

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SUMY NATIONAL AGRARIAN UNIVERSITY  
FACULTY OF ECONOMICS AND MANAGEMENT**

**Management Department named by Professor L.I. Mykhailova**

**QUALIFICATION WORK**

**by first (bachelor) level of higher education**

of the topic: **Cost management at the enterprise**

Performed by: a student of higher education in a specialty  
073 Management  
**OLAYIWOLA GAFFAR AYOMIDE**

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Supervisor: **Nataliya STOYANETS**  
Doctor of Economics, professor of Management Department  
named by Professor L.I. Mykhailova

Reviewer: **Nataliya Makarenko**  
Doctor of Economic Sciences, Professor, Head of the  
Department of Marketing and Logistics

**Faculty** Economics and Management  
**Department** Management Department named by Professor L.I. Mykhailova  
**Education degree** «Master»  
**Speciality** 073 Management

Approved:

Head of  
Department

«\_\_\_\_\_»

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2024

## TASK

on qualification work for student

**OLAYIWOLA GAFFAR AYOMIDE**

**1. Topic of Qualification work:** Cost management at the enterprise

**2. Base of research** at Dangote cement Plc company Nigeria

*Supervisor* D.e.s. Profesora Nataliya Stoyanets

*approved by the university order dated*

\_\_\_\_\_ *No* \_\_\_\_\_

**3. Deadline for student completed project (work)**

\_\_\_\_\_

**4. Background to the project (work):**

primary and consolidated documents, registers of synthetic and analytical accounting, statutory and founding documents, financial and statistical reporting of the investigated state institution, legislative and regulatory acts on the activities of state bodies, monographs, professional scientific articles and reports at international scientific and practical conferences on management issues development of the organization's personnel

**5. Contents of settlement and explanatory notes (the list of issues to develop):**

to investigate the theoretical and methodological foundations of personnel efficiency management; provide to investigate theoretical approaches to the cost management of enterprises in the industrial sector;

- provide organizational and economic characteristics of the research subject;

-assessment of the effectiveness of the cost management system at Dangote Cement, identification of problems and reserves for cost optimization;

- propose measures to improve management and optimize costs at Dangote Cement company. formulate conclusions.

## 6. Date of assignment: \_\_\_\_\_

**CALENDAR PLAN**

| №  | Name of the diploma project's stages                                                                           | Dates of project stages' performance | Note |
|----|----------------------------------------------------------------------------------------------------------------|--------------------------------------|------|
| 1  | Definition and approval of the thesis, preparation of the plan - schedule of work                              |                                      |      |
| 2  | Selection and analysis of literary sources, the preparation of the first theoretical chapter                   |                                      |      |
| 3  | Preparation and presentation of draft of the first chapter of the thesis                                       |                                      |      |
| 4  | Collection and processing of factual material, synthesis analysis of application issues in the enterprise      |                                      |      |
| 5  | Making the theoretical part of the thesis, summarizing the analytical part                                     |                                      |      |
| 6  | Design options improve the research problem                                                                    |                                      |      |
| 7  | Completion of the project part of the thesis, design chapters                                                  |                                      |      |
| 8  | Update of data for 2022, 2023, 2024 and completion of analytical and design sections of the qualification work |                                      |      |
| 9  | Previous work and its defense review                                                                           |                                      |      |
| 10 | Checking the authenticity of the thesis                                                                        |                                      |      |
| 11 | Deadline for student completed the thesis                                                                      |                                      |      |
| 12 | Defense of the thesis                                                                                          |                                      |      |

**Student**

**Olayiwola Gaffar  
Ayomide**
\_\_\_\_\_  
(signature)**Supervisor of science work**\_\_\_\_\_  
(signature)
**Natalya  
Stoyanets**
**Checking the authenticity conducted.****Thesis allowed for defense**
**Nadiya Baranik  
Svitlana Lukash**

## АНОТАЦІЯ

**Олайвола Джаффар Айоміде.** Управління витратами на підприємстві. Кваліфікаційна робота за спеціальністю 073 «Менеджмент», Сумський національний аграрний університет, Суми, 2025. – Рукопис.

У кваліфікаційній роботі досліджено теоретико-методичні основи управління витратами підприємства. У першому розділі роботи досліджено питання ефективності управління витратами як ключового чинника досягнення конкурентних переваг підприємством. Розглядаються основні стратегії конкурентної переваги за Портером (лідерство за витратами, диференціація, фокус на ринку) та підкреслюється роль ефективної інформаційної системи у їх формуванні та реалізації. Цементна промисловості Нігерії, де Dangote Cement демонструє лідерство за витратами завдяки економії на масштабі та оптимізації енергетичного міксу, що підтверджується її значними фінансовими показниками та домінуючою часткою ринку порівняно з конкурентами (BUA та Lafarge),.

Проаналізовано економічні та фінансові показники, здійснено аналіз поточної ситуації управління витратами в Dangote Cement Plc, провідній цементній компанії в країнах Субсахарської Африки. Розглядаються загальні характеристики організації, її стратегічна позиція та операційна діяльність. Dangote Cement характеризується як найбільший виробник цементу в регіоні з виробничою потужністю понад 52 млн тонн на рік, інтегрованими заводами та широкою мережею розподілу в 10 африканських країнах. Компанія успішно реалізує стратегію лідерства за витратами через високу ефективність виробництва, вертикальну інтеграцію (від кар'єру до споживача), що забезпечує контроль над цінами та оптимізацію ланцюга поставок. Також підкреслюється її прихильність принципам сталого розвитку та соціальним ініціативам. Визначено, що система управління витратами Dangote Cement є високоефективною, дозволяючи компанії зберігати лідерські позиції на ринку, забезпечувати прибутковість та операційну ефективність, незважаючи на зовнішні виклики..

Основні пропозиції включають створення крос-функціональної робочої групи з оптимізації витрат, встановлення чітких цілей, впровадження цифрової системи управління витратами, регулярного моніторингу та звітності, залучення зовнішніх експертів та активного залучення співробітників усіх рівнів. Окремо виділені пропозиції щодо транспортних та логістичних витрат, включаючи впровадження передових TMS, програмного забезпечення для оптимізації маршрутів, аудит використання автопарку, системи управління паливом, використання залізничного/водного транспорту та аутсорсинг 3PL.

**Ключові слова:** управління, менеджмент, витрати, оптимізація витрат, кваліфікація персоналу.

## SUMMARY

**Olayiwola Gaffar Ayomide.** Cost management at the enterprise. Qualification work on specialty 073 "Management", Sumy National Agrarian University, Sumy, 2025. - Manuscript.

The qualification work examines the theoretical and methodological foundations of enterprise cost management. The first section of the work examines the issue of cost management effectiveness as a key factor in achieving competitive advantages by an enterprise. The main strategies of competitive advantage according to Porter (cost leadership, differentiation, market focus) are considered and the role of an effective information system in their formation and implementation is emphasized. The cement industry of Nigeria, where Dangote Cement demonstrates cost leadership due to economies of scale and optimization of the energy mix, which is confirmed by its significant financial indicators and dominant market share compared to competitors (BUA and Lafarge),.

The economic and financial indicators are analyzed, and the current situation of cost management is analyzed in Dangote Cement Plc, the leading cement company in Sub-Saharan Africa. The general characteristics of the organization, its strategic position and operational activities are considered. Dangote Cement is characterized as the largest cement producer in the region with a production capacity of over 52 million tons per year, integrated plants and an extensive distribution network in 10 African countries. The company has successfully implemented a cost leadership strategy through high production efficiency, vertical integration (from quarry to consumer), which ensures price control and supply chain optimization. Its commitment to sustainable development principles and social initiatives is also highlighted. Dangote Cement's cost management system was determined to be highly effective, allowing the company to maintain its market leadership position, ensure profitability and operational efficiency despite external challenges. Key recommendations include the establishment of a cross-functional cost optimization working group, setting clear goals, implementing a digital cost management system, regular monitoring and reporting, engaging external experts and actively engaging employees at all levels. Separately highlighted are proposals for transport and logistics costs, including the implementation of advanced TMS, route optimization software, fleet utilization audits, fuel management systems, rail/water transportation utilization, and 3PL outsourcing.

**Keywords:** governance, management, costs, route optimization, personnel qualifications.

## **CONTENT**

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## INTRODUCTION

**Actuality of theme.** The essence of cost management in an industrial enterprise is to ensure the effective use of resources in order to achieve the strategic goals and objectives of the enterprise. This includes the identification and control of costs, as well as the implementation of cost-saving measures and the optimization of resource allocation. Effective cost management involves a comprehensive approach to cost management in all aspects of the business, including production, operations, marketing and finance. This requires a deep understanding of the cost structure of the enterprise, as well as the factors that determine costs, such as the supply chain, production processes and pricing strategies. The main objectives of cost management include reducing costs, increasing profitability and cash flow, increasing competitiveness and maximizing return on investment. This requires a practical approach to identifying and managing cost drivers, as well as implementing cost-saving measures and improving processes. Effective cost management also involves a focus on continuous improvement through the use of performance metrics, data analysis, and benchmarking. This allows the business to identify areas for improvement and opportunities for cost reduction, as well as monitor progress and adjust strategies as needed.

**The state of studying the problem.** Considerable attention has been paid to the study of issues related to cost management in the works of many domestic scientists and their foreign colleagues, in particular such as: Lan L , Lian Z , Liu W , Barrick M R. Thompson K R , Lemmon G , Walter T J . Syafii L I , Thoyib A , Nimran U Hackman J R , Jo H , Kate I . J.Richard, Hackman, Gelbrich K , Gathke J , Gregoire Y Bal P M , Chen Wansi, Liu Weijing, Shen Jin, Zhou Xia, Yu Jinming, Hao Yunhong. and others.and others.

**The purpose of the research** This study therefore contributes to the existing body of studies on cost management on performance by using the annual accounts of selected companies in Nigeria on the relationship between cost management and a firm's performance. Specifically, the study intends to achieve the following; to

evaluate the effect of cost management and operating profit of Nigerian corporate firms; to determine the effect of cost management and Earnings per share on Nigerian corporate firms.

**To achieve the set goal, the following tasks were defined and performed:**

- to investigate theoretical approaches to the cost management of enterprises in the industrial sector;
- provide organizational and economic characteristics of the research subject;
- assessment of the effectiveness of the cost management system at Dangote Cement, identification of problems and reserves for cost optimization;
- propose measures to improve management and optimize costs at Dangote Cement company.

**The object of the research** is the processes of cost management in Dangote Cement company.

**The subject of the study** is a set of theoretical, methodical and practical aspects of managing on the cost management of the Dangote Cement.

**The practical significance** of the obtained results lies in the development and scientific substantiation of recommendations regarding the areas of cost management of the company's. The materials of the studies carried out in the qualification work were transferred to the Dangote Cement Company.

**The following research methods** were used when writing the qualification work: methods of scientific analysis, synthesis, induction, deduction, logical analysis, system approach, etc. Methods were also used to solve the identified research tasks: monographic - when studying literary sources, structural analysis, comparative analysis, innovative management practices, and others.

**Information base.** The sources of information for writing the qualification work were regulatory and legislative acts, founding documents, financial statements of Dangote Cement scientific articles, materials of conferences, works of domestic and foreign scientists.

**Approbation of the results of the qualification work.** The provisions of the qualification work were reported by the author at the scientific conference and confirmed by the relevant certificate:

Nataliya Stoyanets, Olayiwola Gaffar, Gavrylko Volodymyr Innovative trends in enterprise management under the conditions of sustainable development Сучасні проблеми менеджменту: матеріали XX Міжнародної науково-практичної конференції, Київ, 2024, Національний авіаційний університет К.: НАУ, 2024. – 455 с. – Електронне наукове видання.URL: [https://mzedp.nau.edu.ua/storage/2024/11/Konferentsiia\\_2024\\_menedzhment.pdf](https://mzedp.nau.edu.ua/storage/2024/11/Konferentsiia_2024_menedzhment.pdf)

**Structure and scope of work.** The qualification work consists of an introduction, three sections, conclusions, a list of used sources from 33 items. The main text is laid out on 55 pages of computer text, the work contains 9 tables and 18 figures.

