Projects Management in a Nigeria VUCA Environment: Issues and Prospects

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Abstracts

Project management landscape in Nigeria is characterized by project failures, wasted resources, unmet project objectives, and a general distrust in the ability of projects to deliver intended benefits despite substantial investments. Despite numerous initiatives to improve project outcomes, the success rate of projects remains low. This study explores the issues and prospects of projects Management in a VUCA Environment in Nigeria. The research primarily utilizes a thematic synthesis review methodology, which involves synthesizing existing knowledge and examining prior studies. The sample consists of a wide range of academic and business literature selected using the purposive sampling technique. The data were analysed using content analysis involving systematically reviewing and interpreting textual data to uncover patterns, themes, and insights relevant to the study's objectives. The result of the analysis highlights that project management in Nigeria faces significant challenges primarily due to economic instability, political uncertainty, and a lack of standardized practices. These factors contribute to frequent project delays, cost overruns, and failures to meet objectives, undermining the effectiveness and efficiency of development projects across various sectors. Also, the analysis confirms that existing strategies, such as agile methodologies and advanced project management tools, hold promise but face implementation barriers due to resource constraints and systemic issues

in Nigeria. The study also suggests that the prospects for improving project management in Nigeria are closely linked to the capacity of project managers and organizations to adapt to dynamic and unpredictable conditions. Equally, the study identify the critical factors for project success to include the development of dynamic capabilities, adoption of agile methodologies, integration of advanced tools and technologies, and enhancement of leadership skills. The study submitted that project management faces profound challenges that significantly impact project outcomes while global strategies such as agile methodologies and advanced project management tools offer potential solutions, their effectiveness in Nigeria is constrained by systemic issues and resource limitations. The study recommends the need for a concerted effort to standardize project management practices across Nigeria to create a more consistent and reliable framework for project execution. Also, there is need for investment in training and development programes for project managers, with a focus on dynamic capabilities and agile methodologies to handle VUCA challenges.

Keywords: Project, Project management, VUCA environment, Thematic synthesis, Nigeria

1. Introduction

In today's rapidly changing global landscape, the concept of VUCA- an acronym that stands for volatility, uncertainty, complexity, and ambiguity-has become increasingly relevant in both business and management contexts. Originally coined by social scientists at the U.S. Army War College in the late 1980s to describe the challenging environment military leaders would face post-Cold War, VUCA has since been adopted across various sectors to capture the essence of the modern, dynamic, and often turbulent business environment (Baran&Woznyj, 2021). This concept has been especially pertinent in the field of project management, where the successful execution of projects depends on the ability to navigate these volatile, uncertain, complex, and ambiguous conditions. This study focuses on understanding how VUCA elements influence project management practices, particularly in Nigeria. Project management has long been recognized as a critical factor in the successful execution of projects across various sectors. However, the increasing prevalence of project failures, especially in developing countries like Nigeria, has brought to light the necessity of adapting project

management practices to the VUCA environment. The severity of the problem, as evidenced by numerous instances of delayed, over-budget, and substandard projects, underscores the importance of this study (Unegbu, Yawas, & Dan-asabe, 2020).

In the context of strategic management, organizational behaviour, and project management, the volatility in VUCA represents the speed and unpredictability of changes; uncertainty refers to the lack of predictability and potential for surprise; complexity involves multiple, interconnected factors that challenge decision-making; and ambiguity denotes the haziness of reality and potential for misinterpretation. These four dimensions create an environment where traditional, linear management approaches are often insufficient (Kienl&Blokhina, 2024). The need to manage projects successfully within such an environment has been highlighted in multiple studies, which emphasize the importance of dynamic capabilities and the adoption of flexible and responsive management practices (Mayo-Alvarez et al., 2024). Project management in a VUCA context requires not only the identification and assessment of these elements but also the capacity to develop strategies that can adapt to changing conditions.

The relationship between VUCA elements and project management is multifaceted, with each component of VUCA presenting unique challenges. Volatility in the market, for example, can lead to sudden changes in project scope or funding, requiring project managers to be highly adaptive and responsive. Uncertainty, often fueled by political instability or economic fluctuations, makes long-term planning difficult, increasing the risk of project failure. Complexity arises from the interdependencies of various project components and the need to coordinate multiple stakeholders, while ambiguity can obscure decision-making processes, leading to misinterpretations and errors (Baran &Woznyj, 2021). Dynamic capabilities theory, for instance, emphasizes the ability of organizations to integrate and reconfigure internal and external competencies to address rapidly changing environments (Baran &Woznyj, 2021). Similarly, high-reliability organizations theory focuses on practices that allow organizations to operate effectively in complex and high-risk environments, offering valuable insights for improving project outcomes in VUCA contexts (Baran &Woznyj, 2021).

