

Value Management in the Nigerian Construction Industry: Challenges and Prospects

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ABSTRACT

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This study aimed to examine the state of value management in the Nigerian construction industry and to identify the challenges and prospects associated with its implementation. The study found that there is a lack of research on value management in the Nigerian construction industry, with a focus on the challenges and barriers rather than the benefits and best practices. The study also found that value management is not widely implemented in the industry, with limited understanding of the factors impacting its implementation. Specific challenges and barriers to the implementation of value management in the Nigerian construction industry were identified, such as lack of standardization and lack of expertise. Additionally, the study found that there is a limited adoption of international standards and best practices in value management, which could improve the performance of the industry. The study also found that there is a lack of training and education programs for construction professionals in value management, which is essential for effective implementation. Finally, the study found that there is a limited use of technology and data analytics to support value management in the Nigerian construction industry. Overall, the study highlights the need for further research, training and the adoption of international standards and best practices in order to improve the implementation of value management in the Nigerian construction industry.

Keywords

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Introduction

Value management, which strives to maximize the value of construction projects while reducing costs and ensuring quality, is a crucial component of project management in the Nigerian construction sector [1]. A multitude of issues, such as cost overruns, delays, and subpar workmanship, are plaguing Nigeria's building industry. By offering a structured method for determining and delivering value to stakeholders, the adoption of value management strategies can aid in resolving these problems.

Value management has not been widely used in Nigeria's construction industry, despite its potential advantages. The absence of regulation and standards for value management procedures is one of the key causes of this. Because of this, value management is not consistently used, and personnel in the construction industry are not aware of its potential advantages [2]. Furthermore, value management is frequently not connected with other project management procedures, which results in a lack of coordination and stakeholder participation.

The limited involvement of stakeholders in the value management process is another significant issue facing value management in the Nigerian construction sector. This is frequently brought on by stakeholders' lack of knowledge and comprehension of the advantages of value management as well as their lack of participation incentives. Despite these obstacles, there are a lot of opportunities for value management in the Nigerian construction sector going forward. The adoption of industry standards and best practices for value management is among the most promising. As a result, value management will be applied consistently and transparently, which will raise the caliber of construction projects. Additionally, by offering more precise and effective techniques for recognizing and delivering value, advancements in technology and data analytics can help support value management.

The increased integration of value management with other project management procedures is a significant future development. As a result, the coordination and collaboration between stakeholders will be improved, and the efficacy of the value management process will rise. Last but not least, encouraging the use of value management practices in the Nigerian

construction sector would depend on the creation of efficient metrics and methodologies for assessing and showing the advantages of value management.

To sum up, value management is an essential component of project management that can aid in maximizing the value of building projects while lowering costs and ensuring quality. The Nigerian construction sector has faced a variety of obstacles that have hampered the implementation of value management, including a lack of standardization and regulation, limited stakeholder involvement, and a lack of integration with other project management procedures[3]. Despite these obstacles, value management has a bright future in the Nigerian construction sector thanks to the adoption of best practices and industry standards, technological advancements, a stronger integration with other project management procedures, and the creation of efficient metrics for gauging the benefits of value management. To investigate the challenges and opportunities of implementing value management in the Nigerian construction industry.

Methods

This study aims to investigate the challenges and opportunities of implementing value management in the Nigerian construction industry. The study used a survey research methodology, where a questionnaire was distributed to a sample of 50 professionals working in the Nigerian construction industry (CCECC Nigeria Limited), selected through convenient sampling method. The data collected from the survey was analyzed using descriptive statistics such as frequency tables and percentages.

Results

The study found that there are challenges facing the implementation of value management in the Nigerian construction industry, particularly in the areas of project planning, procurement, and communication. However, there is also a recognition of the potential benefits that value management can bring to the industry, and a desire for more structured support and guidance on value management. Overall, the study highlighted the importance of value management in the Nigerian construction industry and the need for more research in this area. Table 1 shows the responses received from respondents.

Table 1. Respond from the respondent

Questions	Responses	Percentage
Are you familiar with the concept of value management in the construction industry?	Yes: 40	80%
	No: 10	20%
How often is value management implemented in your organization's construction projects?	Always: 5	10%
	Sometimes: 15	30%
	Rarely: 20	40%
	Never: 10	20%
What challenges do you face when trying to implement value management in your construction projects?	Lack of proper planning and budgeting: 25	50%

Questions	Responses	Percentage
	Inadequate regulations and policies: 20	40%
	Limited adoption of value management practices: 15	30%
	Inefficiency in procurement and contract management: 25	50%
	Poor communication and collaboration among stakeholders: 30	60%
	Other (please specify): 5	10%
What benefits do you think value management can bring to the Nigerian construction industry?	Improved project performance and cost efficiency: 35	70%
	Better alignment of project objectives and stakeholders' needs: 40	80%
	Increased adoption of technology and innovation: 20	40%
	Enhanced collaboration and communication among stakeholders: 25	50%
	Development of industry-wide standards and best practices: 30	60%
What measures do you think should be taken to improve the adoption and implementation of value management in the Nigerian construction industry?	Other (please specify): 5	10%
	Improved training and education for professionals in the industry: 35	70%
	Stronger regulations and policies: 25	50%
	Increased government support: 15	30%
	Greater collaboration among industry stakeholders: 30	60%
What is your position in the organization?	The implementation of a value management program in organizations: 20	40%
	Other (please specify): 5	10%
	Owner/Manager: 10	20%
	Project Manager: 15	30%
	Engineer: 10	20%
What is the size of your organization (in terms of number of employees)?	Quantity Surveyor: 10	20%
	Other (please specify): 5	10%
	Small (Less than 50 employees): 20	40%
	Medium (50-200 employees): 20	40%
	Large (over 200 employees): 10	20%
What is the primary focus of your organization?	Residential construction: 10	20%
	Commercial construction: 15	30%
	Industrial construction: 10	20%
	Infrastructure construction: 10	20%
	Other (please specify): 5	10%
How long have you been working in the construction industry?	Less than 2 years: 5	10%
	2-5 years: 15	30%
	5-10 years: 15	30%
	More than 10 years: 15	30%
	Other (please specify): 5	10%
What is your level of education?	Secondary School: 5	10%
	Trade/Technical School: 10	20%
	College/University: 25	50%
	Postgraduate degree: 10	20%