## SECTION 1

### **THEORETICAL ANALYSIS OF THE STUDY OF THE EFFECTIVENESS OF THE COST MANAGEMENT**

There are different strategies for a firm to achieve a competitive advantage. According to Porter, a firm can gain competitive advantage from three alternatives leadership, differentiation, and market focus. The formulation and implementation of these strategies depend on an effective information system. Information is the fuel that drives management thoughts and actions. In the absence of accurate and relevant information, management would be incapacitated in the formulation and implementation of business strategies for competitive advantage. The traditional management accounting system, which currently provides accounting information for strategy formulation and decision making is inward-looking and focuses only on financial data thereby hindering its effectiveness in generating external information, particularly about the customers and competitors.

The cement industry in Nigeria is dominated by three players that jointly control over 90% of the market. Cost optimization reveals that Dangote Cement (Dangcem) is the market leader by capacity with a market share of 60.3 % in terms of earnings before interest, taxes, depreciation, and amortization (EBITDA) margins due to economies of scale associated with its large size amid the continued drive-in energy mix optimization. Figures from its annual report indicate sales increase by 17% to US\$1.9bn year-on-year in the first half of 2022 from US\$1.6bn in the previous year. While BUA recorded US\$444m in sales revenue in the first half of 2022 representing a 51% increase from the previous year leaves it with a market share of 21.7% coming a distant second in the industry and Lafarge on the other hand coming third with 18.0% a position way below the industry average [2].

Cost management involves the planning, control, and monitoring of costs to meet organizational goals. It encompasses various activities, such as budgeting, cost allocation, cost reduction, and performance evaluation. According to Bing, Z. et al., effective cost management ensures that an organization operates within its

budget, optimizes resource use, and achieves financial targets. Various strategies and frameworks are used in cost management to ensure cost efficiency. Chang Chen introduced the Activity-Based Costing (ABC) framework, which allocates costs based on the activities that drive costs rather than just traditional volume-based methods. This allows Bao Wei companies to gain a clearer understanding of cost drivers, particularly in complex environments with diverse products and services [ 2,3, 5 ].

In today's business environment, where competition is becoming increasingly fierce and economic conditions are unpredictable, effective cost management is one of the most important success factors for any enterprise. It is not just about cutting costs, but a systematic approach to planning, controlling and analyzing all resources used in the company's activities. Cost management is a continuous process aimed at minimizing the costs of an enterprise while simultaneously increasing the efficiency of its activities.

Table 1.1 - Enterprise cost management process

|                                    |                                                                                                                                                                                                                                                                                                |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Identifying and classifying costs: | Understanding where money goes is the first step to controlling them. Costs can be direct (directly related to the production of a product or service) and indirect (administrative, marketing, etc.), fixed (independent of the volume of production) and variable (dependent on the volume). |
| Cost analysis:                     | Assessing the dynamics of costs, identifying "bottlenecks" and potential areas for optimization. This may include benchmarking (comparison with competitors or industry averages).                                                                                                             |
| Cost Planning and Forecasting      | Developing budgets and forecasts that help predict future costs and set limits.                                                                                                                                                                                                                |
| Cost Control                       | Monitoring actual costs and comparing them with planned costs, identifying deviations and their causes.                                                                                                                                                                                        |
| Cost Optimization                  | Implementing measures to reduce costs without compromising product/service quality or business process efficiency.                                                                                                                                                                             |

Source: [ 7-8 ].

Similarly, the Lean Manufacturing principles, as outlined by Womack and Jones (1996), aim to eliminate waste in processes, leading to lower operational costs. By focusing on value creation and streamlining production processes, lean techniques help organizations achieve cost reductions without sacrificing quality.

### The Role of Technology in Cost Management

Technology has significantly transformed cost management practices in recent years. The integration of Enterprise Resource Planning (ERP) systems, such as SAP, into organizational processes allows real-time tracking of costs, inventory management, and resource allocation. According to Jin Dan, ERP systems enable companies to reduce overhead costs and streamline their operations by providing centralized and accurate financial data [ 18 ].

Additionally, Big Data and Data Analytics play an increasingly important role in cost management. As noted by Chen et al. (2012), companies can analyze large datasets to identify patterns and inefficiencies in operations, leading to more precise cost estimation and better decision-making. Cost reduction techniques have become essential for businesses to remain competitive, particularly in industries with tight margins. Cheng, T discusses how companies can adopt a cost leadership strategy by offering products at lower prices than competitors while maintaining profitability. Cost leadership involves improving operational efficiency, economies of scale, and reducing fixed and variable costs [ 12].

A key cost reduction technique discussed by Al Mamun et al., is the outsourcing of non-core activities, which allows organizations to focus on their strengths while reducing labor and operational costs. Furthermore, adopting just-in-time (JIT) inventory systems reduces holding costs and waste by ensuring materials are only procured when needed, minimizing storage costs [ 1].

Effective cost management requires ongoing performance measurement and control. Chen X., introduced the Balanced Scorecard as a tool for measuring organizational performance beyond financial metrics. The Balanced Scorecard incorporates non-financial metrics such as customer satisfaction, internal processes, and learning and growth, which collectively contribute to cost management and long-term success [10].

Moreover, the use of standard costing and variance analysis (as explained by Bhattacharyya, enables organizations to compare actual costs with budgeted costs, identify deviations, and take corrective actions to minimize cost overruns. The application of cost management principles varies significantly across industries. In the manufacturing sector, cost management primarily focuses on controlling

production costs, managing labor, and utilizing lean practices to minimize waste. As noted by Fullerton et al., manufacturing firms often employ just-in-time (JIT) and total quality management (TQM) principles to control costs while maintaining product quality [16].

The classification and management of costs are critical to making informed financial decisions, controlling expenditures, and improving efficiency. Properly analyzing costs allows businesses to allocate resources efficiently, set competitive prices, and maintain profitability in the market. Enterprise costs can be classified in several ways, each of which serves a specific purpose for financial analysis and decision-making.

Table 1.2. – Classification of costs by main characteristics

| By Function of Activity                           |                                                                                                                                                                                                                                      |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Production Cost                                   | These are costs directly tied to the creation of products or services, including raw materials, labor, and overheads like utilities. These are the primary costs in manufacturing and service delivery                               |
| Non-Production Costs                              | Costs that are not directly involved in production but are still necessary for business operations, such as administration, sales, marketing, and distribution.                                                                      |
| By Cost Behavior                                  |                                                                                                                                                                                                                                      |
| Fixed Costs                                       | These costs remain constant regardless of the level of production or sales. Examples include rent, salaries, insurance, and depreciation                                                                                             |
| Variable Costs                                    | These costs change in direct proportion to the level of output. Raw materials, direct labor, and utilities are typical variable costs                                                                                                |
| Semi-variable Costs                               | These costs have both fixed and variable components, such as a base fee plus additional charges depending on usage (e.g., phone services)                                                                                            |
| By Product or Service                             |                                                                                                                                                                                                                                      |
| Direct Costs                                      | These are costs directly traceable to a specific product or service, such as raw materials and direct labor                                                                                                                          |
| Indirect Costs                                    | These are overhead costs that cannot be traced directly to a specific product or service, such as utilities, office supplies, and administrative salaries. Indirect costs are usually allocated across multiple products or services |
| By Time of Occurrence                             |                                                                                                                                                                                                                                      |
| Current Costs                                     | These costs occur within a given accounting period, such as wages paid to employees or materials consumed in the production process                                                                                                  |
| Capital Costs                                     | These are investments made for long-term assets such as machinery, equipment, or buildings                                                                                                                                           |
| By Financial Accounting vs. Management Accounting |                                                                                                                                                                                                                                      |
| Opportunity Costs                                 | These are the costs reported in financial statements, such as the total expenditures on goods and services                                                                                                                           |
| Accounting Costs                                  | These represent the potential benefits that are foregone by choosing one alternative over another, though not always reflected in financial accounts                                                                                 |

Source: [11, 20-21]

Thus, the economic essence of costs at an enterprise is that they are necessary expenses for the operation and development of the enterprise. Costs can include various components, such as employee wages, purchase of raw materials, electricity, rent of premises, taxes and other costs associated with the production and maintenance of the enterprise. Effective cost management is an important function for the successful functioning of an enterprise. Proper cost management allows you to optimize the production process, increase efficiency, reduce costs and increase profits. Effective cost management also helps to identify areas where costs can be reduced without compromising the quality of products or services provided by the enterprise.

In the service industry, cost management is more focused on labor costs and service delivery efficiency. For example, in the airline industry, Han Ce. describe how airlines use dynamic pricing models and cost control measures to maintain profitability despite fluctuating fuel prices. Cost management is a multifaceted discipline that plays a central role in achieving organizational efficiency and profitability. From traditional methods like standard costing to modern approaches involving big data analytics, technology, and lean principles, organizations must continuously innovate their cost management practices to stay competitive. The integration of these strategies within a structured cost management system can lead to substantial improvements in financial performance and operational efficiency [ 14] .

Strategic Cost Management (SCM) techniques are practically used by Nigerian companies and the extent of their utilization- particularly in the Nigerian manufacturing and financial services industries, identify the factors influencing the adoption of strategic cost management and investigate whether strategic cost management can be used as competitive strategy for survival in recessionary times. Questionnaire was used as a major instrument for data collection. Data collected were subjected to statistical procedures using the Mann Whitney test. The research found out that although Nigerian companies are receptive to the philosophies of SCM, there are challenges inhibiting their adoption and implementation in the Nigerian environment [ 6].

Table 1.3 – Approaches to forming a cost management system at an enterprise

| approach                     | description                                                                                                                                                                                                                                                                                                                |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Traditional Cost             | Accounting focuses on historical cost data and the allocation of indirect costs based on predetermined overhead rates. The goal is to calculate the cost of each product or service and determine profit or loss.                                                                                                          |
| Activity-Based Costing (ABC) | This approach identifies the activities that go into producing a product or service and allocates the costs of those activities to the product or service based on the resources they consume. It aims to provide more accurate information about the cost of a product and to highlight areas where costs can be reduced. |
| Target Costing               | This approach starts with a target selling price and works backwards to determine the maximum costs that can be incurred to achieve the desired profit margin. This involves identifying cost drivers and focusing on reducing costs in these areas while maintaining product quality.                                     |
| Kaizen Costing               | This approach involves continuous improvement and cost reduction through small, incremental changes to the production process. It involves all employees in the cost reduction process and focuses on eliminating waste and increasing efficiency.                                                                         |
| Value Chain                  | Analysis This approach looks at the entire value chain, from raw materials to the end user, and identifies areas where costs can be reduced or value added. It aims to improve overall profitability by optimizing the entire value chain, not just individual activities.                                                 |

Source: [9, 18-19]

In a similar study by Akinbor and Okoye [2] investigated Strategic Management Accounting (SMA) with a view to determining the extent to which it influences Competitive Advantage in the manufacturing industry in Nigeria. To achieve this purpose, some research questions were raised, and a review of related literature was made. The population of this study consists of Chief Executives, Chief Accountants and Marketing Directors of those manufacturing companies quoted in the Nigerian Stock Exchange Factbook of 2009. The data generated for this study were analyzed using tables, frequencies, bar charts, and mean scores. Our findings revealed that Strategic Management Accounting enhances Competitive Advantage although several factors bedevil its adoption in Nigerian manufacturing firms.

Examined the effect of formal strategic management on organizational performance of medium sized manufacturing enterprises in Nairobi Kenya. He investigated the effect of various administrative/legal factors on the extent to which

formal strategic management are adopted, and also determined the relationship between level of competition and formal strategic management. He selected eighty medium enterprises (MEs) using simple random sampling. Primary data was collected using a semi-structured questionnaire. Results showed that the MEs have not fully adopted formal strategic management and that administrative/legal factors and competition influence adoption of strategic management.

