, gallon; Quantity:
  - i) Received (ii) Issued (iii) Ordered but not yet received (iv) Appropriated but yet issued (v) Balance in stock
- **Re-ordering Arrangements** need to be made: and stock level maintained:-
  - a) Maximum and minimum; Re-order quantity, re-order level, and the time of delivery
  - b) Delivery schedules, where applicable

### **Details of Cost Reduction Methods**

The idea behind cost reduction is to lower expenses relative to a previously established norm or standard while preserving the product or service's efficacy or performance level. It seeks to increase the amount of output from the factors of production without sacrificing efficiency.

those that cover every facet of the company's operations, systems, and goods and have the cooperation and complete backing of upper management. While applying common sense can often result in significant cost reductions, there are a number of formal procedures that have been found to be beneficial in improving products, cutting waste, streamlining systems, and ultimately lowering prices. Below is a brief explanation of a few of the more significant ones: reduction in variety, value analysis, job study, organization, and techniques, control over idle time and overtime payments, and overzealous hiring practices.

### **Cost Reduction Committee**

To investigate and pinpoint the reasons behind the ongoing cost increases and offer solutions to bring them down to the bare minimum, a cost reduction committee could be established. Professionals with technical expertise should be included on the cost reduction committee. Such a committee should be composed of engineers and line managers who are well-versed in the functions involved.

### **Overtime Payment Control**

Unnecessary overtime payment should be stopped; foremen have to ensure that overtime claims are for actual time spent on the job and are very necessary.

### **Excessive Recruitment of Workers Control**

Duplication of efforts and engaging more workers than required should be avoided.

### **Conclusive Thoughts on Cost-Reduction**

Any of the above methods can often be used with great effectiveness in cost-cutting campaigns. Perhaps more important, though, is encouraging and motivating workers at all levels to improve every facet of their work. This is a part of goal congruence, and instead of impeding the accounting system and the cost-cutting process, management should support them.

**Economic order Quantity (EOQ)**, which is defined as the ordering quantity which minimizes the balance of cost between inventory holding costs and ordering cost. It is sometimes referred to as re-order quantity.

### **Assumptions of Economic Order Quantity**

These are the EOQ assumptions; (1) Constant stock holding cost; (2) Constant Demand;

(3) Constant ordering cost; (4) Constant price; (5) Replenishment is instantaneous or immediate

### **Economic Order Quantity Calculation**

**EOQ:** Where: -

CO = cost of ordering per order; D = Annual Demand

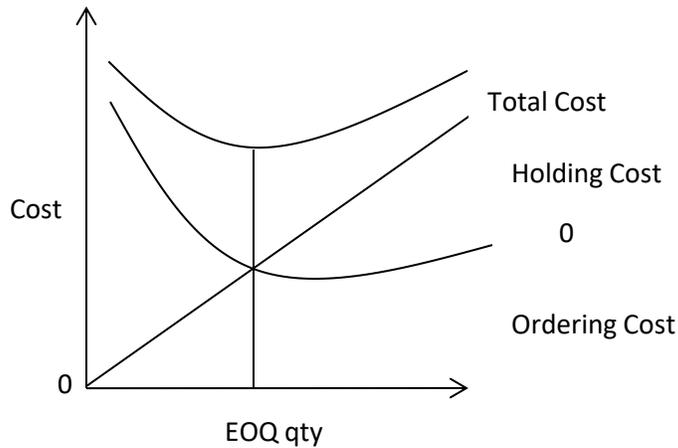
$$\# = \sqrt{2 \cdot CO \cdot D}$$

Hat is, EOQ Formula  $EOQ = \sqrt{(2DS / H)}$

Where:

- D: Annual demand (units)
- S: Ordering cost per order
- H: Holding cost per unit per year or

CC = Carrying cost per item per annum, which is the percentage of unit price of inventory as follows:



### Establishment of Stock Levels

To ensure that there is no out-of-stock syndrome or excess stock that might cause capital being tied up, the following stock levels have to be established and used as a guide to ensure that materials levels do not depart from these quantities:

- **Maximum Stock Level**

- This is the quantity of materials, which should never be exceeded without management specific permission.

The formula is :

$$\text{Max S.L.} = \text{ROL} + \left\{ \text{ROQ} - \text{Min Usage} \times \text{Minimum Lead Time} \right\}$$

- **Minimum Stock Level**

This is the critical level below which there is a high probability of a stock out arising. It is the least quantity of material to be maintained.