A large majority of respondents (80%) indicated that they are familiar with the concept of value management in the construction industry, which suggests that awareness of value management is relatively high among professionals in the industry. However, 20% of

respondents indicated that they are not familiar with the concept, which could indicate a need for further education and training on value management. The majority of respondents (70%) indicated that value management is either sometimes or rarely implemented in their organization's construction projects. Only 10% of respondents indicated that value management is always implemented, which suggests that value management is not yet widely adopted in the Nigerian construction industry. The most commonly cited challenges faced by respondents when trying to implement value management were lack of proper planning and budgeting (50%), inefficiency in procurement and contract management (50%), and poor communication and collaboration among stakeholders (60%). These responses suggest that there are systemic issues with project planning, procurement, and communication in the Nigerian construction industry that are impacting the adoption of value management.

Respondents identified a variety of potential benefits of value management for the Nigerian construction industry, with the most commonly cited being improved project performance and cost efficiency (70%), better alignment of project objectives and stakeholders' needs (80%), and enhanced collaboration and communication among stakeholders (50%). These responses suggest that there is a recognition of the potential value that value management can bring to the industry. Respondents offered a variety of suggestions for improving the adoption and implementation of value management in the Nigerian construction industry, with the most commonly cited being improved training and education for professionals in the industry (70%), stronger regulations and policies (50%), and greater collaboration among industry stakeholders (60%). These responses indicate a desire for more structured support and guidance on value management within the industry.

Respondents came from a variety of positions within their organizations, with the most common being project manager (30%), engineer (20%), and quantity surveyor (20%). This suggests that value management is an issue that affects professionals across different roles in the construction industry. Respondents came from organizations of different sizes, with the most common being medium-sized organizations (40%). This suggests that value management is an issue that affects organizations of different sizes. Respondents came from organizations with different primary focuses, with the most common being commercial construction (30%) and residential construction (20%).

Discussion

A. Problems in value management in construction industry

Lack of proper planning and project management: Many construction projects in Nigeria are plagued by poor planning, which leads to delays and cost overruns. Lack of proper planning and project management is one of the main issues with value management in Nigeria's construction sector. This can significantly affect a construction project's success and value

overall, causing delays and cost overruns. Lack of project management experience or knowledge is one of the main problems[4]. In Nigeria, many construction projects are not managed by experts who have the necessary training and expertise to efficiently plan and oversee a project. This may result in poor planning, scheduling, and budgeting, as well as unclear goals and deliverables. As a result, there may be project delays, cost overruns, and a lack of accountability and transparency. Another problem is that there is poor coordination and communication between all parties involved. It can be challenging to manage and track the progress of the project without proper communication and coordination, which can cause delays and confusion. This may also result in a lack of cooperation and trust among stakeholders, which may make planning and project management issues worse.

On construction sites, a lack of proper supervision and oversight can result from improper planning and project management. This may lead to subpar work, safety risks, a failure to adhere to rules and standards, and more. As a result, clients and stakeholders may not receive value for their money, and the reputation and sustainability of the Nigerian construction industry may suffer[5].

The Nigerian construction industry must make significant investments in professional project management education and training if it is to address these problems. To ensure compliance with standards and regulations, there should also be an emphasis on effective oversight and regulation, as well as clear communication and coordination among all stakeholders. The Nigerian construction industry can enhance the value and success of construction projects and guarantee a better outcome for clients and stakeholders by addressing these issues.

The application of technology to project management is another crucial factor to take into account. For instance, using project management software can facilitate better stakeholder tracking and communication while also streamlining the planning and management process. Additionally, by lowering the possibility of delays and cost overruns, this can help to increase the overall efficiency and effectiveness of the project management process [6].

In the construction sector, it is critical to create a culture of continuous improvement. To make sure that the industry is always moving in the right direction, it can be helpful to regularly review and analyse the project management process, pinpoint areas for improvement, and implement changes. Additionally, it may encourage a culture of innovation and advancement, which may enhance the general worth and success of Nigerian construction projects. It is also crucial for the industry to establish precise and thorough project management guidelines and protocols, which can help to guarantee that everyone involved in the project is aware of their roles and responsibilities and that the project is managed consistently and effectively[7].

In conclusion, poor project management and planning pose a serious challenge to value management in Nigeria's construction sector. A multifaceted strategy is needed to address this problem, including financial investment in appropriate project management education and training, a focus on effective coordination and communication among stakeholders, proper oversight and regulation, and the use of technology. The Nigerian construction industry can enhance the value and success of construction projects and guarantee a better outcome for clients and stakeholders by addressing these issues.

1. Lack of skilled labor

There is a shortage of skilled labor in the construction industry in Nigeria, which can lead to poor quality work and delays. The shortage of skilled labour in Nigeria's construction industry is a significant issue with value management. This can significantly affect the effectiveness and quality of construction projects, causing delays, cost overruns, subpar work, and safety risks.

Lack of opportunities for construction industry workers to receive training and education is one of the major problems. Workers may lack the abilities to carry out their tasks successfully without the proper education and training, which could result in subpar work and safety risks. This can also result in inadequate oversight and supervision of construction sites, aggravating the issue further[8-9].

Lack of incentives for workers to improve their skills is another problem. Without the right incentives, employees might lack the drive to advance their skills, which could result in a shortage of qualified and skilled workers in the sector. This may also result in a lack of industry innovation and competition, as well as poor value for customers and stakeholders[10].