He Jianbo, Wang Zhen., examined the influence of strategic management on corporate performance in selected small scale enterprises in Lagos, Nigeria. Cross sectional survey research method was adopted for the study and 140 participants were randomly selected among small-scale enterprises in Lagos metropolis. Findings of the study showed that strategic management enhances both organizational profitability and company market share [15].

Chen Chenming, investigated the diffusion of six proposed strategic management tools of the past few decades through the lens of organizational change theory, examined the relationship between the adoption of these techniques and organizational performance in both manufacturing and non-manufacturing organizations in New Zealand. The findings suggested a significant association between the diffusion of these relatively new strategic management tools and organizational performance [ 7 ].

The cement industry, characterized by high fixed costs, large capital investments, and the need for operational efficiency, requires robust cost management practices. Effective cost management in this sector is crucial for maintaining profitability and competitive advantage. According to Bing, Z., & Ji, S., the cement industry faces several challenges, including fluctuating raw material prices, energy costs, and environmental regulations, all of which impact cost structures [3].

Technology plays an important role in Dangote Cement's cost management practices. In particular, automation in production and the integration of data analytics into decision-making processes have allowed the company to monitor costs in real-time and adjust operations as needed. A study by Jianwu He found

that the use of Industry 4.0 technologies in Dangote's manufacturing processes significantly reduced production costs while improving quality control [7].

Effective cost management is essential in today's dynamic business environment, where rapid changes in global markets, technological advancements, and consumer preferences require businesses to constantly adapt. Some key features of cost management in the current economic climate include

Table 1.4 - Features of Cost Management at the Current Stage of Economic Development

| S/N | Features of Cost Management                              | Descriptions                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Digital Transformation and Automation                    | The integration of digital technologies, including artificial intelligence (AI), machine learning, and the Internet of Things (IoT), has revolutionized cost management. Businesses are leveraging data analytics to monitor costs in real time, predict trends, and identify cost-saving opportunities. Automation is reducing manual labor and operational inefficiencies, leading to more accurate cost control. |
| 2   | Cost Reduction and Efficiency                            | With economic uncertainty, inflation, and competition, businesses focus more on cost reduction. This includes outsourcing non-core functions, renegotiating supplier contracts, optimizing supply chains, and adopting lean management principles to minimize waste. Efficient energy management and reducing carbon footprints are also critical to lowering long-term operational costs.                          |
| 3   | Globalization and Supply Chain Management:               | Global supply chains present both opportunities and risks. Businesses must manage costs associated with sourcing materials, labor, and logistics in various regions. Fluctuations in exchange rates, political instability, and trade tariffs influence the cost structure of enterprises. Therefore, robust global supply chain management strategies are critical in managing cost fluctuations.                  |
| 4   | Sustainability and Corporate Social Responsibility (CSR) | Environmental sustainability has become a major focus for many businesses. Companies are increasingly incorporating sustainability into their cost management practices, with green technologies and sustainable sourcing strategies. The costs associated with compliance to environmental regulations and maintaining CSR initiatives also factor into overall cost management.                                   |
| 5.  | Cost Allocation and Activity-Based Costing (ABC)         | Traditional cost allocation methods are being replaced by more sophisticated approaches like Activity-Based Costing (ABC). ABC allows businesses to allocate costs more accurately based on the activities that drive them. This leads to better insights into which products, services, or departments are most profitable and where efficiency improvements can be made.                                          |
| 6   | Strategic Cost Management                                | Companies are increasingly focusing on long-term, strategic cost management rather than just cutting costs in the short term. This involves understanding the true drivers of costs and identifying opportunities for value creation. Strategic cost management includes activities such as reengineering processes, improving product mix, and adopting pricing strategies that align with consumer behavior       |

Source: [ 13,15, 22-24]

Dangote Cement has developed a robust approach to cost management by integrating cost-control measures with technological advancements and strategic decision-making. The company continues to face external and internal challenges that require ongoing innovation, but its ability to manage costs has contributed significantly to its position as a market leader in the African cement industry.

Enterprise costs are the monetary expenses incurred by a business in the process of producing goods or services and ensuring the operation of the organization. These costs are essential for any enterprise because they directly influence profitability, pricing, and long-term sustainability. At their core, enterprise costs represent the economic resources consumed in the production process, including labor, materials, energy, and capital. Cost management is not a one-time action, but an ongoing process that requires constant attention, analysis, and adaptation. It is a strategic tool that, when properly implemented, allows a company to not only survive in a changing market, but also thrive, achieving sustainable financial growth and strengthening its position in the market.

Expenses at an industrial enterprise are funds that are spent on the purchase of resources (raw materials, materials, fuel, energy), wages, maintenance of fixed and current assets, research and development work, advertising and other expenses related to the activities of the enterprise. Expenses are an indispensable part of the production process and can be both direct (i.e. related to the production of the product) and indirect (i.e. related to the general management of the enterprise). The main task of cost management is to optimize costs in order to ensure the efficiency and profitability of the enterprise. Cost management at an industrial enterprise is the process of planning, coordinating and controlling costs in order to ensure the optimal use of enterprise resources. The main tasks of cost management are to reduce costs while maintaining product quality, increasing the efficiency of resource use, ensuring the competitiveness of the enterprise in the market and maximizing profits.

## SECTION 2

### ANALYSIS OF THE CURRENT SITUATION ON THE DANGOTE CEMENT OF COST MANAGEMENT

#### **2.1 General characteristics of the organization of Dangote Cement and Maintenance Team**

Dangote Cement Plc is a leading cement company in sub-Saharan Africa, part of the Dangote Group conglomerate. It plays a key role in the construction and infrastructure development of the region. Dangote Cement is the largest cement producer in sub-Saharan Africa, with a production capacity of over 52 million tonnes per annum. The company has integrated plants, clinker grinding plants, as well as import and distribution facilities in 10 African countries, including Nigeria, Cameroon, Ethiopia, Ghana, Senegal, South Africa, Tanzania, Zambia, Congo and Sierra Leone. Dangote Cement is a fully integrated quarry-to-consumer manufacturer, which allows it to control prices and ensure efficient supply chain management. Vertical Integration: The company actively pursues a backward integration strategy, ensuring a stable and cost-effective supply of resources.

With the largest production capacity in the region, an extensive distribution network, a strong financial position and an experienced workforce, Dangote Cement maintains its market leadership. The company employs a cost leadership strategy based on production efficiency, business integration and effective management. Dangote Cement integrates the principles of sustainable development into its operations, focusing on improving resource efficiency, reducing pollution, optimizing material mixes and investing in alternative fuel sources. The company is actively involved in social initiatives, supporting local communities through job creation, education and health programs.

The company's main activity is the production of various grades of cement, including 32.5R CEM II (for plastering, low-rise construction, masonry), 42.5R (Dangote 3X Cement - for most construction works including high-rise

construction and some infrastructure projects) and 52.5 CEM I (for large infrastructure projects such as bridges and dams). Raw Material Preparation: Includes the extraction of limestone and other essential minerals. The company is engaged in the import of cement and clinker to some countries, as well as the export of cement from Nigeria to neighboring countries that do not have sufficient limestone reserves. The cement is packaged for further distribution. Dangote Cement has a wide and efficient distribution network that enables it to reach every local market in Nigeria and other countries of presence. The company produces and sells clinker, which is an intermediate component in the production of cement. Through its large-scale operations and strategic approach, Dangote Cement Plc plays a crucial role in meeting the growing demand for cement in Africa and

Table 2.1 - Characteristics of the enterprise's activities

| Share Capital Analysis                                             | Units          |
|--------------------------------------------------------------------|----------------|
| Pre-Buy-Back number of shares                                      | 17,040,507,404 |
| Shares bought back from 30th to 31st December 2022 (Tranche I)     | (40,200,000)   |
| Shares bought back from 19th to 20th January 2023 (Tranche II)     | (126,748,153)  |
| Total number of residuals issued and fully paid outstanding shares | 16,873,559,251 |
| Number of shares cancelled.                                        | Nil            |

Source: The director of Dangote plc

The Company's shareholders approved the execution of the Share Buy-Back Program at the Extraordinary General Meeting, which was held on 13th December 2022. This Program, which involves the Company's buy-back of up to 10% of its issued shares, will be affected in tranches. The execution of tranches I and II did not have any material impact on the Company's financial position.

Dangote Cement Plc has demonstrated fluctuating, yet ultimately positive, growth over the four-year period, with a notable rebound in performance in FY 2024 after a dip in FY 2023. The company maintains solid profitability margins and asset utilization, though liquidity remains a concern. Revenue shows an upward trend from N805.6 million in FY 2021 to N1,034.2 million in FY 2024. Fluctuations: While FY 2022 saw an 11.9% increase, FY 2023 experienced a slight decline of -1.1% in revenue, indicating potential market challenges or operational adjustments during that year. However, FY 2024 showed a strong

recovery with a 16.0% growth, surpassing the FY 2021 growth rate of 31.0%. This suggests a resilient demand for Dangote Cement's products. Consistently strong, hovering around 56.4% to 57.5%. This indicates effective cost of goods sold management and a healthy markup on products. The slight dip in FY 2024 to 57.2% is minimal and doesn't signify a significant issue.

Table 2.1 Annual financial report Dangote cement plc financials for Fiscal Year ending December of each year (All Naira figures in millions)

| Key Ratio's/ Accounts:               | FY 2021   | FY 2022   | FY 2023   | FY 2024   |
|--------------------------------------|-----------|-----------|-----------|-----------|
| Revenue (Net sales) (Naira millions) | 805.6     | 901.2     | 891.7     | 1,034.2   |
| Gross margin (%)                     | 56.4      | 57.5      | 57.4      | 57.2      |
| Operating Income                     | 304,208   | 338,689   | 299,893   | 386,734   |
| Operation income margin              | 37.3      | 37.2      | 33.5      | 37.4      |
| Net income                           | 198,585   | 388,983   | 200,938   | 275,080   |
| Net margin (%)                       | 24.7      | 43.2      | 22.5      | 26.6      |
| Return of Equity                     | 25.2      | 44.6      | 22.7      | 31.2      |
| Return of Asset                      | 12.4      | 23.2      | 11.5      | 14.6      |
| Earnings per share                   | 11.65     | 22.8      | 11.79     | 16.14     |
| Asset Turnover                       | 0.5 times | 0.5 times | 0.5 times | 0.5 times |
| Fixed Asset Turnover                 | 0.6 times | 0.7 times | 0.7 times | 0.7 times |
| Current Ration                       | 0.79      | 0.87      | 0.65      | 0.66      |
| Quick Ration                         | 0.57      | 0.60      | 0.42      | 0.47      |
| Debt/Equity                          | 0.48      | 0.34      | 0.41      | 0.56      |
| Financial Leverage                   | 3.14      | 3.39      | 2.87      | 3.18      |
| Revenue Growth %                     | 31.0      | 11.9      | -1.1      | 16.0      |

Source: The director of Dangote plc

Operating income shows a similar pattern to revenue, dipping in FY 2023 (N299,893 million) before a robust recovery in FY 2024 (N386,734 million). Operating income margin generally remained high, indicating good control over operating expenses. The drop to 33.5% in FY 2023 is notable, suggesting increased operating costs or reduced efficiency in that year. The recovery to 37.4% in FY 2024, surpassing the FY 2021 level, is a positive sign.