The Nigerian project management landscape is riddled with complexities that significantly impact the success of development projects across various sectors. Many projects in Nigeria suffer from poor planning, execution, and control, leading to delays and cost overruns, as evidenced by numerous cases of project failures despite substantial investments (Andabai et al., 2017). The root causes of these inefficiencies are deeply embedded in inadequate training for project managers, insufficient technical expertise, lack of standardized project management procedures, and ineffective communication between project managers and stakeholders (Lawrence, 2015; Teo &Loosemore, 2017). Moreover, the volatile nature of the Nigerian environment, characterized by economic challenges and political instability, exacerbates these issues, creating a precarious situation for project execution (Andabai et al., 2017). The consequences of these challenges are far-reaching, resulting in wasted resources, unmet project objectives, and a general distrust in the ability of projects to deliver intended benefits. Statistics indicate that many projects in the country fail to meet their deadlines and budgets, with over 60% of public projects experiencing significant delays and cost overruns (Javed& Liu, 2019; Dittmann, Dirbanis, & Meier, 2021).

In response to these challenges, Nigerian policymakers and project management professionals have made various attempts to improve project outcomes. Initiatives have included the introduction of modern project management techniques, enhanced regulatory frameworks, and increased investments in project management training and capacity building (Baran&Woznyj, 2021; Kienl&Blokhina, 2024). Despite these efforts, the success rate of projects remains low, with many still plagued by the same issues of inefficiency, poor stakeholder alignment, and mismanagement (Andabai et al., 2017; Paver & Duffield, 2019). The debate in the literature suggests that traditional project management approaches may be ill-suited for the Nigerian context, where projects often involve multiple stakeholders, intricate processes, and a highly dynamic environment (Unegbu, Yawas, & Dan-asabe, 2020). The ongoing discussion emphasizes the need for adaptive and flexible project management models that can better accommodate the unique challenges faced in Nigeria (Baran &Woznyj, 2021). However, the implementation of such models has been limited by factors such as insufficient resources, the prevalence of corruption, and resistance to change within organizations (Tereso et al., 2018; Andabai et al., 2017).

While the literature has explored various aspects of project management challenges in Nigeria, there remain significant gaps in understanding how projects can be effectively managed in a VUCA (Volatile, Uncertain, Complex, and Ambiguous) environment. Existing studies have largely focused on traditional management practices and have not adequately addressed the need for tailored approaches that reflect the realities of Nigeria's complex and rapidly changing environment (Mikkelsen, 2020; Gutterman, 2023). Moreover, the impact of VUCA on project management in Nigeria has not been thoroughly investigated, particularly in terms of how project managers can balance the need for innovation and agility with stability and control (Baran&Woznyj, 2021). This study aims to address this gap by examining the specific challenges and opportunities presented by VUCA in the Nigerian context.

The broad objective of this study is to explore the issues and prospects of projects Management in a VUCA Environment in Nigeria. The specific objectives are to:

i. investigate the challenges of project managements in VUCA environment;
ii. examine the prospects of project managements in VUCA environment;
iii. investigate the strategies adopted by project managers for project management in a VUCA environment; and
iv. analyse the effect of VUCA environment on project managements in Nigeria.

This study addresses significant gaps in the existing literature on project management in VUCA environments, particularly within the Nigerian context. Current research has primarily focused on traditional project management methods, which often fall short in dynamic and unpredictable settings. By focusing on how VUCA factors influence project management practices, this study will offer a deeper understanding of the specific challenges and opportunities that arise in Nigeria. This contribution is crucial, as it will fill existing knowledge gaps and provide a more nuanced perspective on managing projects under volatile, uncertain, complex, and ambiguous conditions. For policymakers and practitioners, the study's findings will offer practical recommendations for improving project management practices and outcomes. The research will highlight effective strategies for navigating VUCA conditions and provide guidance on how to enhance project management competencies through targeted training and capacity-building initiatives. This will help policymakers and project

managers develop more robust frameworks and methodologies that are better suited to the Nigerian context, ultimately contributing to improved project outcomes and greater efficiency in project execution.