The reputation and viability of the Nigerian construction industry may also suffer from a lack of skilled labor. A lack of trust and confidence in the industry, as well as a lack of investment and growth, can result from subpar work and safety risks. The Nigerian construction industry must make investments in employee education and training opportunities as well as give workers the right incentives to advance their skills in order to address these problems. In order to ensure compliance and safety, there should also be an emphasis on proper supervision, oversight, and regulations on construction sites. The Nigerian construction industry can enhance the effectiveness and quality of construction projects and guarantee a better outcome for clients and stakeholders by addressing these issues.

The use of technology in construction is another factor to take into account. For example, BIM and other digital tools can help to improve the quality of work by providing

more accurate information on the building design, materials, and construction process. BIM can also help increase the productivity and effectiveness of construction projects[7].

Establishing a culture of continuous improvement in the construction sector is also crucial. To make sure that the industry is always moving in the right direction, it can be helpful to routinely review and analyses the workforce development process, pinpoint areas for improvement, and implement changes. Additionally, it may encourage a culture of innovation and advancement, which may enhance the general worth and success of Nigerian construction projects.

Recruiting and keeping highly skilled workers from other nations is another strategy for addressing the shortage of skilled labor. The expertise and experience of professionals from other nations, who can contribute new skills and knowledge to the industry, can benefit Nigeria's construction sector. The government should, however, also establish guidelines and rules to make sure that hiring foreign workers does not have a negative effect on the domestic labour force. To provide training and education opportunities for workers in the construction industry, it's also critical to forge alliances and collaborate with educational institutions and training facilities. These collaborations can help to ensure that workers have access to the most recent knowledge and skills, as well as help to raise the general standard and efficiency of the sector.

In conclusion, the Nigerian construction industry faces a significant value management challenge due to a lack of skilled labor. A multifaceted strategy is needed to address this problem, including spending on worker training and education opportunities, appropriate incentives for workers to advance their skills, proper supervision and oversight on construction sites, appropriate regulations and standards, and the use of technology in the industry. The Nigerian construction industry can enhance the effectiveness and quality of construction projects and guarantee a better outcome for clients and stakeholders by addressing these issues.

2. Corruption

Corruption is a major problem in the Nigerian construction industry, and it can lead to inflated costs and poor quality work. In many nations, corruption is a major issue that can have a big impact on value management. Corruption is fundamentally the misuse of authority for one's own benefit. It can manifest itself in a variety of ways, including bribery, theft, and nepotism[12].

When it comes to value management, corruption can prevent organizations from achieving their objectives. For instance, choosing subpar goods or services may result if government officials accept bribes in exchange for awarding contracts. The organization

may ultimately experience resource waste and a lower return on investment as a result of this.

In a similar vein, if employees are embezzling money, it could cost the company money and hurt its reputation. Businesses that are willing to engage in corrupt practices may have an unfair advantage over those who are not, which can lead to an unlevel playing field. This may limit opportunities for economic growth and stifle competition[13].

Furthermore, corruption erodes the confidence of the populace in their institutions and government. This may result in a lack of support for government initiatives and civic engagement. Additionally, it may cause apathy and cynicism among the populace, which could help sustain a corrupt culture even longer. Organizations and governments must adopt a multifaceted strategy to address corruption as a problem in value management. Implementing measures like a strict code of ethics and a separate internal audit function can help to both prevent and detect corruption. It may also entail increasing accountability and transparency, as well as offering training to employees. Organizations can also take measures to develop a culture of ethics and integrity. Governments can also have an impact by passing and enforcing legislation that criminalizes corruption and imposes sanctions on those who engage in it. Governments can also establish impartial commissions or agencies to look into and deal with corruption.

In summary, corruption is a significant issue in value management and can have detrimental effects on both organizations and societies. To encourage economic growth, public confidence in the government and institutions, and sustainable development, organizations and governments must take action to prevent and combat corruption [14].

3. Lack of proper regulations and oversight

The lack of proper regulations and oversight in the construction industry in Nigeria can lead to poor quality work and safety hazards. To guarantee that resources are used effectively and efficiently and that stakeholders' interests are protected, proper regulations and oversight in value management are crucial.

These rules and oversight procedures, however, are frequently absent, which can have a number of detrimental effects [11]. Lack of proper rules and oversight in value management can result in resource misallocation, which is one of the main problems. Without clear guidelines and oversight, businesses might make poor choices, wasting money and missing out on opportunities. Given that taxpayer funds are at risk, this can be particularly problematic for public organizations.

Another problem is that improper oversight and regulations can make it easier for fraud and corruption to occur. Without adequate checks and balances, people or organizations might be able to waste resources at the expense of stakeholders. Serious

repercussions could result from this, both financially and in terms of public confidence. A lack of accountability may result from improper oversight and regulations. It may be challenging to hold businesses and people accountable for their actions in the absence of clear regulations and oversight. Because of this, it might be challenging to address issues and implement necessary changes. Inadequate rules and oversight can also reduce transparency and make it challenging for stakeholders to comprehend how resources are being used. Due to this, stakeholders may find it difficult to hold organizations accountable, and there may be mistrust between them and their stakeholders.

It is crucial that appropriate rules and oversight mechanisms are put in place to address these problems, ensuring that resources are used effectively and efficiently and that stakeholders' interests are safeguarded. This could involve measures for accountability and transparency, as well as clear guidelines for investment decisions. In order to make sure that rules and oversight procedures are efficient and flexible enough to respond to changing circumstances, they should also be reviewed and updated on a regular basis. Overall, organizations, stakeholders, and society as a whole may suffer significantly from a lack of adequate regulations and oversight in value management. It is crucial that actions are taken to address these problems and set up efficient rules and oversight systems.

4. Inadequate funding

Funding is a major issue in the Nigerian construction industry, and this can lead to delays and cost overruns. A significant problem in value management is inadequate funding, which can severely restrict an organization's ability to effectively and efficiently manage resource. Organizations may be forced to make difficult decisions about resource allocation when resources are scarce, which could result in missed opportunities and a lack of progress toward strategic goals [15].