The formula:-

$$\text{Min S.L.} = \text{ROL} - \left\{ \text{Average Stock} \times \text{Average Lead Time} \right\}$$

- This is the level of stock at which a further replenishment order must be placed with the supplier.

The formula is:

$$\text{ROL} = \left\{ \text{Max Consumption per Day} \times \text{Max Lead Time} \right\}$$

Note: Lead Time simply means the time between ordering and receiving of material

### Calculation of Stock Levels

A simple illustration by Buyers and Holmes, (1979) will make it clear; the following methods of calculating stock levels: re-order level, minimum stock level and maximum stock level, has requested you to use the under listed data to determine its stock levels and the ultimate aim is to control cost of materials:

Average usage -----	120 units per day
Minimum stock-----	60 units " "
Maximum usage-----	150 units " "

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Lead Time ----- 20 to 26 days

EOQ (previously calculated) 5000 units

### **Solution**

Calculation of stock levels

1. Re-order Stock Level

$$\left\{ \begin{array}{l} \text{Maximum Usage Per Day} \times \text{Max Lead Time} = 150 \times 26 \\ \hspace{10em} = 3900 \text{ units} \end{array} \right.$$

2. Minimum Stock Level:

$$\begin{aligned} \text{Re-order Level} &= \text{Average stock} \times \text{Average Lead Time} \\ &= 3900 - (120 \times (20 + 26) \div 2) \\ &= 3900 - (120 \times 23) \\ &= 3900 - 2700 = 1140 \end{aligned}$$

3. Maximum Stock Level

$$\begin{aligned} \text{Re-order Level} + \text{Re-order Qty} - \text{Min Usage} \times \text{Min Lead Time} \\ &= 3900 + 5000 - (60 \times 20) \\ &= 7700 \text{ units} \end{aligned}$$

By way of illustration, Wilson Oil Company Plc wants you to find the economic order quantity where the forecasted demand is 2000 units per month, the ordering cost is ₦450 per order, the unit cost is ₦8 each and it is estimated that the carrying cost is 15% per annum.

Solution

EOQ

$$CO = \frac{\sqrt{2 \times CO \times D}}{C_c}$$

$$D = 2000 \times 12 = 24000 \text{ units p.a.}$$

$$CC = ₦8 \times 15\% = 1.2 \text{ per item p.a.}$$

(i.e. unit cost x % of carrying cost)

$$\therefore \text{EOQ} = \frac{\sqrt{2 \times ₦450 \times 2400}}{1.2} = \sqrt{18,000,000} = 4,243$$

### **Cost Reduction**

Cost Management: Focuses on planning, controlling, and reducing costs to optimize financial performance, budgetary Control involves setting financial targets (budgets) and monitoring actual performance against those targets. The interconnections is that cost management informs budgeting while actual and accurate cost data help set realistic budgets. Budgetary control also enables cost management and budgets provide targets for cost control and reduction efforts. Both aim to optimize financial performance: Cost management and budgetary control contribute to achieving financial goals. Budgetary control and standard costing are very useful tools of cost control techniques, which have the broad objective of containing costs within a predetermined target. On the other hand, cost reduction is a concept, which has the aim of reducing costs from some previously accepted norm or standard while at the

same time maintaining the effectiveness or performance of the product or service to extract more from the factors of production without loss of effectiveness.

The most effective cost reduction programmes are those, which embrace all aspects of the firm's operations, systems and product and are those, which have full top management support and co-operation. Significant cost reductions can often be made simply by the application of common sense but there are several formal techniques, which have been found to be of value in improving products, reducing waste, streamlining systems and thereby reducing costs. Some of the more important ones are explained briefly below: variety reduction, value analysis, work study and organization and methods, cost reduction,

### **Idle Time Payment Control,**

Techniques: Effective Scheduling: Reduce downtime by optimizing production schedules Preventive Maintenance: To minimize malfunctions, perform routine maintenance on your equipment .Cross-training: Teach staff members how to multitask or work on different projects when they have free time. Resource Allocation: To reduce idle time, make sure resources are used efficiently.

Overtime Payment Control, excessive recruitment control; cost reduction-and

### **conclusion**

Any or all of the above techniques may be used in cost reduction programme often with great success. However, of probably greater importance is the motivation of all levels of staff to achieve more effective results from every facet of their work. This is an aspect of goal congruence and it is essential that management supports the accounting system and cost reduction process, not to hinder, this process.