2. Literature Review

2.1 Conceptual Review

Projects are defined as temporary processes aimed at achieving specific objectives within a set timeframe (Gutterman's,2023). The term "project management" was first formally recognised during this period, particularly with the advent of the Critical Path Method (CPM) and Programme Evaluation and Review Technique (PERT) in the 1950s. These tools were instrumental in managing large-scale, complex projects and laid the groundwork for modern project management methodologies (Martens & Carvalho, 2016).Project management is broadly defined as the discipline of planning, executing, and overseeing a project to achieve specific goals within a defined timeframe and budget. Sabini and Alderman (2021) emphasize the structured approach to project management, which involves initiating, planning, executing, controlling, and closing projects. This process-oriented definition highlights the importance of a systematic approach to managing projects, ensuring that they are delivered on time, within budget, and according to predetermined quality standards. Similarly, McGrath and Whitty (2020) define project management as the discipline of planning, organizing, directing, and controlling resources, procedures, and activities to achieve specific goals within a defined timeframe and budget. They stress the importance of applying knowledge, skills, tools, and techniques to project activities to meet project requirements effectively and efficiently. This perspective aligns with the broader understanding of project management as a discipline that integrates various elements to achieve desired outcomes.

The term VUCA was first introduced by the U.S. Army War College in the 1990s to describe the more volatile, uncertain, complex, and ambiguous world that emerged after the end of the Cold War. The collapse of the Soviet Union and the ensuing geopolitical shifts created an environment where traditional strategies and models of leadership were no longer sufficient. The concept of VUCA was developed to encapsulate the new reality of constant change and unpredictability (Bennett and Lemoine, 2014). Since its inception, VUCA has evolved beyond

military strategy and has been widely adopted in the business world, where it is used to describe the challenges faced by organizations in a rapidly changing global economy. Volatility refers to the rate and magnitude of change within an environment.

In the context of project management, volatility captures the unpredictability and frequency of disruptions that can affect various aspects of organizational operations. For instance, rapid technological advancements or sudden market shifts can create volatile conditions that require organizations to adapt quickly. Baran and Woznyj (2021) argue that high volatility necessitates the development of mechanisms for rapid response and adaptation to maintain stability and performance. This viewpoint is supported by Babenko et al. (2020), who emphasize that in the context of Fundamental Scientific Research Projects (FSRPs), the unique and time-bound nature of these projects makes them particularly vulnerable to volatility. They suggest that managing volatility in such projects requires a focus on maintaining flexibility and resilience in both planning and execution

Uncertainty involves the lack of predictability and the potential for unexpected events. It reflects the difficulty in forecasting future outcomes and making informed decisions based on incomplete or ambiguous information. In project management, uncertainty can arise from various sources, including market conditions, technological developments, and regulatory changes. Baran and Woznyj (2021) suggest that managing uncertainty requires organizations to build flexibility and resilience into their strategies and processes. They argue that a proactive approach to uncertainty, where organizations anticipate potential risks and develop contingency plans, is essential for maintaining project momentum. However, some scholars argue that uncertainty is an inherent part of any project and cannot always be fully mitigated. For example, Babenko et al. (2020) note that in FSRPs, uncertainty is often linked to the exploratory nature of research, where outcomes are not always predictable. Complexity encompasses the interconnectedness and interdependence of various factors and systems. In a project management context, complexity involves the presence of multiple variables and interactions that can influence organizational outcomes. High complexity necessitates a comprehensive understanding of the environment and

effective coordination and integration of resources. Baran and Woznyj (2021) argue that managing complexity requires a systems thinking approach, where project managers consider the project as part of a larger system and understand how different components interact. This perspective is echoed by Kienl and Blokhina (2024), who suggest that complexity in VUCA environments can be managed through the use of adaptive project management techniques, where flexibility and continuous learning are prioritized. Ambiguity refers to the vagueness and lack of clarity surrounding situations and decisions. In project management, ambiguity involves the difficulty in interpreting and understanding information due to multiple possible meanings or interpretations. Addressing ambiguity requires organizations to develop skills in sense making and decision-making under uncertainty. Baran and Woznyj (2021) suggest that ambiguity can be managed by fostering a culture of open communication and collaboration, where different perspectives are considered, and collective sense making is encouraged. However, some scholars argue that ambiguity is not always a negative force in project management.