The ability of an organization to invest in new projects or initiatives can be restricted, which is one of the major effects of insufficient funding in value management. Without enough resources, organizations might be forced to put immediate needs ahead of long-term strategic goals, which would prevent them from making headway on important goals. Organizations that depend on innovation and new initiatives to remain competitive may find this to be especially problematic.

Insufficient funding in value management can also make it difficult for an organization to maintain and develop its current resources, which is a serious problem. Without enough funding, organizations might be unable to invest in maintenance and upgrades, which could eventually result in a drop in resource quality. This can be especially troublesome for businesses that depend on tangible assets like infrastructure or machinery [16].

Inadequate funding may also result in a lack of transparency and accountability. Without enough funding, organizations might not be able to invest in tools like auditing and oversight mechanisms that guarantee accountability and transparency. As a result, stakeholders may find it challenging to understand how resources are being used, and organizations may develop a distrustful relationship with their stakeholders. Additionally, a lack of value management capacity building may result from insufficient funding. Without adequate funding, organizations might be unable to invest in value management professionals' training and development, which could eventually result in a lack of knowledge and stagnation in value management practices.

It is crucial that organizations receive enough funding for value management to address these problems. In order to do this, it may be necessary to allocate enough money for value management activities and programmes as well as collaborate with stakeholders to find new sources of funding, such as grants or partnerships. Organizations should also prioritize transparency and accountability in the use of funds and frequently assess the effectiveness and efficiency of their decisions regarding resource allocation. The ability of organizations to effectively and efficiently manage resources and accomplish strategic goals can be severely hampered by inadequate funding in value management, which can have negative effects on both the organizations and their stakeholders. Organizations must receive adequate funding in order to tackle these problems and advance value management.

5. Lack of proper maintenance

Many construction projects in Nigeria are not properly maintained, which can lead to deterioration and reduced lifespan of the building. In order to keep resources in good working order and ensure that they continue to add value over time, proper maintenance is a critical component of value management.

However, lack of proper maintenance occurs frequently, which can have a number of unfavorable effects. One of the main problems with poor value management and maintenance is that it can eventually cause resources' performance and quality to decline. Resources may become less effective and efficient without routine maintenance, which could reduce productivity and drive up costs. This can be especially troublesome for businesses that depend on tangible assets like infrastructure or machinery [17].

A further problem is that improper maintenance can result in higher safety risks. Resources may become dangerous to use without routine maintenance, increasing the risk of accidents and injuries. For businesses that depend on large machinery or other potentially hazardous equipment, this can be especially problematic. A lack of accountability and transparency may result from improper maintenance. It can be challenging to understand how resources are being used and to hold companies and

individuals accountable for their behaviours without clear maintenance schedules and records. Because of this, it might be challenging to address issues and implement necessary changes.

Inadequate maintenance can also shorten the useful life of resources and gradually raise the cost of ownership. Without routine upkeep, resources might need to be replaced sooner, raising the total cost of ownership. It is crucial that appropriate maintenance mechanisms are put in place to make sure that resources are kept in good working order and continue to provide value over time in order to address these issues. Clear maintenance schedules and records, frequent audits and inspections, and professional development for maintenance staff are a few examples of this. In order to make sure that proper maintenance procedures are efficient and flexible in response to changing circumstances, they should be regularly reviewed and updated [18]. Overall, organizations, stakeholders, and society as a whole may suffer significantly from poor value management maintenance. To ensure that resources are kept in good working order and continue to provide value over time, it is crucial that steps be taken to address these problems and put in place efficient maintenance mechanisms [19].

6. Inefficient procurement processes

The procurement process in the Nigerian construction industry is often inefficient, leading to delays and cost overruns. The overall effectiveness of value management in a company can be significantly impacted by ineffective procurement procedures. As it involves acquiring the goods and services required for the organization to operate, procurement is a key component of value management. However, ineffective procurement procedures can cause delays, cost overruns, and a general lack of value for the organization.

Lack of standardization is one of the main reasons procurement procedures are ineffective. Without standardization, there is a greater chance that there will be misunderstandings and mistakes made during the procurement process. This may result in higher costs and delays in the delivery of goods and services. Standardization can be accomplished by using technology, such as e-procurement systems, as well as by implementing clear procedures and protocols [20].

Lack of cooperation and communication between various departments and stakeholders is another factor contributing to ineffective procurement processes. Poor collaboration and communication can cause delays and miscommunications during the procurement process. This can be resolved by establishing effective channels of communication, such as regular meetings and updates, and by including all pertinent stakeholders in the procurement process [21].

Additionally, poor planning and forecasting can contribute to ineffective procurement procedures. It can be challenging to foresee organizational needs and ensure that the necessary goods and services are available when needed without proper planning and forecasting. This problem can be solved by putting in place a reliable system for planning and forecasting and by including all necessary stakeholders in the planning process. The effectiveness of value management across an organization can be significantly impacted by ineffective procurement processes. Organizations can increase the effectiveness of their procurement processes and make sure they are getting the most value possible from their procurement efforts by implementing standardization, clear communication and collaboration, proper planning, and forecasting [22-,23].

7. Limited use of technology

The construction industry in Nigeria has not fully embraced the use of technology, which can lead to inefficiencies and a lack of innovation. For organizations to effectively and efficiently manage resources and make data-driven decisions, the use of value management technology is essential. The limited use of technology, on the other hand, can have a number of unfavorable effects [24]. A major problem with the limited use of technology in value management is that it can result in a lack of productivity and efficiency. Without the use of technology, businesses might be forced to rely on labor-intensive manual processes that are prone to mistakes. Because of this, it may be challenging for organizations to stay ahead of their rivals and accomplish strategic objectives.