### **Process Costing**

This is a form of operation costing normally used where production or refining activities undergo series of sequential processes. It is usually used in variety of industries such as oil and gas refining, chemical and drug manufacture etc.

The following are basic features in a good process costing system: -

- a. Clearly defined process cost centers and accumulation of all costs (material, labour and overheads) by the cost center;
- b. The maintenance of accurate records of units and part units produced and costs incurred by each process.
- c. The averaging of the total costs of each process over the total production of that process, including partly completed units.
- d. The charging of the cost of the output of one process as the raw material input cost of the following process; e.g. process 1 output becomes the input of process 2 etc.
- e. Clearly defined procedure for separating costs where the process produces two or more by-products (i.e. joint products) or where by-products arises during production.

### Choice of Cost Unit

For oil and gas, the cost unit is usually barrel, gallons etc.

### Test of Hypotheses

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

### Table 1 - 3 Presentation of Model Result

A statistical method for predicting one variable from the others based on the presumed nature of the relationship between the variables is regression analysis. Functional relationships exists when one variable, Y, increases or decreases another, X—are the focus of this linear model. This is underscored by Gujarati (2009), who states that simple regression (or simple linear regression) is a statistical technique that models the relationship as demonstrated above between a single independent variable (X) and a dependent variable (Y) using a linear equation:  $Y = \beta_0 + \beta_1X + \varepsilon$ , Where,

#### $\beta_0$ : Intercept or constant term

$\beta_1$ : Slope coefficient (measures change in Y for a unit change in X)

$\varepsilon$ : Error term (captures unobserved factors)

### ANALYSIS OF DATA

Applying Simple Regression Analyses, and using E-Views to analyze the data collected from selected companies in Oil and Gas Industry in Nigeria, the following are the results of the hypothesis tested:

**(1) H01: There is no significant correlation between Cost Management and Net Profit of Oil and Gas Companies in Nigeria.**

**In the above hypothesis, the Dependent Variable is Net Profit while the - Independent Variable is Cost Management Index (CMI).**

**Table.1 Presentation of Model Result**

Variable	Coefficient	Std. Error	t-static	Prob.
CMI	0.752	0.152	4.947	0.000
C	1000.0	500.0	2.000	0.050

**Dependent Variable: Net Profit**

**- R-squared: 0.65**

**- Prob(F-statistic): 0.000**

#### Interpretation:

Cost Management has a significant positive influence on Net Profit ( $p < 0.05$ ), meaning that a unit increase in CMI increases Net Profit by 0.752 units.

#### Second Hypothesis:

Applying Simple Regression Analyses, and using E-Views to analyze the data collected from selected companies in oil and gas industry in Nigeria, the following are the results:

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(2) H02: There is no significant correlation between Cost Management (CMI) and Financial Management System (FMS) of Oil and Gas Companies in Nigeria.

In the above hypothesis, the Dependent Variable is Financial Management Index (FMI) while the independent variable is - Cost Management Index (CMI).

**Table.2 Presentation of Model Result**

Variable	Coefficient	Std. Error	t-static	Prob.
CMI	0.428	0.098	4.367	0.001
C	50.00	10.00	5.000	0.000

**Dependent Variable: Organizational Performance (Financial Management System and Cost Reduction) which are the proxies of organizational performance.**

**R-squared: 0.55**

**- Prob(F-statistic): 0.001**

**Interpretation:**

Cost Management has a significant positive influence on the Organizational Performance Index, meaning that ( $p < 0.05$ ), a unit increase in CMI, increase OPI by 0.428 unit.

**Where, CMI= Cost Management Index and  
OPI = Organizational Performance Index.**

**Third Hypothesis:**

Applying Simple Regression Analyses, and using E-Views to analyze the data collected from selected companies in oil and gas industry in Nigeria, the following are the results:

(3) H03: There is no significant correlation between Cost Management (CMI) and Cost Reduction in Oil Drilling Methods-HDD of Oil and Gas Companies in Nigeria.

In the above hypothesis, the Dependent Variable is Financial Management Index (FMI) while the independent variable is - Cost Management Index (CMI).