The execution and delivery of projects in a VUCA environment are fraught with challenges, particularly in terms of resource allocation, timeline management, and stakeholder engagement. High volatility and uncertainty can lead to unexpected changes in project scope, budget, and timelines, requiring project managers to be highly adaptable and resourceful. Baran and Woznyj (2021) argue that in such environments, effective project execution depends on the ability to respond quickly to changes and make informed decisions under pressure. This view is supported by Kienl and Blokhina (2024), who emphasize the importance of agility in project execution. They suggest that organizations should foster a culture of continuous learning and improvement, where project teams are encouraged to experiment, take risks, and learn from failures. This approach can help organizations maintain momentum and achieve their objectives even in the face of uncertainty. Contrastingly, some scholars argue that the focus on agility and flexibility in execution should not come at the expense of discipline and control. For example, Turner and Müller (2003) suggest that while adaptability is important, project managers must also maintain a strong focus on delivering results within the agreed-upon constraints of scope, time, and budget. They argue

that a balanced approach, where flexibility and control are both prioritized, is key to successful project execution in a VUCA environment.

The concept of VUCA is informed by several theoretical perspectives that offer insights into how organizations can manage volatility, uncertainty, complexity, and ambiguity. The application of adaptive performance theory provides a comprehensive framework for understanding and addressing the challenges posed by volatility, uncertainty, complexity, and ambiguity (Baran&Woznyj, 2021)

Propounded by David J. Teece, Gary Pisano, and Amy Shuen in their seminal 1997 paper, Dynamic Capabilities Theory (DCT) primarily addresses the processes and mechanisms through which firms adapt, integrate, and reconfigure internal and external competences to address environmental changes. The genesis of DCT was influenced by the resource-based view (RBV) of the firm, which emphasized the importance of firm-specific resources and capabilities that are valuable, rare, inimitable, and non-substitutable. However, while the RBV focused on static resources, DCT extends this by emphasizing the importance of capabilities that allow firms to dynamically modify their resource base in response to environmental changes, particularly in volatile, uncertain, complex, and ambiguous (VUCA) environments. The core of DCT revolves around three main principles: sensing, seizing, and reconfiguring. These principles encapsulate the processes through which firms navigate dynamic environments and maintain competitive advantage. **Sensing opportunities and threats** principle involves the identification and assessment of opportunities and threats in the environment. It requires firms to develop processes for scanning the environment, collecting and analyzing data, and interpreting signals from the market. Sensing is not a passive activity; it involves proactive efforts to explore new markets, technologies, and customer needs (Teece, 2007). Firms with strong sensing capabilities are often able to detect changes in the environment earlier than their competitors, giving them a first-mover advantage. **Seizing opportunities** posits that once opportunities are identified, firms must be able to seize them. This involves mobilizing resources to address new opportunities, which may require making significant investments, reconfiguring existing assets, or even altering the business model. The seizing capability is closely linked to decision-making processes, where firms must assess risks and benefits, and commit to a course of action that aligns with their long-

term strategy (Eisenhardt & Martin, 2000). **Reconfiguring resources** principle involves the reconfiguration of the firm's resource base to adapt to new conditions. This may involve redeploying assets, restructuring the organization, or integrating new technologies. Reconfiguring capabilities are essential for maintaining flexibility and ensuring that the firm can continue to compete as the environment evolves (Helfat et al., 2007). This principle emphasizes the importance of organizational learning and the ability to integrate new knowledge into existing processes.

The theory of adaptive performance has gained significant attention in recent years, particularly as organizations increasingly operate in volatile, uncertain, complex, and ambiguous (VUCA) environments. Adaptive performance theory is grounded in several key assumptions that differentiate it from traditional performance models. First, it assumes that the ability to adapt is a critical determinant of employee effectiveness in modern organizations. Unlike traditional views that emphasize consistency and proficiency in specific tasks, adaptive performance theory recognizes that employees must be able to adjust their behaviors and skills in response to changing circumstances. Second, the theory assumes that adaptability is a multi-dimensional construct. As identified by Pulakos et al. (2000), adaptive performance encompasses a range of behaviors, from problem-solving and learning to interpersonal and cultural adaptability. This multi-dimensionality reflects the diverse challenges that employees face in dynamic work environments. Third, adaptive performance theory assumes that adaptability is not static but can be developed and enhanced through training and experience. This assumption aligns with the broader human resource development (HRD) literature, which emphasizes the role of learning and development in improving employee performance.