Another problem is that insufficient technology use can result in imprecise data collection and analysis. Organizations might be forced to use manual data collection techniques without the aid of technology, which can result in errors and inaccuracies. Organizations may find it challenging to make data-driven decisions as a result, which may result in bad investment choices. Limited use of technology can also result in a lack of accountability and transparency. It may be difficult to understand how resources are being used and to hold companies and individuals accountable for their actions without the use of technology to track and monitor resource use. Additionally, a company's ability to respond to new opportunities and adapt to changing circumstances may be hampered by the limited use of technology in value management. Without the use of technology, organizations might find it challenging to identify new opportunities and adjust to changing conditions because they can't easily access and analyses new data.

Organizations must utilize technology in value management to address these problems. This might entail spending money on software and tools for data collection and analysis, putting in place systems for tracking and monitoring resource use, and giving staff members technology training and development. Organizations should also regularly review and

update their technology systems and procedures to make sure they are efficient and flexible enough to respond to changing circumstances. An organization's ability to effectively and efficiently manage resources, make data-driven decisions, and accomplish strategic goals may be severely hampered by the limited use of technology in value management. Utilizing technology is crucial for organizations if they are to address these problems and advance value management [25-27].

8. Limited access to funding

Access to funding is a major challenge for the construction industry in Nigeria, with many projects unable to secure the necessary financing to proceed. Lack of funding poses a serious problem for value management because it can significantly affect how well and efficiently organizations can manage their resources. Without adequate funding, organizations may be forced to make difficult decisions regarding resource allocation, resulting in missed opportunities and insufficient progress towards strategic objectives [28-30].

The inability of an organization to invest in new initiatives or projects is one of the most significant consequences of limited access to funding in value management. In the absence of adequate funding, organizations may be compelled to prioritize short-term needs over long-term strategic goals, resulting in a lack of progress towards important objectives. This is especially problematic for businesses that rely on innovation and new initiatives to remain competitive. In addition to limiting an organization's ability to maintain and improve existing resources, limited access to funding for value management can be a significant obstacle to value management. Without adequate funding, organizations may be unable to invest in maintenance and upgrades, leading to a gradual decline in resource quality. This can be especially problematic for organizations that depend on tangible assets, such as infrastructure or equipment [31].

Inadequate access to funding can also inhibit the development of value management capabilities. Without sufficient funding, organizations may be unable to invest in training and development for value management professionals, resulting in a lack of expertise and stagnant value management practices. Additionally, limited access to funding can impact an organization's openness and accountability. Without sufficient funding, organizations may be unable to invest in mechanisms that promote accountability and transparency, such as auditing and oversight. This can make it difficult for stakeholders to comprehend how resources are being utilised and foster mistrust between organizations and their constituents. To address these issues, organizations can investigate a variety of funding opportunities, including grants, loans, and partnerships with private or government

organizations or foundations. To attract funding, organizations must also create a compelling business case and proposal that highlights the value and impact of their initiatives and projects. Moreover, organizations should prioritize transparency and accountability in the use of funds and evaluate the efficiency and efficacy of their resource allocation decisions on a regular basis.

Overall, limited access to funding in value management can have severe repercussions for organizations and their stakeholders, impeding their capacity to manage resources effectively and achieve strategic objectives. To secure the necessary funding for value management initiatives and projects, it is essential for organizations to investigate various funding options and develop a solid business case [32].

9. Limited use of international standards

Many construction projects in Nigeria are not built to international standards, which can lead to poor quality and safety hazards. It entails locating, evaluating, and managing the crucial elements that affect value, such as price, quality, performance, and risk. International standards are frequently underutilized in value management, despite their significance. Lack of knowledge of the available standards is one factor in this. The existence of international standards for value management and how they can be applied to enhance processes is not widely known by many organizations.

This is partly because organizations may lack the resources or knowledge necessary to navigate standards, which are frequently complicated and challenging to understand. Lack of compatibility between various standards is another factor. Value-management standards come in a wide variety and have been developed by various organizations and sectors. Because of this, it may be challenging for organizations to decide which standards are most pertinent to their unique requirements and how to actually apply them. The lack of standard enforcement is a third factor. Organizations may not feel compelled to use value management standards even when they are aware of them. This is because organizations are frequently not required by law or regulation to adopt these standards, and there are no consequences for doing so.

Finally, there aren't enough tools or people to help implement the standards. It is possible that many organizations lack the tools, knowledge, and support needed to implement the standards in an efficient manner. Despite these drawbacks, applying international standards to value management can have a positive impact on businesses. Standards give organizations a common framework and language that can help them streamline their operations and boost communication. They can also serve as performance benchmarks and aid organizations in better identifying and controlling risks.

In conclusion, a lack of awareness, compatibility, enforcement, and resources prevents the use of international standards in value management. However, by offering a common framework, language, performance benchmark, and efficient risk management, these standards can help organizations. These problems can lead to poor value for money for clients and stakeholders, and can also negatively impact the reputation and sustainability of the construction industry in Nigeria [33].

B. Prospects for value management in construction industry

Adoption of industry standards and best practices. A crucial component of value management is adopting industry standards and best practices, as doing so can assist organizations in maximizing the value of their initiatives, goods, or services. Industry standards offer a framework and vocabulary that can be used to benchmark performance, streamline processes, and effectively communicate.

Best practices offer a tested method for addressing particular issues and achieving particular objectives. Together, they can aid businesses in better risk identification, management, and outcomes. Adopting industry standards and best practices in value management has many advantages, one of which is that they offer a common language and framework that can be used to enhance collaboration and communication between various teams and stakeholders. This is particularly crucial in large, complex organizations where various departments may have varying priorities and methods of operation. Different teams and stakeholders can be brought together around a common set of goals and objectives with the aid of standards and best practices.

The fact that standards and best practices serve as performance benchmarks is another advantage of adopting them. They can be used by organizations to compare their own performance to that of their competitors and pinpoint areas for improvement. This can be especially helpful for businesses looking to become more competitive in their industry because it can show them where they are lagging and enable them to take action to catch up.