Net income demonstrates significant volatility. It surged from N198,585 million in FY 2021 to an impressive N388,983 million in FY 2022, leading to an exceptionally high net margin of 43.2%. However, FY 2023 saw a sharp decline in net income to N200,938 million and a corresponding drop in net margin to 22.5%. This could be due to increased financial expenses, higher taxes, or non-operating

losses. FY 2024 shows a strong rebound in net income to N275,080 million and a net margin of 26.6%, indicating improved overall profitability compared to FY 2023. Follows the pattern of net income, peaking at 44.6% in FY 2022 due to the high net income, then dropping significantly to 22.7% in FY 2023. A healthy recovery to 31.2% in FY 2024 indicates the company is becoming more effective at generating profit for its shareholders from their invested capital. Similarly, ROA peaked at 23.2% in FY 2022 and then declined to 11.5% in FY 2023. The improvement to 14.6% in FY 2024 suggests better utilization of assets to generate earnings. Reflects the net income trend, with a significant jump from N11.65 in FY 2021 to N22.8 in FY 2022, followed by a drop to N11.79 in FY 2023, and a recovery to N16.14 in FY 2024. This directly impacts shareholder value.

Asset Turnover consistently remained at 0.5 times across all four years. This indicates that the company generates N0.5 in revenue for every N1 in total assets. This consistency suggests a stable level of asset utilization, but also implies there hasn't been a significant improvement in overall asset efficiency over the period.

Fixed Asset Turnover improved from 0.6 times in FY 2021 to 0.7 times in FY 2022 and remained at this level through FY 2024. This suggests a slight improvement in how efficiently the company is using its fixed assets (e.g., plant and equipment) to generate revenue. Consistently below 1 (0.79 in FY 2021, 0.87 in FY 2022, 0.65 in FY 2023, 0.66 in FY 2024). This indicates that the company's current liabilities exceed its current assets. While common in some industries, it suggests potential short-term liquidity challenges and reliance on long-term financing or rapid conversion of assets. The decline in FY 2023 is concerning. Also consistently below 1 (0.57, 0.60, 0.42, 0.47). This is a more stringent measure, excluding inventory, and reinforces the concerns about short-term liquidity. The drop to 0.42 in FY 2023, followed by a minor recovery to 0.47 in FY 2024, suggests continued tightness in immediate liquidity.

Showed improvement from 0.48 in FY 2021 to 0.34 in FY 2022, indicating a reduction in reliance on debt financing relative to equity. However, it increased to 0.41 in FY 2023 and further to 0.56 in FY 2024. This suggests the company has

taken on more debt relative to its equity in the most recent years, potentially to fund expansion or operations, which could increase financial risk.

Fluctuated, peaking at 3.39 in FY 2022 and then decreasing to 2.87 in FY 2023 before rising again to 3.18 in FY 2024. Higher financial leverage indicates a greater proportion of assets financed by debt. While it can magnify returns during good times, it also amplifies losses during downturns. The trend in FY 2023-2024 aligns with the increasing Debt/Equity ratio.

In conclusion, Dangote Cement Plc exhibits strong core operational profitability and a capacity for recovery. However, addressing its liquidity position and managing the increasing financial leverage will be crucial for sustained long-term financial health.

Dangote Group is one of Africa's largest and most diversified conglomerates, founded by Aliko Dangote, Nigeria's richest man. The company has a significant presence in various sectors, including cement production, sugar, salt, and agricultural products. Its most well-known subsidiary is Dangote Cement, which is one of the largest cement manufacturers in Africa.

Dangote Cement has an impressive production capacity that spans multiple countries in Africa. As of recent reports, the company has cement plants in several nations, including Nigeria, Ethiopia, South Africa, Senegal, Cameroon, and Zambia, with a total installed capacity exceeding 45 million metric tons annually. This makes it the largest producer of cement in sub-Saharan Africa.

The company's growth strategy includes expanding its production facilities across the African continent to capitalize on the region's growing demand for construction materials. Dangote Cement has continued to invest in both greenfield and brownfield expansion projects, further solidifying its position in the market.

The heart of Dangote Cement's operations lies in Nigeria, where it operates multiple cement plants in locations such as Obajana, Ibese, and Gboko. The Obajana Cement Plant, in particular, is one of the largest cement plants in Africa. In addition to its operations in Nigeria, Dangote Cement has expanded across the continent, setting up production facilities in countries like Tanzania, South Africa,

Kenya, and Ghana. This expansion has significantly increased its footprint, catering to both local and regional markets.

Dangote Cement continuously invests in state-of-the-art technology to improve the efficiency and quality of its products. The company has adopted modern cement production technologies, including automated plant systems, which enable them to achieve consistent product quality and optimize production costs. The company is also committed to sustainable practices, aiming to reduce its environmental footprint. Dangote Cement has undertaken various initiatives to minimize CO<sub>2</sub> emissions, improve energy efficiency, and promote environmental sustainability. These include investments in alternative energy sources, such as the use of waste-derived fuel in some plants, as well as efforts to reduce water consumption. Dangote Cement has consistently posted strong financial results, thanks to its large-scale operations, strategic expansion, and strong demand for cement products. As one of the largest contributors to the Dangote Group's revenue, it plays a key role in the company's overall profitability.

As of the latest reports, Dangote Group employs tens of thousands of people across its various divisions. The number can vary depending on the business year and expansion. Rough estimates suggest the workforce is around 30,000–40,000 employees. However, the exact figure may vary from year to year as the company continues to grow. As of recent reports, Dangote Cement employs a substantial workforce across its various plants and operations, with an estimated over 30,000 employees. The company operates numerous cement plants not just in Nigeria but across various African countries, including Ethiopia, South Africa, Senegal, and Zambia, among others. This large workforce includes employees across a variety of roles, from plant managers, engineers, and production staff to sales, marketing, and administrative personnel.

The size of Dangote Cement's workforce can fluctuate with expansion plans, new plant openings, and adjustments to operational needs. The company's significant scale of operations necessitates a diverse set of roles and highly skilled professionals to ensure smooth and efficient cement production. While exact numbers are not always readily available, Dangote Cement's employee count is

substantial due to its large manufacturing base and regional operations across the African continent.

Table 2.4 - 2024 income taxes

| Deferred tax (liabilities)/assets in relation to: | Net opening balance | Recognized in profit or loss | Net closing balance |
|---------------------------------------------------|---------------------|------------------------------|---------------------|
| Property, plant & equipment                       | (105,948)           | (9,482)                      | (115,430)           |
| Unrealized exchange gains/losses                  | (14,412)            | 541                          | (13,871)            |
| Employee benefits obligations                     | 1,066               | -                            | 1,066               |
| Provision                                         | 1,881               | 312                          | 2,193               |
| Right-of-use assets                               | (349)               | 165                          | (184)               |
| Deferred tax liabilities                          | (117,762)           | (8,464)                      | (126,226)           |

Source: Dangote director plc

The average salary at Dangote Group can fluctuate depending on the role and division. For instance, a managerial role might see an average salary between 5 million and 15 million NGN annually, while entry-level positions in production or administrative work might have salaries ranging from 200,000 to 2 million NGN per year. It's important to note that Dangote Group also provides extensive benefits, including health coverage, housing allowances, and bonuses, which enhance the overall compensation package.

Employees in entry-level roles, such as plant operators, machine attendants, or administrative assistants, can expect salaries that range from approximately ₦200,000 to ₦600,000 per month, depending on the job function and location.

For roles like supervisors, engineers, sales managers, and accountants, the salary range can go from ₦600,000 to ₦2,000,000 monthly. These positions typically require more experience and a higher level of responsibility. Senior roles such as department heads, plant managers, and senior engineers can earn between ₦2,000,000 to ₦5,000,000 per month, depending on experience and the scale of responsibility. For executive-level positions such as CEOs, managing directors, and high-ranking directors, salaries can range from ₦5,000,000 to ₦20,000,000 or more per month. These positions are for individuals with extensive experience, often overseeing entire operations or regional divisions.

Dangote Group, particularly through its cement and petrochemical ventures, has been extremely profitable. In the last available financial reports, Dangote

Cement made substantial profits, with revenues exceeding \$1.2 billion USD annually. As the company expands into other sectors, like oil refining and agriculture, its overall profitability continues to rise. The company's net profit varies, but estimates indicate that Dangote Group generates billions in profits each year.

Tax authorities in various jurisdictions where the Group operates in, reserve the right to audit the tax charges for the financial year ended 31 December 2022 and prior years. In cases where tax audits have been carried out and additional charges levied, the Group has responded to the tax authorities challenging the technical merits and made a provision it considers appropriate in line with the technical merits of issues raised by tax authorities.

Dangote Cement, one of Africa's leading cement producers, has been known for its efficiency in cost management. The company operates in multiple countries, and its ability to manage costs while scaling its production facilities has been a key driver of its profitability. The company's approach focuses on vertical integration, which includes controlling its own supply chain—from sourcing raw materials to distribution—which helps minimize costs. According to a report by *Mackenzie & Co.* (2020), Dangote Cement's cost management strategy includes investing in technology and automation to optimize production processes and reduce energy consumption. Additionally, Dangote Cement has been leveraging its economies of scale to achieve cost advantages over competitors. (*Mackenzie & Co.*2020)

Dangote Cement's financial performance is a direct result of its strategic cost management initiatives. A study by *Oluwasanmi* (2019) discusses how Dangote Cement's implementation of cost control measures, including optimization of labor costs, energy efficiency initiatives, and management of logistics costs, has improved its profit margins. Additionally, the company's ability to reduce transportation costs through local production facilities in key markets has allowed it to maintain a competitive edge.

While Dangote Cement has made strides in cost management, it still faces challenges such as fluctuating fuel prices and the economic environment in its operating regions. A report by *Accenture* (2021) notes that Dangote Cement has to

constantly innovate its cost management strategies to cope with external shocks, like changes in government policies and market demand fluctuations.

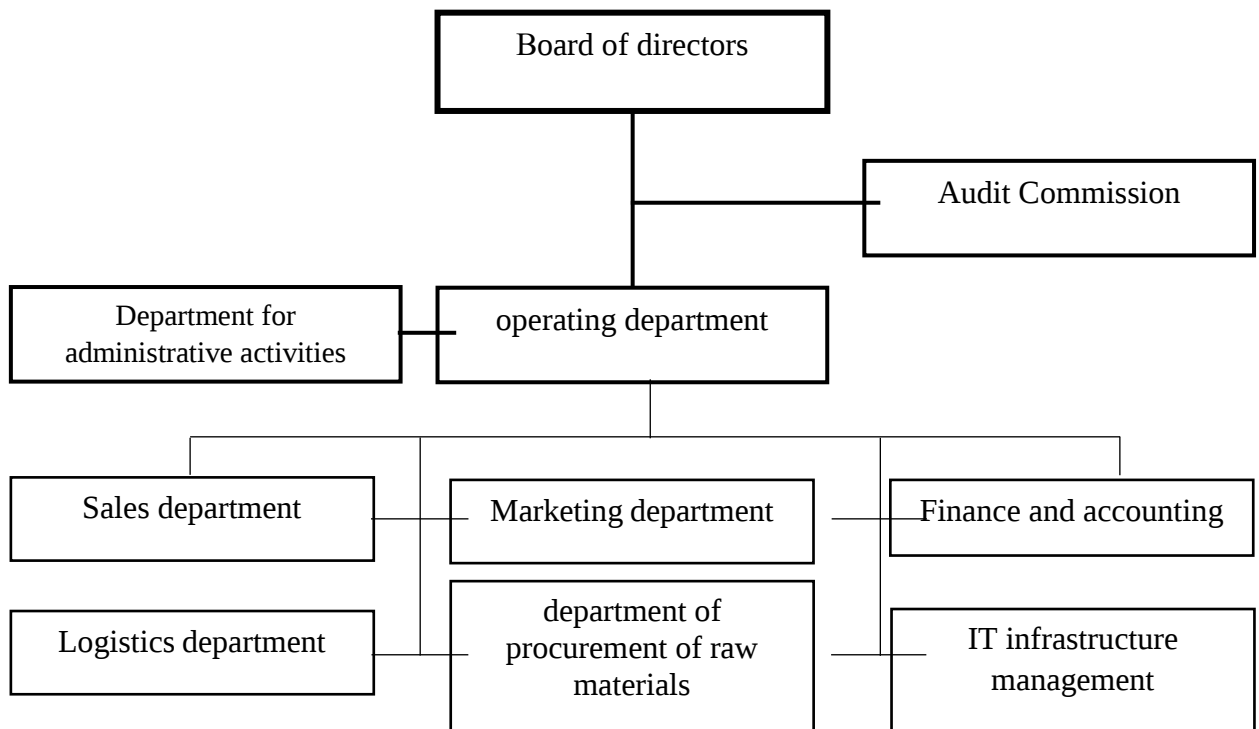


Figure 2.1 - Organizational structure of the enterprise Dangote Cement Plc

Source: compiled by the author based on reports of Dangote Cement Plc

The organizational structure of Dangote Cement Plc reflects its status as a large multinational company with extensive operations and a focus on effective management and corporate governance. It is hierarchical but with some elements of decentralization, which allows for effective management of operations in different countries.