- Dependent Variable: Cost of Oil Drilling Method

- Independent Variable: Cost Management Practices

**Table.3 Presentation of Model Result**

Variable	coefficient	p-value
Cost Management Practices	-0.65	0.001
Constant	10.2	0.000

**Dependent Variable: Cost Reduction in Oil Drilling Methods: Horizontal Directional Drilling (HDD).**

**Interpretation**

- Significance: Cost management significantly impacts drilling cost ( $p < 0.05$ )

- Direction: Better cost management reduces drilling cost (negative coefficient) on HDD.

### Findings

This study examined empirically using necessary scientific regression methods and providing analysis with e-view about the relationship between cost management and net profit, financial management systems and cost Reduction in Oil Drilling Methods-HDD.

Based on the result of the tests, the study therefore showed a strong and positive significant relationship between c

Ost management and net profit, financial management systems and cost Reduction in Oil Drilling Methods-HDD.

1. The result of the first hypothesis tested reveals that cost management has a significant positive influence on Net Profit ( $p < 0.05$ ), meaning that a unit increase in CMI increases Net Profit by 0.752 units.

2. The second hypothesis showed that Cost Management has a significant positive influence on the Financial Management Systems, meaning that ( $p < 0.05$ ), a unit increase in CMI, increase FMS by 0.428 unit.

3. The third hypothesis revealed that there is significant impacts between cost management and drilling cost ( $p < 0.05$ ), that is, better cost management reduces drilling cost shown by (negative coefficient), on Horizontal Directional Drilling (HDD)

### Conclusion

Based on the findings, this study concludes that efficient and effective cost management positively influences, net profit, financial management Technique and cost reduction in oil drilling method, especially horizontal directional drilling (HDD) for midsize to large-diameter bores. Because of the enormous advantage of HDD in cost reduction and solution it provides in hostile communities, HDD has become the industry's preferred trenchless method for installing buried utilities over long distances drilling.

### Recommendation

In view of the findings, and conclusion, the study recommends that Oil and gas companies operating in Nigeria should sharpen their cost management strategies and extend it to all necessary activities in their organization in order to achieve more net profit, better financial management systems and improved reduction in drilling cost on HDD and minimize conflict in hostile communities, among other advantages.

### References

ACCA (2012). Business analysis, BPP learning Media Ltd. London.

Academy of Accounting and Financial Studies Journal Volume 27, Special Issue 4, 2023

Adolph, M. (1962). "Cost accounting, planning and control" P. 584. South Western Publishing Company.

Akpe T. A. <sup>1, \*</sup>, Shuaibu I. N. <sup>2</sup>, Bolarinwa S.<sup>3</sup> & Henry O. (2024). Development and implementation of cost control strategies in oil and gas engineering projects Shell Petroleum Development Company of Nigeria Ltd., Nigeria