Organizations can identify risks and manage them more effectively with the aid of standards and best practices. Organizations can make sure they are adhering to established guidelines and procedures that have been shown to be successful in managing risks by adopting industry standards and best practices. This can lessen the likelihood of unforeseen issues arising and lessen their effects when they do.

Adopting best practices and industry standards can also assist organizations in opening up new markets, technologies, and working methods. Organizations can demonstrate their adherence to rules and improve their chances of being accepted as suppliers in foreign markets, for instance, by adhering to international standards and best practices. The adoption of best

practices and industry standards in value management, however, is not without its difficulties. The price of implementation is one of the major obstacles. In order to adhere to the standards and best practices, organizations might need to invest in new technologies, procedures, and training. In order to prove compliance, organizations may also need to make investments in the creation of documentation, procedures, and testing.

In conclusion, organizations that want to maximize the value of their projects, products, or services should adopt industry standards and best practices in value management. Standards and best practices give performance and efficient risk management a common framework, language, and benchmark. Organizations should attempt to balance the advantages with any potential drawbacks while also being aware of the costs and difficulties associated with implementation [34].

In value management, increased stakeholder involvement and engagement can be a promising development because it can improve decision-making and produce better results for all parties. Stakeholders can offer helpful insights, feedback, and support when they are actively involved in the value management process. This enables organizations to make more intelligent and effective decisions. Improved decision-making is one of the main advantages of increased stakeholder participation and engagement. Stakeholders can offer insightful observations and feedback when they are actively involved in the value management process, which can aid organizations in making better decisions. This may result in a more effective and efficient use of resources and a better fit between organizational objectives and stakeholders' needs and concerns.

Increased buy-in and support for value management initiatives and projects is another advantage of increased stakeholder participation and engagement. Stakeholders are more likely to comprehend and support decisions made when they are actively involved in the value management process. For value management initiatives and projects to be successful, this may result in increased support and cooperation from stakeholders. Stakeholder engagement and participation can also result in increased accountability and transparency. Stakeholders who are actively involved in the value management process can offer insightful criticism on the allocation of resources and work to ensure that businesses are held accountable for their deeds. This might result in more people having faith and confidence in the value management procedure. A better outcome for all parties involved can also result from increased stakeholder participation and engagement. Stakeholders who participate actively in the value management process can offer insightful feedback that enables organizations to recognize and respond to the needs and concerns of stakeholders. Better outcomes for all parties involved and a more effective and efficient use of resources can result from this. Organizations can actively involve

stakeholders in the value management process using a variety of techniques, including workshops, focus groups, and online platforms, to increase their participation and engagement.

Additionally, organizations should place a high priority on openness and communication, and offer frequent updates on the value management procedure and choices made. In order to improve value management, organizations should also work to foster an environment of engagement and invite stakeholder input. Overall, increased stakeholder involvement and engagement can be a significant prospect in value management because it can result in better decision-making, more cooperation and support, improved accountability and transparency, and better outcomes for all parties. To take advantage of this opportunity, organizations should actively involve stakeholders in the value management process and priorities transparency, communication, and engagement.

Advances in technology and data analytics to support value management. The field of value management is being significantly impacted by developments in technology and data analytics. These technologies are giving businesses new tools and techniques to maximize the value of their initiatives, goods, or services, as well as aid in better decision-making and risk management. By offering new tools and techniques for data collection and analysis, technology is supporting value management in a number of important ways. Organizations are now able to gather, store, and analyses significant amounts of data from a variety of sources thanks to the expanding availability of big data and advanced analytics. Organizations are now able to understand their operations and the elements that contribute to value in greater detail.

Value management uses data analytics and artificial intelligence (AI) technologies to enhance decision-making and optimize resource allocation. Organizations can find areas where they are overspending or underperforming and make adjustments to improve their results by analyzing data on costs, risks, and performance. Organizations can use predictive analytics and machine learning algorithms to find patterns and trends in their data and predict future performance more precisely. By offering new tools for communication and collaboration, technology also significantly supports value management.

Organizations are finding it simpler to share information and work together remotely on value management projects thanks to cloud-based collaboration tools and project management software. With the help of these tools, organizations can now communicate with their stakeholders in new ways, such as through online forums and virtual meetings. The application of global standards in value management is also made easier by technological advancements. For instance, software tools that streamline data collection and analysis can assist businesses in adhering to global norms like ISO 21500 and ISO 21505. But it's crucial to remember that technology has its limitations and can occasionally present difficulties. One of the biggest

obstacles is the cost of implementation. In order to benefit from what technology has to offer, organizations may need to invest in new technologies, procedures, and training. In order to prove compliance, organizations may also need to make investments in the creation of documentation, procedures, and testing.

Another issue is a lack of knowledge in technology and data analytics. Many organizations might lack the tools or knowledge necessary to use technology and data analytics for value management. They may find it challenging to fully benefit from what technology has to offer as a result. In conclusion, new tools and approaches to support value management are being offered by developments in technology and data analytics. They aid organizations in making better decisions and managing risks while maximizing the value of their initiatives, goods, or services [35]. Greater integration with other project management processes. Value management can benefit from greater integration with other project management techniques because it can enhance decision-making, boost efficiency, and better align organizational objectives. Organizations can manage resources more holistically and make more informed decisions that are in line with overall strategic goals by integrating value management with other project management processes.

Better decision-making is one of the main advantages of greater integration with other project management procedures. Organizations can make more informed decisions that are in line with overall strategic goals by taking value management into account in the context of other project management processes like budgeting, planning, and scheduling. This may result in a more effective and efficient use of resources and a better fit between organizational objectives and stakeholders' needs and concerns. Efficiency gains are another advantage of deeper integration with other project management procedures. Value management can be integrated with other project management procedures to help organizations make decisions more quickly and with less effort wasted. As a result, productivity may rise and resources may be used more effectively.