Key elements of the organizational structure of Dangote Cement Plc: Supreme Governing Body The Board of Directors is the highest decision-making body of the company. It is responsible for strategic direction, oversight of the company's activities and ensuring corporate governance. Composition: The Board consists of the Chairman (Aliko Dangote, GCON), the Group Managing Director/Chief Executive Officer (Arvind Pathak), and a number of non-executive directors, including independent non-executive directors. As of the latest data, the Board has about 15 directors with diverse backgrounds in the fields of

manufacturing, finance, engineering, business and law. Diversity: The Company is proud of the diversity of its Board, including women (approximately 27%) and representatives of different nationalities (6 different nationalities). This provides a broader perspective and experience in decision-making. Board Committees: To ensure effective governance and the performance of its functions, the Board establishes specialized committees to provide recommendations and oversee certain areas: Finance and Investment Committee: Oversees financial reporting, financial policy and strategy, potential corporate actions (such as fundraising, mergers and acquisitions). Audit, Compliance and Risk Management Committee: Responsible for audit, risk management and ensuring compliance with regulatory requirements. Remuneration, Governance and Nomination Committee: Assists the Board in determining the remuneration of directors and senior management, and oversees corporate governance matters. Technical and Sustainability Committee: Ensures that the company effectively delivers on its sustainability commitments by integrating environmental, social and governance (ESG) principles into its operations.

Executive Team / Leadership Team: Under the leadership of the Group Managing Director/Chief Executive Officer (Arvind Pathak), the executive team is responsible for the implementation of the strategy and the day-to-day management of the company's operations. Key positions Group Managing Director & CEO Group Executive Director, Commercial Operations, Group Executive Director, Logistics & Distribution, Group Executive Director, Strategy, Portfolio Development & Capital Projects, Group Chief Financial Officer, Group Chief Risk Officer, Group Chief Human Resources Officer, Group Sales and Marketing Director. Other functional heads (e.g. Head of Investor Relations, Head of International Trade and Exports, Director of Pan-African Operations, Head of Sustainability). Dangote Cement operates in various countries in Africa and its organizational structure reflects this geographical presence. The company operates through two main segments: Nigeria and Pan-Africa. Each region or country may have its own operating structure with local management reporting to a central executive management. This allows the company to adapt to local market

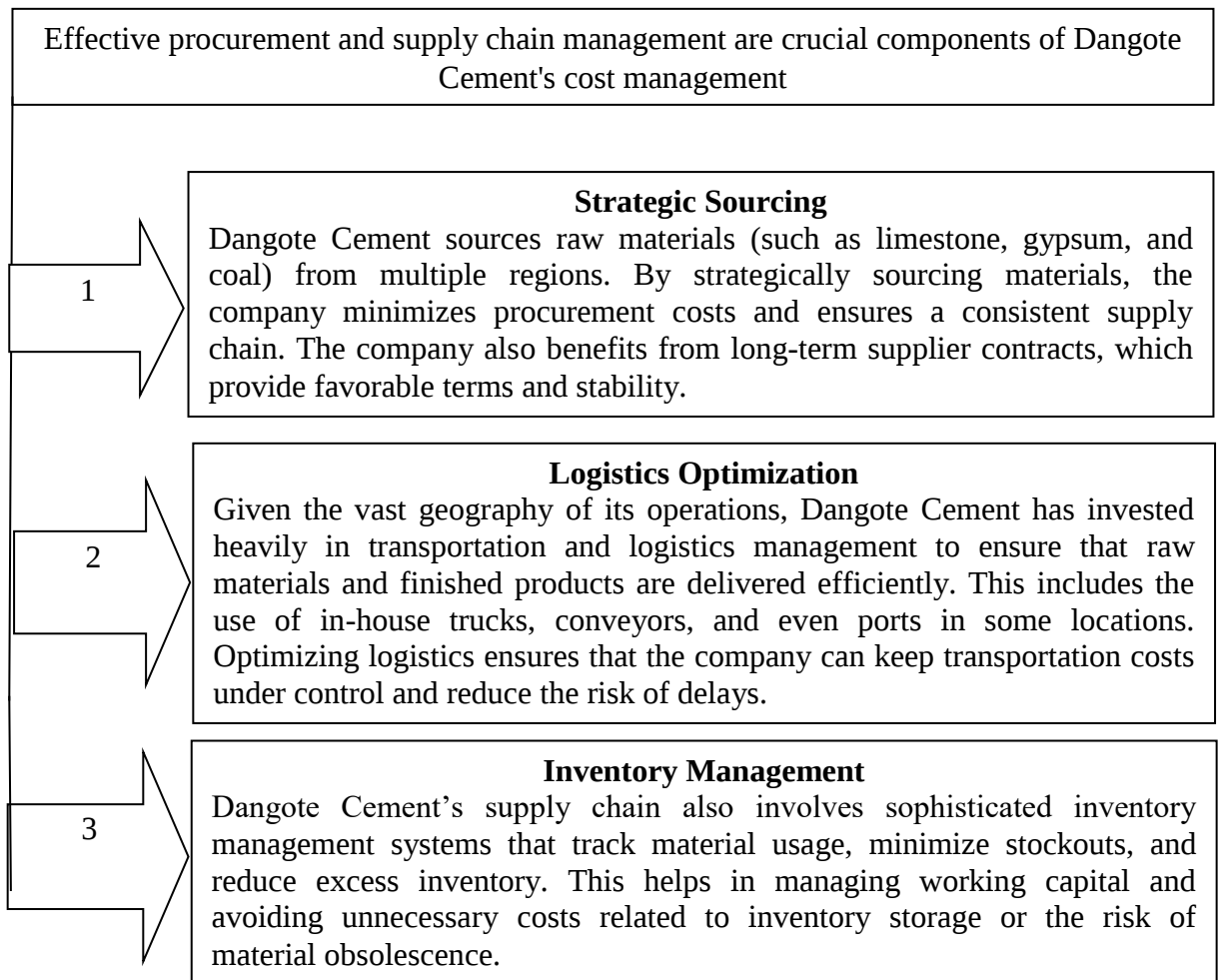
conditions, regulatory frameworks and cultural characteristics. Within each geographical segment (Nigeria, Pan-Africa) and at the corporate level, the company has functional departments responsible for specific areas of activity. These may include: Production and Operations, Sales and Marketing, Finance and Accounting, Human Resources, Logistics and Supply Chain, Legal and Compliance, Corporate Communications, Research and Development, Sustainability and Environmental Protection

## **2.2 Assessment of the effectiveness of the cost management system at Dangote Cement**

The cost management system at Dangote Cement is crucial for maintaining its dominant position in the African cement industry. Given the size of its operations, spanning multiple countries with diverse economic and operational conditions, effective cost management is vital to sustain profitability, efficiency, and competitiveness. Below is an assessment of the key components of the cost management system at Dangote Cement.

**Cost Control and Efficiency** Dangote Cement employs various strategies to control and optimize costs, including economies of Scale Dangote Cement's massive production capacity, particularly at its flagship plants like Obajana in Nigeria, allows it to achieve economies of scale, reducing the per-unit cost of production. Larger production volumes enable better negotiation power with suppliers, lower material costs, and higher utilization of fixed assets. **Automation and Technology** the company has invested significantly in modern technology and automation to streamline its production processes. Automated systems reduce the reliance on manual labor, increase operational efficiency, and minimize human errors. The use of state-of-the-art production machinery and logistics tracking also helps reduce downtime and improve output. **Operational Efficiency** Dangote Cement focuses on improving plant efficiency through regular maintenance, operational best practices, and continuous monitoring of key performance indicators (KPIs). The company has adopted lean management practices to reduce

waste in its operations, ensuring cost-effective production. Cost Reduction Programs the company has a proactive approach to cost reduction, focusing on areas like energy management, fuel optimization, and raw material cost reduction. For example, in some plants, Dangote Cement has implemented alternative fuels and waste-derived energy sources to reduce energy consumption, which is a significant cost driver in cement production.



Picture 2.2 -Effective procurement and supply chain management are crucial components of Dangote Cement's cost management

Source: compiled by the author based on reports of Dangote Cement Plc

**Budgeting and Financial Planning.** Dangote Cement employs a robust budgeting and financial planning system to monitor and control costs. Detailed Budgeting The company uses a detailed budgeting process to allocate resources efficiently across different departments and regions. This allows for better

forecasting of operational costs and revenue, ensuring that there are no unexpected financial shortfalls.

**Cost Allocation** Dangote Cement utilizes modern accounting methods, such as Activity-Based Costing (ABC), to allocate costs more accurately. By understanding which activities or departments are driving costs, the company can identify areas of inefficiency and take corrective actions. **Rolling Forecasts** the company uses rolling forecasts to adjust its budget in response to changes in market conditions, demand, or input costs. This helps ensure that the business can adapt quickly to fluctuations in prices of raw materials, energy, and other key factors.

**Profitability Analysis and Reporting.** Dangote Cement has a comprehensive profitability analysis system that ensures that cost management aligns with revenue growth. **Margin Control** the company closely monitors profit margins across its product lines and regions. By identifying high-margin products or markets, Dangote Cement can prioritize them while identifying low-margin areas that may need revaluation or cost adjustments. **Cost-Volume-Profit (CVP) Analysis:** Dangote Cement employs CVP analysis to understand the relationship between cost structures, production volumes, and profit outcomes. This helps the company make informed decisions on production levels, pricing strategies, and market entry.

**Regular Financial Reporting** the company has established a clear system for regular financial reporting. Key financial data, such as profit and loss statements, cost of sales, and overheads, are assessed monthly or quarterly. This allows the company to identify and address cost overruns or unexpected expenses early.

**Risk Management and External Factors.** The company also takes external factors into account, which impact cost management. **Fluctuating Raw Material Prices:** The prices of raw materials, like fuel, coal, and limestone, can fluctuate, impacting production costs. Dangote Cement manages this risk through strategic sourcing and bulk purchasing, reducing exposure to price volatility. **Exchange Rate Volatility:** Since Dangote Cement operates across multiple countries, it is exposed to exchange rate fluctuations. The company mitigates currency risks through hedging strategies and by maintaining revenue and expenses in the same currency

region whenever possible. **Regulatory and Environmental Factors:** The cement industry is heavily regulated, particularly with regard to environmental issues such as carbon emissions. Dangote Cement has invested in systems that help mitigate environmental impact, which not only ensures compliance with regulations but also avoids fines and penalties that could erode profits.

**Continuous Improvement and Employee Involvement.** Dangote Cement places a strong emphasis on continuous improvement. **Employee Training and Involvement:** Employees are trained in cost management practices, and their involvement in cost reduction initiatives is encouraged. The company often sets performance targets related to cost optimization, energy efficiency, and waste reduction. **Performance Measurement** Dangote Cement uses performance measurement tools like balanced scorecards and key performance indicators (KPIs) to assess the effectiveness of cost management efforts. Regular reviews of performance allow the company to identify areas that need further improvement. The cost management system at Dangote Cement appears to be highly effective. Through a combination of technological innovation, strategic procurement, lean management practices, and comprehensive financial planning, the company has been able to maintain competitive pricing, reduce costs, and increase profitability despite challenges like raw material price fluctuations and market competition.