**Prof Ogbonna, G.N.**

**& Enemugha Julius Eniekedou** *International Journal of Accountancy, Finance and Taxation*

- Anderson et al. (1990). "Management accounting". Houghton Thifflin Company.
- Buyers, J., & Holmes, G. (1979). Principles of Cost Accounting. Business Books,
- Chibuzor, T. O. (2017). Articles.ng.effectiveness-standard-costing-control food performance evaluation of manufacturing industries.
- Chris, M. (2018). "Business communications and etiquette". Effective business Communication.
- Creswell, J. W. (2012). Educational research: Planning, conducting and evaluating quantitative and qualitative research. Upper Saddle Review, NJ: Pretice Hall.
- David (2017). What is the difference between population and sample. <https://m.vconnect.com/rivers-port-harcourt/list-of-bakery>.
- Denson, D. K. (1996). Managing pollution efforts: How to turn pollution into profits. *Environmental Management and Health*, Vol. 7 Issue 1, pp. 15-22.
- Donaldson, L. (2001). *The contingency theory of organizations*. SAGE <https://www.accountingarach.com/blog/what-is-standard-costing>. <https://www.automationworld.com/article/industry-type/discrete-manufacturing/proper-use-standard-cost-methods-enhances-efficiency>.
- Flerschman, et al. (1998). *The evolution of standard costing in the U.K. and U. S: From decision making to control*, "Abacus". Pp. 92-119.
- Garb, G. (1987). The Demand for Gasoline: A Vintage Capital Model.
- Garrison, R. H., & Noreen, E. W. (1987). Managerial Accounting. Business Publications Inc.
- Hansen et al. (2002). "Management accounting", Thomas/south-western, Mason, Ohio.
- Hilton, R. W. Maher, M. W. Frank, H. S. (2008). Cost Management, New Delhi, Tata McGraw - Hill Publishing Company Limited, 4<sup>th</sup> edition
- ION Elena-luliana (2016). Organizational performance: A concept that self-seeks to find itself. Publisher, ISSN 2344-3685/ISSNL 1844-7007.
- John, R. R. & Seetharama, A. (2013). *Journal of Environmental Science and Technology*. Volume (3): 119-129.
- Jones, G. R. (1995). *Organizational theory: text and cases*, Addison-Wesley p. 48.
- Kucksavas, N. (2006). "Administrative cost accounting". *Journal of Business*. 32(4):50.
- Locke, E. A. & Latham G. P. (2002). *Guiding a practically useful theory of goal setting and task motivation*, American Psychologist, vol. 57, No. 9, pp.705-717.
- Louise, J. (2018). Organizational-performance-definition-meaning.
- Lucey, T. (1985). Costing, an instrument manual, SpothswoodeBallautyre Ltd.
- Lucey, T. (1985). "Management accounting". 2<sup>nd</sup> edition, Spothwoode, Ballautyre Ltd.
- MBA Skool.com/business-concepts <https://www.mbaskool.com/business-concepts/operations-logistics-supply-chain-terms-actual-costs>
- Mamidu, Ishola Aruna, \*\*Akinola, Akinwumi Olusegun \*\*, Department of Accounting, Achievers University, P. M. B. 1030, Owo, Nigeria, 2019

**Prof Ogbonna, G.N.**

**& Enemugha Julius Eniekedou** *International Journal of Accountancy, Finance and Taxation*

- Menhat, M., Jeevan, J., Munirah, I et al. (2020). Challenges in managing oil and gas supply chain -An exploratory study, University of Malaysia, Terengganu
- Mula et al. (2016). The extent of application of standard costing: Published by American institute of science. *International Journal of Economics and Business Administration*. Vol. 2, No. 1, pp. 1-6.
- Mulla et al. (2016). *International Journal of Economics and Business Administration* Vol. 2, No.1 pp 1-6.
- Nayab, N. (2010). Standard costing: A quick look at the top advantages.
- Oladipupo, A, (2023). Cost management and financial sustainability. Babcock University, 1 1528-2686-27-S4-004, *Academy of Accounting and Financial Studies Journal*, 27(S4), 1-26.
- Paul, T. (2016). Five important factors of efficiency in the workforce.
- Rad. M. R. (2016). *The cost and management*.Vol.44, No 6.
- Richard, V. (1996). Control classic model in: History of accounting. *An International Encyclopedia*. eds. P. 174-175 Retrieved from <https://www.tutorsglobe.com>
- Ross. R. & Mitnick B.(1970). Independently originated the theory of agency in the early 1970s, focused on economic agency through compensation contracting; Mitnick emphasized institutional agency surrounding agency imperfections. [www.ebsco.com](http://www.ebsco.com) > research-starters, economics, Agency Theory (organizational economics) - EBSCO
- Sadiq et al. (2015). *International Journal of Management and Commerce Innovations*. Vol. 3, Issue 1, pp. 292-297.
- Sadiq. R. A. (2016). *Information and knowledge management* vol. 6, No. 8.
- Solomons, D. (1994). Costing pioneers: Some links with the Rast. *The Accounting Historious Journal*. 21(2) :136.
- Thomas, D. (1927). *The mechanism of standard (or predetermined) cost accounting and efficiency records*. p. 7, p.54
- Tod Michael (2021). Horizontal, Directional Drilling (HDD) Vs. Auger Boring: Determining which Trenchless Method to Use for Large Diameter Bores – Applying Trenchless Technology. HDD Products.
- Von. B. L.(1973).*General system theory: Founadations, development, applications*. George Brazille [www.accountingnotes.net/cost-accounting/standard-costing/standard-costing-meaning-and-objectives-cost-accounting](http://www.accountingnotes.net/cost-accounting/standard-costing/standard-costing-meaning-and-objectives-cost-accounting).
- Wilkinson (2013). Standard costing system, in the strategic CFO. Retrieved from <https://strategiccfo.com/standard-costing-system>.
- Wooldridge, J. M. (2013). *Introductory Econometrics*. Cengage Learning.