Transparency and accountability may increase as a result of greater integration with other project management procedures. Organizations can more easily track and monitor the use of resources and ensure that they are held accountable for their actions by integrating value management with other project management processes. This might result in more people having faith and confidence in the value management procedure.

Additionally, improved organizational goals may result from greater integration with other project management procedures. Organizations can more easily identify and address the needs and concerns of stakeholders and align their goals with the organization's larger strategic objectives by taking value management into account in the context of other project management processes. Organizations can take a holistic approach to resource management

by including all pertinent stakeholders in the value management process to achieve greater integration with other project management processes. This might entail assembling cross-functional teams with members from various departments and functions, utilizing standard frameworks and tools, and routinely reviewing and coordinating the aims of various processes.

In terms of value management, better decision-making, increased efficiency, improved transparency and accountability, and better organizational goal alignment can all be the result of greater integration with other project management processes. To benefit from this opportunity, organizations should adopt a holistic strategy and involve all necessary parties [36]. Development of effective metrics and methods for measuring and demonstrating the benefits of value management. A crucial component of value management is the creation of efficient metrics and techniques for calculating and illustrating the advantages of value management. It aids organizations in comprehending the effects of their value management efforts and in conveying to stakeholders the importance of those efforts.

Utilizing metrics is a crucial part of gauging and proving the value of value management. Metrics are quantifiable markers that can be used to monitor the advancement of value management initiatives and evaluate the effectiveness of value management processes. Cost, schedule, quality, and risk are common value management metrics. By monitoring these metrics, businesses can spot areas where they are overspending or under delivering and then take corrective action to improve their performance. The use of techniques for assessing the value of projects, products, or services is another crucial aspect of measuring and demonstrating the advantages of value management. Value can be assessed using a variety of techniques, such as cost-benefit analysis, return on investment, and value engineering. These approaches offer a methodical way to weigh the benefits of various options and choose the ones that will be most valuable. In order to demonstrate the benefits of value management, organizations must be able to persuasively and clearly communicate the value of their efforts to stakeholders. Case studies, success tales, and other examples of how value management has been used to enhance performance and produce better outcomes can be used to accomplish this.

Organizations can increase support for their efforts and secure the funding they require to keep getting better by giving specific examples of how value management benefits their operations. It is crucial to remember that creating useful metrics and techniques for gauging and demonstrating the advantages of value management is a difficult task that necessitates a thorough comprehension of the operations and objectives of the organization. Organizations might need to spend money developing new metrics and techniques, as well as training staff members to use these tools efficiently. Organizations might also have to spend money on data

collection and analysis, which is expensive, in order to support the metrics. Lack of standardization in value management metrics is another issue, which can make it challenging to compare outcomes across organizations or industries. This can make determining the options that will offer the most value and evaluating the relative worth of various options challenging.

In conclusion, a crucial component of value management is the creation of efficient metrics and techniques for calculating and articulating the advantages of value management. It aids organizations in comprehending the effects of their value management efforts and in conveying to stakeholders the importance of those efforts. Organizations should attempt to balance the advantages with any potential drawbacks while also being aware of the costs and difficulties associated with implementation[37].

C. Training and education on the effectiveness of value management implementation

Importance of training and education in value management for construction professionals. Training and education in value management is essential for construction professionals to effectively implement value management in their projects, products, or services. Value management is a complex process that involves understanding the key factors that contribute to value, such as cost, quality, performance, and risk, and managing those factors to optimize value. Construction professionals who are not trained in value management may not have the knowledge and skills needed to effectively implement value management in their projects.

One key aspect of training and education in value management is the development of an understanding of the value management process. This includes understanding the different stages of the value management process, such as value planning, value analysis, value engineering, and value review, and the tools and techniques that are used at each stage. Construction professionals who are not trained in the value management process may not be able to effectively plan and execute value management efforts [38-39].

Another key aspect of training and education in value management is the development of an understanding of the key factors that contribute to value. This includes understanding the interplay between cost, quality, performance, and risk, and how these factors can be managed to optimize value. Construction professionals who are not trained in the key factors that contribute to value may not be able to effectively identify and manage risks or optimize performance.

Training and education in value management can also help construction professionals to understand the importance of international standards in value management and how to apply them. By understanding the standards and best practices for value management, construction professionals can ensure that their projects are compliant with industry regulations, and that they are following established guidelines and procedures that have been proven to be effective.

However, it's important to note that training and education in value management can be costly and time-consuming. Organizations may need to invest in training programs for their employees, and employees may need to take time away from their regular duties to attend training. Additionally, organizations may need to invest in the development of training materials and resources.

In conclusion, training and education in value management is essential for construction professionals to effectively implement value management in their projects, products, or services. It helps them to understand the value management process, the key factors that contribute to value, and the importance of international standards in value management. However, organizations should be aware of the costs and challenges associated with implementation, and strive to balance the benefits with the potential limitations.

Available training and education options for value management in construction. Professional development courses and workshops: Organizations such as the Nigerian Institute of Quantity Surveyors (NIQS) and the Nigerian Institute of Architects (NIA) offer various professional development courses and workshops on value management in construction. These courses and workshops are designed to provide practitioners with the knowledge and skills needed to apply value management techniques to construction projects. They may cover topics such as value management principles, project planning and control, cost management, and risk management. Additionally, these organizations may also offer certifications or accreditations in value management for practitioners who complete certain coursework or pass related exams [41].

1. Degree programs

Some universities in Nigeria offer degree programs in construction management or project management that may include courses on value management as part of the curriculum. These programs typically provide a comprehensive understanding of the construction process, including the principles and practices of value management. Students may also have the opportunity to participate in internships or practicums, which can provide hands-on experience in applying value management techniques to real-world projects [40].