Dangote Cement's proactive approach to energy management, logistics, and supply chain optimization has allowed it to achieve economies of scale and efficiency that are crucial in the capital-intensive cement industry. Moreover, its focus on employee involvement and continuous improvement ensures that cost management is an ongoing process. In summary, Dangote Cement's cost management system is highly effective in helping the company maintain its market leadership, profitability, and operational efficiency, which positions it for continued success in the African cement market.

In accordance with the set topic of the research and the specifics of the company, we carried out a personnel assessment based on quantitative indicators, determined the number of staff, work experience, average age, professional and qualification composition, the next step will be to assess the staff of the department

according to qualitative characteristics, namely, individual qualification potential, his education and relevant qualifications , socio-psychological climate to make appropriate proposals. It is appropriate to consider a set of methods used in the process of personnel management.

Table 2.8 - Effectiveness of the cost management system of Dangote Cement Plc

| A group of methods               | Methods                                                                                                                                                                                                                                                                                               | Feature                                                                                                                                                                    |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Administrative methods           | Formation of the structure and management bodies, establishment of state contracts, approval of administrative norms and standards, issuance of orders and orders, selection and placement of personnel, development of regulations, job instructions and standards of the organization's activities. | Directly dependent on the nature of the impact, such methods are mandatory, the employee's freedom of choice is inadmissible, and there are also sanctions for violations. |
| Economic methods                 | Technical and economic analysis, technical and economic substantiation, planning, material incentive, taxation, economic norms and standards.                                                                                                                                                         | Indirect nature of influence, lack of clearly defined time and obligations of this influence.                                                                              |
| Social and psychological methods | Social analysis in teams of workers, social planning, participation of workers in management, social development of the team, psychological influence on employees.                                                                                                                                   | They allow freedom within certain limits, individual choices and actions strongly depend on the personality of the employee.                                               |
| Legal methods                    | Based on the regulation of legal norms established for the civil service, they are an important tool for the formation of legal consciousness, legal responsibility and legal culture among civil service personnel.                                                                                  | Orientate yourself in legislation, regulatory documents and methodological recommendations                                                                                 |

Source: constructed by the author based on analysis, own research and observations of the author in the organization.

Among the main methods of improving the personnel management system, the following can be distinguished: the creation of a system of effective, continuous training and development of personnel, aimed at improving the professional skills and knowledge of employees. Improving working relations between management and employees by actively involving them in decision-making processes and exchanging ideas. Creation of a favorable socio-economic and creative environment that contributes to the motivation of employees and the development of their potential. Formation of a recruitment policy that provides an opportunity to attract highly qualified and talented specialists, and also provides

equal opportunities for all applicants. Implementation of measures aimed at adapting the newly appointed employee to his position and work in the team. Conducting explanatory work with employees regarding work requirements and rules, in particular, familiarization with changes in legislation, organizational policies and other important issues. Implementation of a job evaluation system to determine the effectiveness and internal perspective of employees, which contributes to the placement of the right motives and allocation of resources.

### **2.3 Identification of problems and reserves for cost optimization.**

As one of Africa's largest cement producers, Dangote Cement faces a range of challenges in cost management. Despite its dominant market position and ongoing success, the company, like many large industrial operations, can still optimize its cost structures further. Below, we will explore both problems in cost management and reserves (or opportunities) for cost optimization within Dangote Cement. Cost management is a critical aspect of the operational efficiency and financial sustainability of any industrial enterprise, especially in capital-intensive and energy-intensive industries such as cement production. Dangote Cement Plc, as the largest cement producer in sub-Saharan Africa, faces significant challenges in this area that affect its competitiveness and profitability. An analysis of these challenges reveals systemic difficulties that stem from both internal operational aspects and external macroeconomic factors.

Cement production is one of the most energy-intensive industrial processes. In Dangote Cement's cost structure, fuel and electricity costs account for a dominant share. The company's dependence on fossil fuels, particularly diesel and natural gas, makes it vulnerable to volatility in global energy prices. Significant increases in the prices of these resources, such as the 221% increase in the first quarter of 2024, directly translate into higher production costs. An additional factor is the instability of the national electricity grid in Nigeria, which forces the company to rely on its own expensive generators, often running on diesel fuel, which increases operating costs. Investments in alternative fuel sources,

although strategically important, require significant capital investments and time for full integration and payback.

Table 2.3 - Problems in cost management at Dangote Cement

| High Energy Costs             |                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Problem:                      | Cement production is an energy-intensive process, and the cost of energy (fuel, electricity, etc.) is a major contributor to Dangote Cement's operational expenses. The company relies heavily on conventional energy sources like coal, natural gas, and electricity, which can be subject to price volatility, particularly in emerging economies where energy prices are unpredictable. |
| Impact:                       | Fluctuating energy prices and supply disruptions can affect the overall cost of production, making it harder to forecast and manage expenses effectively.                                                                                                                                                                                                                                  |
| Raw Material Price Volatility |                                                                                                                                                                                                                                                                                                                                                                                            |
| Problem:                      | The prices of key raw materials used in cement production, such as limestone, gypsum, and coal, are susceptible to market fluctuations. Changes in global supply and demand, trade policies, and local conditions can cause material prices to rise, increasing production costs                                                                                                           |
| Impact:                       | Increases in the cost of raw materials can affect margins, and the company may struggle to pass on these higher costs to consumers due to competitive pressure in the market.                                                                                                                                                                                                              |

Resouse: constructed by the author based on analysis, own research in the organization

Apart from energy, the cost of raw materials is the second largest component of cost. Although Dangote Cement has the advantage of vertical integration, owning its own limestone quarries, the increase in the prices of other necessary materials, which are imported or purchased domestically, negatively affects the overall costs. The increase in the cost of materials by 104% in the first quarter of 2024, together with energy costs, indicates significant pressure on profit margins. Cost optimization is a critical aspect of effective management for any organization seeking to improve competitiveness and sustainability. T

he optimization process begins with a deep analysis and identification of problem areas and unused reserves. This stage requires a systematic approach that includes the collection, analysis and interpretation of relevant data. Dangote Cement is the market leader in Africa and uses a cost leadership strategy. Their efficiency is already high thanks to economies of scale and backward integration. However, there is always room for further optimization.

Table 2.4 - Problems in Cost Management at Dangote Cement

| Transportation and Logistics Costs |                                                                                                                                                                                                                                                                                                     |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Problem:                           | Dangote Cement operates in many countries across Africa, and logistics costs—especially for transporting raw materials to plants and distributing finished products to markets—are significant. Poor infrastructure in some regions, delays, and rising fuel prices further exacerbate these costs. |
| Impact:                            | High transportation and logistics costs reduce profitability, particularly when dealing with remote plants or export markets.                                                                                                                                                                       |
| Underutilization of Some Plants    |                                                                                                                                                                                                                                                                                                     |
| Problem:                           | Dangote Cement has a large number of plants, some of them may not always operate at full capacity due to regional demand fluctuations or logistical challenges in reaching certain markets.                                                                                                         |
| Impact:                            | Underutilized plants incur fixed operational costs (such as maintenance, salaries, and overhead), which cannot be offset by production, leading to inefficiencies and higher per-unit costs.                                                                                                        |

Resouse: constructed by the author based on analysis, own research in the organization

The underdeveloped infrastructure in Nigeria and other countries where Dangote Cement operates poses serious challenges to the effective management of logistics costs. Poor road conditions lead to:increased maintenance costs for its own fleet due to accelerated wear and tear of vehicles, increased fuel consumption due to low speed and frequent stops, increased delivery times, potentially leading to lost sales opportunities, jperational risks, such as fraud and misuse of vehicles, also impact financial performance.

Table 2.4 - Problems in Cost Management at Dangote Cement

| Environmental and Regulatory Compliance |                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Problem:                                | Environmental regulations are becoming stricter, especially regarding CO2 emissions and sustainability practices. Compliance with environmental laws may require substantial investments in cleaner technologies or paying for carbon credits, which can add to costs.                                |
| Impact:                                 | Failure to comply with regulations or delays in adopting new environmental standards may result in fines, legal costs, or reputational damage.                                                                                                                                                        |
| Currency Fluctuations                   |                                                                                                                                                                                                                                                                                                       |
| Problem:                                | Since Dangote Cement operates across multiple countries, it is exposed to currency risks, especially with African currencies that can fluctuate wildly against the US dollar or the Euro. Currency depreciation in key markets can affect both raw material costs (imported goods) and profitability. |
| Impact:                                 | Currency volatility can distort profit margins, particularly when costs are incurred in foreign currencies while revenues are generated in local currencies that may have depreciated.                                                                                                                |

Resouse: constructed by the author based on analysis, own research in the organization

A significant portion of equipment, spare parts and some raw materials are imported, making the company vulnerable to currency fluctuations, in particular the devaluation of the Nigerian naira. This results in significant foreign exchange losses that are not operational in nature but significantly impact the final financial result. For example, the 124% increase in foreign exchange losses in 2024 is a clear example of this impact. In addition, general inflationary pressures in the economy also increase operating expenses, including wages, rent and other administrative expenses.

**Analysis of Cost Optimization Challenges and Opportunities at Dangote Cement Plc. Competition and Price Sensitivity.** Dangote Cement Plc operates in an environment of increasing competition from both national and international cement producers. Particularly fierce competition is observed in key markets such as Nigeria, where competitors are actively applying aggressive pricing strategies. This creates a dilemma for the company regarding the need for a balanced approach between maintaining competitive prices and protecting profit margins. Intensifying competition may initiate price wars, which, in turn, will lead to a further reduction in Dangote Cement Plc's profitability, potentially threatening its financial stability and investment attractiveness.

For each cost item that is significant to Dangote Cement, a target percentage reduction can be determined. This will allow the potential savings to be calculated in absolute terms. Based on an analysis of Dangote Cement's 2024 financial statements, where the Cost of Sales was ₦1,645.7 billion, key cost items can be identified and the following hypothetical targets can be proposed.

**Energy Cost Optimization:** Energy is one of the largest cost items in the cement industry. Dangote Cement is already working to optimize its energy mix, in particular through the use of coal. Further steps include. Use of Alternative Fuels (AF): Increase the share of biomass, waste, other less expensive and environmentally friendly energy sources in clinker production. Savings Potential: Reduce energy costs by 5-10% of the total energy component of the cost. Let's assume that energy is 30% of the cost ( $₦1,645.7 \text{ billion} \times 0.30 = ₦493.7 \text{ billion}$ ). A 5-10% reduction would save between ₦24.7 billion and ₦49.4 billion per year.

Improving energy efficiency of equipment: Implementing new technologies and optimizing existing production processes to reduce energy consumption per ton of clinker/cement. Savings potential: Reducing specific energy consumption by 2-3%. This could save an additional ₦9.9 billion to ₦14.8 billion per year.

Optimizing logistics and transportation costs. Dangote Cement has an extensive distribution network. Transportation costs are significant, especially in the African infrastructure environment. Route optimization and vehicle loading: Using linear programming and modern logistics systems to minimize empty runs and maximize truck loading. Savings potential: Reducing transportation costs by 5-15%. If transportation represents 15% of the cost ( $\text{₦1,645.7 billion} \times 0.15 = \text{₦246.9 billion}$ ), the savings could be between ₦12.3 billion and ₦37.0 billion per year. Fleet improvement: Investing in more fuel-efficient vehicles and improving maintenance.

Raw material cost optimization. Although Dangote Cement has advantages due to backward integration (own quarries), there is always room for optimization. Formulation optimization and additive usage: Reducing the proportion of clinker in cement by increasing the use of alternative components (e.g. fly ash, slag), which reduces costs and CO2 emissions. Savings potential: Reduction of raw material (clinker) costs by 2-5% through recipe optimization. If raw materials constitute 20% of the cost ( $\text{₦1,645.7 billion} \times 0.20 = \text{₦329.1 billion}$ ), then the savings can be from ₦6.6 billion to ₦16.5 billion per year.