2. Online courses and certifications

Online education platforms such as Coursera or Udemy offer a variety of courses and certifications in value management, project management, and construction management that can be taken from the comfort of one's home. These courses are designed to provide students with a good understanding of the principles of value management and how to apply them to construction projects. They may also offer the opportunity to earn continuing

education credits, which can be used to maintain professional certifications or accreditations.

3. On-the-job training

Practitioners can also gain experience in value management through on-the-job training. This can include internships or apprenticeships with construction companies or consulting firms that specialize in value management. These opportunities can provide valuable hands-on experience in applying value management techniques to real-world projects. Additionally, practitioners can also learn from more experienced colleagues and managers through mentorship programs or by participating in in-house training programs offered by their employer.

It is also important to note that some organizations also offer training in value engineering, which is closely related to value management and can also be a valuable resource for learning about value management in construction in Nigeria [42]. The impact of training and education on the effectiveness of value management implementation. Training and education can have a significant impact on the effectiveness of value management implementation in construction projects. Some of the ways in which training and education can improve value management implementation include: Building knowledge and skills: Training and education in value management can provide practitioners with the knowledge and skills needed to apply value management techniques effectively. This includes understanding the principles of value management, as well as learning how to use specific tools and methods for identifying and evaluating value opportunities.

4. Improving project outcomes

By providing practitioners with the knowledge and skills needed to apply value management techniques effectively, training and education can help improve project outcomes. This may include reducing project costs, improving project quality, and increasing project efficiency. Enhancing collaboration and communication: Value management relies on effective collaboration and communication among project stakeholders. Training and education can help practitioners develop the skills needed to work effectively with others, which can improve the overall effectiveness of value management implementation [43].

Promoting a value management culture: Training and education can also help promote a culture of value management within an organization. By raising awareness of the benefits of value management and providing practitioners with the knowledge and skills needed to apply value management techniques, training and education can help organizations adopt a value management mindset and make it a part of their standard operating procedures.

5. Improving professional standards

Training and education can also help improve professional standards in the construction industry by providing practitioners with the knowledge and skills needed to meet professional certification or accreditation requirements. It is important to note that training and education alone are not enough to ensure effective value management implementation. Organizations must also have supportive policies and processes in place, as well as a culture that supports and encourages the use of value management techniques. Additionally, organizations must also ensure that practitioners have the necessary resources and support to apply value management techniques effectively [44-45]. The role of government and industry organizations are important including in promoting and regulating value management in construction industry, adopting and implementing of value management practices, and analysis of the effectiveness [46, 47].

D. Identified Research Gaps

There is a lack of research on value management in the Nigerian construction industry. The few studies that have been conducted have focused primarily on the challenges and barriers to the implementation of value management in the industry, rather than on the benefits and best practices. One research gap is the lack of studies on the implementation of value management in the Nigerian construction industry. Despite the recognition of the benefits of value management, there is limited research on the extent to which value management is being implemented in the Nigerian construction industry, and the factors that are impacting its implementation.

Another research gap is the lack of studies on the specific challenges and barriers to the implementation of value management in the Nigerian construction industry. While there is some anecdotal evidence of the challenges, there is limited research on the specific obstacles that organizations are facing, and the strategies that they are using to overcome those obstacles. Additionally, there is a lack of research on the use of international standards and best practices in value management in the Nigerian construction industry. While there are a number of international standards for value management that could be used to improve the performance of the industry, there is limited research on the extent to which these standards are being adopted, and the impact that they are having.

Another research gap is the lack of studies on the role of training and education in value management in the Nigerian construction industry. While it is widely recognized that training and education are important for the effective implementation of value management, there is limited research on the extent to which training and education programs are being offered, and the impact that they are having.

Furthermore, there is a lack of research on the use of technology and data analytics to support value management in the Nigerian construction industry. While technology and data analytics have the potential to significantly improve the performance of the industry, there is limited research on the extent to which these tools are being used, and the impact that they are having.

In conclusion, there is a research gap in the field of value management in the Nigerian construction industry, specifically in the areas of implementation, challenges and barriers, international standards and best practices, training and education, and technology and data analytics. Further research is needed to understand the state of value management in the Nigerian construction industry and to identify the best practices that can be used to improve the performance of the industry.

E. Recommendations

Based on the research, it is recommended that more research is conducted on value management in the Nigerian construction industry with a focus on benefits and best practices, in order to promote the implementation of value management in the industry, it is important to identify the factors impacting its implementation and address them, strategies should be developed to overcome specific challenges and barriers to the implementation of value management in the Nigerian construction industry such as lack of standardization and lack of expertise, the industry should encourage the adoption of international standards and best practices in value management to improve the performance of the industry, training and education programs for construction professionals in value management should be provided to improve their understanding and implementation of value management, the use of technology and data analytics should be encouraged to support value management in the Nigerian construction industry, as they can provide new tools and methods to optimize value, and effective metrics and methods for measuring and demonstrating the benefits of value management should be developed to increase the support of stakeholders. It's important to note that these recommendations should be tailored to the specific context of the Nigerian construction industry, and should be adapted to the unique challenges and opportunities that exist within the industry.

Conclusion

The main challenges discussed in value management in the Nigerian construction industry include limited research and implementation, specific challenges and barriers to implementation, lack of adoption of international standards and best practices, lack of training and education for construction professionals, and limited use of technology and data analytics to support value management. These challenges need to be addressed in order to effectively implement value management in the Nigerian construction industry. On the other hand, the

main prospects discussed in value management in the Nigerian construction industry include the potential to optimize the value of projects, products or services, improve decision-making and risk management by using new tools and methods for data collection and analysis, and the use of technology and data analytics to support value management. Adopting international standards and best practices, proper training and education for construction professionals, and developing effective metrics and methods for measuring and demonstrating the benefits of value management can also bring significant improvements in the industry. These prospects can help organizations to increase their performance and achieve better results [48-49].

Conflict of Interest

The authors declare that there is no conflict of interest.

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