Increase operational efficiency and labor productivity. Implementation of "lean manufacturing" principles: Elimination of losses at all stages of the production process (excess inventory, waiting time, unnecessary movements, shortages). Savings potential: Reduction of operating costs (excluding energy, raw materials, transportation) by 3-7%. If these costs are, for example, 20% of the cost price ( $\text{₦1,645.7 billion} \times 0.20 = \text{₦329.1 billion}$ ), then the savings could be from ₦9.9 billion to ₦23.0 billion per year. Automation and digitalization: Implementation of innovative technologies to monitor and control production processes, which increases efficiency and reduces the human factor.

Inventory management. Optimizing inventory levels: Reducing the costs of storing and managing raw materials, clinker and finished products through more accurate demand forecasting and optimizing deliveries. Savings potential: Reducing inventory management costs by 10-20%. Depending on the volume of inventory and associated costs, this could be, for example, ₦5-10 billion per year.

Reserves (opportunities) for cost optimization. Introduction of alternative energy sources. One of the key areas of cost optimization is the further research and integration of alternative energy sources, such as solar and wind energy, as well as waste-to-energy technologies. In particular, using waste-derived fuels (e.g., plastic or biomass) instead of traditional fuels such as coal can help reduce energy costs in the long term. Implementing this strategy will reduce dependence on volatile energy markets, reduce fuel costs, and increase the environmental sustainability of the company's operations.

Expand renewable energy initiatives. In addition to implementing alternative fuels, Dangote Cement may consider investing more in renewable energy infrastructure at its plants. In particular, using solar power plants to generate electricity is particularly appropriate in regions with high levels of solar insolation. Investing in renewable energy sources will reduce long-term operating costs, increase the company's energy independence, and support the company's environmental initiatives.

Optimize the supply chain. Improving supply chain efficiency through increased coordination between suppliers, carriers, and distributors can lead to significant cost savings. This can include optimizing routes, consolidating shipments, and leveraging real-time tracking technology to reduce delays and reduce fuel and maintenance costs. Improving logistics efficiency will lead to lower transportation costs, shorter delivery times, and improved overall supply chain productivity.

Technology integration to automate processes. Investing in automation and AI-based systems to manage manufacturing operations, including predictive maintenance, inventory management, and resource optimization, can help reduce labor costs and improve operational efficiency. Technology-driven automation can

reduce downtime, improve the accuracy of manufacturing processes, and reduce operational costs associated with human error and inefficiency.

**Use of local raw materials.** Dangote Cement can expand its efforts to locally source and procure raw materials, reducing its dependence on imports. Investing in domestic mining operations for limestone, coal and other key materials will minimize price volatility and reduce transportation costs. Local sourcing of materials will help stabilize raw material costs, improve supply chain security and reduce the impact of global price fluctuations.

**Maximize capacity utilization.** Dangote Cement can optimize capacity utilization by better aligning production schedules with regional demand forecasts. In regions with lower demand, the company can adjust production capacity to avoid underutilization. Increasing production efficiency and ensuring that plants operate at optimal capacity will reduce fixed costs per unit of output and improve profit margins.

**Strengthen digitalization and data analytics.** Further use of data analytics and digital tools will allow Dangote Cement to improve the quality of decision-making. Advanced data analytics can be applied to more accurately forecast demand, identify cost-saving opportunities, and improve financial reporting and control mechanisms. A more data-driven approach will allow the company to identify inefficiencies in real time, proactively manage costs, and adjust strategies more quickly to prevent overspending.

**Sustainability and Green Building Solutions.** Given the growing global priority for sustainability, Dangote Cement may invest in green technologies such as low-carbon cement or carbon capture and storage (CCS) solutions. Offering sustainable products can position Dangote Cement as an industry leader in green construction. Implementing green solutions can attract new customers, reduce energy costs in the long term, and help the company avoid potential regulatory fines related to emissions.

**Currency hedging.** To mitigate the effects of currency fluctuations, Dangote Cement may use financial hedging strategies to lock in favorable exchange rates while reducing the impact of adverse currency movements. This

can reduce financial volatility and stabilize margins, especially in regions with unpredictable currency fluctuations.

These strategies, combined with ongoing operational efforts, can provide Dangote Cement Plc with the tools to manage costs more effectively and maintain a competitive advantage in the market. The cost management challenges at Dangote Cement Plc are multifactorial and require comprehensive solutions. Although the company is implementing strategies to diversify its fuel base, optimize logistics, and increase energy efficiency, macroeconomic instability, currency risks, and infrastructure constraints in the region remain significant barriers to achieving optimal cost levels. Further research could focus on quantifying the impact of each of these factors on the company's financial performance and developing specific mitigation strategies.

## SECTION 3

### WAYS TO IMPROVE MANAGEMENT AND OPTIMIZE COSTS ON THE DANGOTE CEMENT COMPANY

In the highly competitive cement industry, efficient cost management is crucial for sustaining profitability and ensuring long-term growth. Dangote Cement, as one of Africa's largest producers, operates in a dynamic market with fluctuating raw material prices, energy costs, and logistical challenges. Improving its cost management system will enable Dangote Cement to maintain its competitive edge, increase profitability, and align with sustainability goals. This section outlines key directions for improving cost management at Dangote Cement and provides specific measures to optimize costs.

**Energy Cost Optimization.** Energy costs are one of the largest contributors to production costs in the cement industry, accounting for a significant portion of total operating expenses. Dangote Cement, like other cement producers, relies heavily on coal, natural gas, and electricity to power its manufacturing plants. These energy sources are subject to volatility, both in price and availability, which can negatively impact the company's bottom line.

**Proposed Measures.** Shift to renewable energy transitioning part of Dangote's energy needs to renewable sources such as solar power and wind energy could provide long-term savings by reducing dependence on fossil fuels.

Invest in waste heat recovery cement production generates significant heat, much of which is wasted. Investing in waste heat recovery systems can capture this energy and convert it into electricity, reducing reliance on external power sources.

**Energy-efficient equipment upgrade** kilns and other energy-intensive machinery to more energy-efficient models that consume less power while maintaining production levels. **Energy audits** regular energy audits should be conducted across all plants to identify inefficiencies, recommend improvements, and track progress toward energy savings. **Expected Benefits.** Lower energy expenses, leading to a significant reduction in overall production costs. Improved environmental

footprint, aligning with global sustainability trends. Greater resilience against energy price volatility.

**2. Raw Material Procurement and Inventory Management.** The costs of raw materials such as limestone, gypsum, and clay represent a substantial portion of Dangote Cement's production costs. Price fluctuations in raw materials, as well as logistical challenges related to sourcing and inventory, can lead to higher operating costs. **Proposed Measures.** Local sourcing of raw materials Dangote Cement should prioritize sourcing raw materials from local suppliers to reduce transportation costs and mitigate risks related to currency fluctuations and international trade. Long-Term contracts with suppliers to secure stable pricing, Dangote should establish long-term contracts with suppliers of critical materials, locking in favorable rates and reducing exposure to raw material price volatility. **Inventory Management System (JIT)** implement a Just-in-Time (JIT) inventory system to minimize excess stock and reduce warehousing costs. By aligning production schedules with demand, the company can avoid overstocking, which ties up capital in unsold inventory. Bulk purchasing and centralized procurement centralizing procurement at a corporate level can lead to economies of scale, allowing Dangote Cement to negotiate better rates and terms with suppliers. **Expected Benefits.** Reduced material costs due to local sourcing and bulk buying. Lower capital tied up in inventory and improved cash flow. More predictable material costs, leading to better cost control.

**3. Logistics and Supply Chain Optimization.** Transportation costs represent a significant portion of Dangote Cement's expenses, particularly in regions with underdeveloped infrastructure. Poor road conditions, rising fuel costs, and inefficient supply chain management contribute to these high expenses. Moreover, the complexity of distributing cement to various markets across Africa adds to logistical challenges. **Proposed Measures.** Route optimization and fleet management leverage AI and data analytics to optimize transportation routes and schedules, reducing fuel consumption and enhancing delivery efficiency. **Use of alternative Transportation:** In areas with underdeveloped road networks, exploring alternatives such as rail transport or waterway shipping could provide more cost-

effective and environmentally friendly options for cement distribution. Centralized warehousing consolidating regional warehouses can reduce inventory holding costs, improve stock turnover, and minimize transportation inefficiencies. Collaboration with third-party logistics providers partnering with third-party logistics (3PL) providers to manage distribution can help reduce capital expenditures on transportation and allow Dangote to focus on core production activities. Expected Benefits as lower logistics and transportation costs; improved delivery reliability and reduced lead times; better stock management and lower distribution costs.

Table 3.1 - Recommendations for Implementing an Improved Cost Management System

| Recommendation                                        | Description                                                                       | Expected Benefit                                             |
|-------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------|
| Adopt Advanced TMS (Transportation Management System) | Implement a centralized digital platform to plan, execute, and optimize logistics | Improved route planning, real-time tracking, cost visibility |
| Implement Route Optimization Software                 | Use AI/ML algorithms to reduce mileage and fuel usage                             | Lower fuel costs, faster delivery, fewer empty trips         |
| Conduct Regular Fleet Utilization Audits              | Monitor truck usage and downtime to optimize asset deployment                     | Reduced idle time, higher ROI on assets                      |
| Introduce Fuel Management Systems                     | Track fuel usage, detect fraud, and forecast fuel demand                          | Lower fuel wastage, better cost forecasting                  |
| Leverage Rail & Water Transport                       | Shift from road to rail and barge transport for bulk goods where feasible         | Lower unit cost per ton, reduced road congestion             |
| Outsource to 3PL Strategically                        | Use third-party logistics for non-core routes or regions                          | Flexibility, reduced capital expenditure                     |
| Implement Cost KPIs & Dashboards                      | Use dashboards to track key cost metrics (e.g., cost/ton/km, delivery variance)   | Data-driven decision-making, accountability                  |
| Optimize Load Planning                                | Use software to maximize load capacity per trip                                   | Fewer trips, lower per-unit transport cost                   |
| Introduce Driver Incentive Programs                   | Reward drivers based on fuel efficiency, safety, and timely delivery              | Improved performance, reduced operational risks              |
| Digitalize Documentation & Invoicing                  | Use e-bills of lading, e-invoices, and mobile apps                                | Reduced paperwork, faster reconciliations, cost savings      |
| Warehouse Location Optimization                       | Analyze demand patterns and reposition depots accordingly                         | Shorter last-mile deliveries, lower transport costs          |
| Train Logistics Staff on Cost Awareness               | Conduct regular workshops on cost management principles                           | Cultural shift towards efficiency and accountability         |

Resouse: constructed by the author based on analysis, own research in the organization

4. Plant Capacity Utilization and Workforce Optimization. Underutilization of plant capacity can lead to inefficient cost structures. Fixed costs like labor, maintenance, and overhead are incurred regardless of production levels, which means underutilized plants increase the per-unit cost of production. Additionally, the cost of labor, though necessary, is an area where optimization can improve profitability.

Proposed Measures. maximize plant utilization use advanced forecasting techniques and data analytics to ensure that plants are operating at optimal capacity, reducing idle time and improving throughput. This could involve adjusting production schedules based on market demand. Predictive Maintenance implement predictive maintenance technologies that utilize sensors and data analytics to monitor equipment condition and predict potential failures before they occur. This reduces downtime and extends the lifespan of machinery. Flexible Workforce Management implement flexible labor practices to ensure that the workforce is deployed effectively. This could involve hiring temporary workers during peak demand periods or using automation to reduce reliance on manual labor for repetitive tasks. Training and Upskilling invest in employee training programs to ensure that workers are equipped with the necessary skills to operate new technology and processes. A skilled workforce contributes to productivity and reduces operational errors. Expected Benefits improved plant productivity and lower per-unit production costs; reduced unplanned downtime and maintenance costs; a more efficient and adaptable workforce.

5. Sustainability and Green Technologies. With increasing regulatory pressure on environmental sustainability and growing consumer demand for environmentally-friendly products, Dangote Cement has an opportunity to both reduce costs and enhance its market position by adopting green technologies. Proposed Measures. Invest in carbon capture and storage (CCS), this technology captures CO<sub>2</sub> emissions from cement production and prevents them from entering the atmosphere. By investing in CCS technology, Dangote Cement can reduce carbon-related taxes or penalties and enhance its reputation as a responsible corporate citizen. Development of Low-Carbon Products invest in R&D to develop

more sustainable cement products, such as low-carbon cements or alternative materials that reduce the carbon footprint of cement production. Sustainable Packaging explore the use of eco-friendly packaging for cement distribution, which could help reduce material costs while appealing to environmentally-conscious consumers. Expected benefits lower environmental compliance costs and reduced carbon taxes; increased customer loyalty and brand reputation due to sustainability efforts; cost savings from energy-efficient equipment and waste reduction.

6. Financial Risk Management currency hedging Dangote Cement operates in multiple countries across Africa, making it vulnerable to currency exchange rate fluctuations. In particular, depreciation in local currencies can increase the cost of imported raw materials and equipment. Proposed Measures: currency hedging use financial hedging strategies to manage currency risks. By locking in exchange rates, Dangote Cement can protect itself from adverse movements in foreign exchange rates. Local currency financing when possible, Dangote Cement should explore local currency financing for projects and operations to reduce reliance on foreign currency and mitigate exchange rate risk. Expected Benefits reduced financial risk from currency fluctuations; more predictable cost structure and improved financial stability.

Establish a cost optimization task force a cross-functional team should be created to oversee cost optimization initiatives. This team would be responsible for setting goals, tracking progress, and ensuring accountability.

Set clear cost reduction targets establish specific cost reduction targets for each department, such as energy savings, material cost reduction, and logistics efficiency.

Implement a digital cost management system a cloud-based system should be adopted to track costs in real-time, providing visibility into expenditures across all departments and identifying areas for improvement.

Monitor and Report Regularly: Implement a system for monthly and quarterly reporting of cost performance, comparing actual costs to budgeted amounts, and adjusting strategies as necessary.

Engage with external experts for complex initiatives like carbon capture, renewable energy adoption, and advanced logistics systems, Dangote Cement should partner with industry experts or consultants who can provide specialized knowledge and guidance.

Employee involvement employees at all levels should be engaged in the process of cost optimization. This can be done through training, suggestion programs, or performance-based incentives.



Picture 3.1 - Structure of strategy implementation at Dangote cement

Resouse: constructed by the author based on analysis, own research in the organization

Improving cost management in Dangote Cement, a leading cement manufacturer in Africa, involves analyzing both direct and indirect costs to enhance profitability while maintaining quality and operational efficiency. Here are some specific proposals that could help optimize cost management within the company optimizing energy consumption.

Transportation and logistics costs Dangote Cement operates in many countries across Africa, and logistics costs especially for transporting raw materials to plants and distributing finished products to markets are significant. Poor infrastructure in some regions, delays, and rising fuel prices further exacerbate

these costs. High transportation and logistics costs reduce profitability, particularly when dealing with remote plants or export markets.

Table 3.3 - Proposals for transportation and logistics costs

| Cost Category               | Description                                                       | Estimated Cost Impact (% of Total Logistics Cost) |
|-----------------------------|-------------------------------------------------------------------|---------------------------------------------------|
| Inbound Transportation      | Raw materials transported from ports/mines to factories           | 20–30%                                            |
| Outbound Transportation     | Delivery of finished goods to distributors and retail outlets     | 30–40%                                            |
| Fuel & Energy Costs         | Diesel and fuel used in trucks, barges, rail, and plant logistics | 10–15%                                            |
| Fleet Maintenance           | Maintenance of Dangote's own trucking fleet (thousands of trucks) | 5–10%                                             |
| Driver & Staff Wages        | Salaries, benefits, and allowances for logistics personnel        | 5–8%                                              |
| Toll & Regulatory Fees      | Road tolls, weighbridge fees, taxes, and transport permits        | 2–5%                                              |
| Third-party Logistics (3PL) | Outsourced logistics providers (where applicable)                 | 5–10%                                             |
| Warehousing & Storage       | Temporary storage, depot costs, and distribution center handling  | 2–5%                                              |
| Losses & Damages            | In-transit losses, product damages, insurance                     | 1–3%                                              |
| Technology & Monitoring     | GPS tracking, fleet management systems, logistics software        | 1–2%                                              |

Resouse: constructed by the author based on analysis, own research in the organization

1. Energy costs, particularly electricity and fuel for machinery, are a significant portion of the manufacturing costs in cement production. To address this implement energy efficient technologies investing in energy-efficient technologies such as variable speed drives, high-efficiency motors, and heat recovery systems can help reduce energy consumption. Utilize Alternative Fuels Dangote Cement could explore using alternative fuels such as biomass, waste-derived fuels, or industrial by-products like tire-derived fuel (TDF) to replace traditional fossil fuels, which are often more expensive and environmentally taxing. Energy Audits and Monitoring Systems regular energy audits and the installation of advanced energy management systems will allow Dangote Cement to monitor and optimize its energy use in real time, identifying inefficiencies and areas where cost reductions can be made.

2. Supply Chain Optimization. Inefficiencies in the supply chain contribute to higher transportation, logistics, and procurement costs. Proposals for optimizing this area include consolidation of supply chains. Dangote Cement could further consolidate its suppliers and focus on long-term partnerships with key suppliers, which could result in better prices, discounts, and more predictable supply flows. Use of Bulk purchasing by negotiating bulk purchasing agreements for raw materials like limestone, clay, and gypsum, Dangote Cement can leverage economies of scale to reduce input costs. Logistics Optimization investments in advanced logistics management software, combined with data analytics, could streamline transportation and delivery schedules, ensuring that products reach markets faster and more cost-effectively. Optimizing delivery routes and consolidating shipments could lower fuel and transportation costs.

3. Maintenance and Equipment Management. Preventive maintenance and efficient equipment utilization are crucial in minimizing downtime and repair costs. Adopt predictive maintenance implementing predictive maintenance practices, where sensors and analytics predict when equipment will fail, can help in addressing issues before they lead to costly repairs or production stoppages. This can reduce downtime and extend the lifespan of machinery. Outsource Non-Critical Maintenance outsourcing routine maintenance tasks that don't directly affect core production could help Dangote Cement focus its internal resources on more critical activities while controlling labor costs.

4. Improved Production Processes. By improving the production process, Dangote Cement can reduce waste and enhance output. Process automation and digitization implementing more automation in the production line using advanced robotics and artificial intelligence (AI) can reduce human error, improve production speed, and lower labor costs. AI and data analytics can also be used to optimize the blending of raw materials and the cement manufacturing process. Waste reduction programs a waste audit could be conducted to identify where excess materials are being used or wasted. For example, optimizing the use of additives and blending materials more effectively can reduce raw material costs. Optimization of kiln operations the cement production process is energy-intensive,

especially during the kiln phase. By investing in advanced kiln technologies and improving kiln efficiency (e.g., using waste heat recovery systems), the company could significantly reduce fuel consumption.

5. Cost Control in Procurement. Controlling procurement costs involves negotiating better terms with suppliers, reducing wastage, and avoiding over-purchasing. Vendor audits and strategic sourcing regular supplier audits could help in assessing their efficiency and cost-effectiveness, potentially leading to renegotiated contracts for better pricing. Furthermore, sourcing materials from local suppliers could lower transportation costs. Inventory Optimization by using just-in-time (JIT) inventory management, Dangote Cement can reduce storage costs and the potential for material obsolescence. This could be combined with real-time tracking of inventory levels through advanced software.

6. Reducing Labor Costs. Labor is a significant component of operational costs. Proposals to reduce labor costs without affecting productivity include workforce reskilling and cross-training cross-training employees to handle multiple roles can help reduce the need for additional staff while improving operational flexibility. This also increases employee morale and efficiency. Performance-based compensation introducing performance-based incentives tied to production targets, quality standards, or cost reduction initiatives can motivate employees to work more efficiently, aligning individual performance with company objectives. Automation in administrative functions automating administrative and back-office functions like payroll, procurement, and data entry can streamline operations and reduce the need for manual labor, resulting in significant cost savings.

7. Technology Integration for Data-Driven Decisions. Improving data analytics within the company could lead to cost reductions across various departments adopt advanced analytics tools implementing data analytics for performance monitoring, inventory management, and cost tracking can provide real-time insights that enable more informed decision-making and identify areas of cost leakage. Enterprise Resource Planning (ERP) Systems: Upgrading or integrating ERP systems can allow Dangote Cement to manage operations across

departments (from procurement to production) more effectively, improving overall cost control.

8. Sustainability and Carbon Credit Initiatives. Environmental regulations and sustainability goals are becoming increasingly important, and adopting green initiatives could reduce costs. Carbon Credit Trading: By reducing emissions and adopting more sustainable production practices, Dangote Cement could qualify for carbon credits, which could be monetized or used to offset future environmental costs. Green Building Certifications: As demand grows for sustainable construction materials, positioning Dangote Cement as a leader in sustainable cement production could not only reduce environmental costs but also provide access to new markets.

## CONCLUSION

This research has critically explored the cost management practices employed at Dangote Cement, one of Africa's largest and most influential cement manufacturers. The analysis, spanning theoretical foundations, practical implementation, risk assessment, and forward-looking recommendations, reveals that effective cost management is indispensable for operational success, profitability, and long-term sustainability in the cement industry.

The theoretical framework established in Chapter One provided a strong foundation for understanding the multifaceted nature of cost management. It emphasized the importance of tools such as Activity-Based Costing (ABC), lean manufacturing, ERP systems, and strategic cost management (SCM). These tools empower companies to monitor expenses in real-time, streamline operations, and make data-driven decisions. The literature showed that cost management is no longer merely about cost cutting but has evolved into a dynamic process that links financial discipline with strategic planning, value creation, and competitive advantage.

Chapter Two presented a detailed organizational and economic profile of Dangote Cement, identifying the company's robust cost management system as a key driver behind its market dominance and financial performance. The analysis demonstrated that the company has made significant strides in adopting technology, optimizing supply chains, and leveraging economies of scale. However, it also revealed inherent challenges such as energy price volatility, logistics inefficiencies, raw material price fluctuations, and underutilization of production capacity.

Furthermore, the risk analysis highlighted how macroeconomic factors—including currency fluctuations and regulatory pressures—pose threats to cost stability. Despite these, Dangote Cement has remained resilient through proactive sourcing strategies, technological investments, and sustainability initiatives.

In Chapter Three, actionable recommendations were proposed for optimizing cost management at Dangote Cement. These include: transitioning to

renewable energy and waste heat recovery to reduce energy expenses, enhancing raw material procurement through local sourcing and long-term supplier contracts, streamlining logistics using AI-driven fleet management and alternative transport routes, improving plant utilization and workforce productivity through predictive maintenance and employee upskilling, strengthening financial risk management via currency hedging and localized financing, integrating digital cost control systems for real-time financial monitoring.

Notably, the inclusion of sustainability practices and green technologies positions Dangote Cement to benefit from environmental incentives, align with global ESG (Environmental, Social, and Governance) trends, and tap into new markets prioritizing eco-friendly construction materials.

Ultimately, the study confirms that cost management at Dangote Cement is both a strength and an evolving opportunity. The company's deliberate and systematic approach to controlling costs while maintaining product quality, compliance, and innovation has established it as a model for other firms in the sector. However, continuous improvement, guided by data analytics, strategic foresight, and employee involvement, remains essential to navigating the ever-changing industrial and economic landscape.

In conclusion, effective cost management is not simply a function of accounting but a strategic imperative. For Dangote Cement, its ability to optimize cost structures will continue to determine its competitive advantage, resilience in volatile markets, and its trajectory as a pan-African industrial leader.

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