The empirical review presents findings from several studies that explore the intersection of VUCA environments and project management practices. Baran and Woznyj (2021) offer a comprehensive framework that spans multiple organizational levels, arguing that agility must be cultivated not only at the individual level but also within teams and across the entire organization. Their introduction of "The VUCA Audit" tool represents a proactive approach, allowing leaders to systematically identify and respond to the elements of volatility,

uncertainty, complexity, and ambiguity that characterize their environments. This tool is intended to be versatile, applicable across various industries, and is designed to empower leaders to diagnose their organizations' readiness to adapt and thrive in unpredictable conditions. In contrast, Kienl and Blokhina (2024) focus more narrowly on the operational aspects of agility, particularly within the context of maintaining cost efficiency and operational stability. Their research introduces the concept of "process debt," which refers to the cumulative inefficiencies that can arise when agility is prioritized at the expense of process rigor. They argue that in striving to be agile, organizations must not lose sight of the need for stable and efficient processes, especially in cost-sensitive industries. Their emphasis on lean principles reflects a pragmatic approach to balancing the flexibility needed to respond to VUCA conditions with the discipline required to maintain operational integrity. While both studies agree on the necessity of agility, Baran and Woznyj provide a broader, more strategic perspective, whereas Kienl and Blokhina offer a more focused, operational view.

The importance of managing competencies in a multi-project environment is highlighted by Riesener et al. (2023), who delve into the specific challenges faced in product development settings where multiple projects are running concurrently. Their study underscores the critical role of aligning employee competencies with the specific demands of each project. In multi-project environments, where resources are often shared and timelines are tight, the ability to effectively manage competencies can be the difference between project success and failure. The study argued that competency management is not just about ensuring that the right skills are available, but also about strategically allocating those skills across projects to optimize overall performance. This focus on the micro-level of project management contrasts with the broader perspective offered by Tereso et al. (2018), who examine commonly used project management practices across various sectors. Tereso et al. (2018) provide a more general overview of project management tools and practices, such as the use of kick-off meetings, Gantt charts, and regular status updates. Their study is more concerned with identifying and cataloging the tools that are most commonly employed by project managers, rather than delving into the specific challenges of managing competencies in a multi-project environment.

While Riesener et al (2018). provide deep insights into the specific needs of product development projects, Tereso et al. (2023) offer a broader view of project management practices across different industries. Both studies highlight the importance of effective resource management, but from different perspectives Riesener et al. (2018) focuses on the strategic alignment of competencies in multi-project settings, while Tereso et al. offer a more generalized view of project management tools and their application across various sectors. The integration of Agile methodologies with traditional project management approaches is explored by Tolbert and Parente (2020), who argue that hybrid methods can effectively manage the complexities of modern projects. They suggest that by combining the flexibility of Agile with the structured planning of traditional project management, organizations can create a more adaptable and resilient project management framework. Tolbert and Parente provide detailed guidance on how to implement hybrid approaches, including the importance of maintaining clear communication channels and ensuring that all team members are aligned with the project's goals and methodologies. Their study is particularly relevant for organizations that operate in dynamic environments where project requirements can change rapidly.

3. Methodology

To analyze the "issues and prospects of project management in a VUCA environment in Nigeria," the study employed **qualitative approach** guided by the naturalistic paradigm. This design is chosen for its ability to explore complex, context-specific phenomena deeply, which is essential given the study's aim to investigate challenges, examine prospects, and analyze the effects of VUCA on project management. The population of the study comprises a broad range of academic and business literature, including scholarly articles, research papers, and case studies relevant to project management in a VUCA (Volatile, Uncertain, Complex, and Ambiguous) environment. The decision to focus on this population is grounded in the need to comprehensively analyze the issues and prospects of project management within the Nigerian context, where VUCA characteristics significantly influence management practices. The sample consists of a carefully selected subset of the broader population, which includes a wide range of academic and business literature, such as scholarly articles, research papers, and case studies relevant to project management in a VUCA environment published between 2015 and 2024. The sampling technique employed is purposive sampling,

a method that allows for the deliberate selection of sources that are most relevant to the research objectives.

The primary research instrument employed in this study is a comprehensive review of existing literature. This approach involves a meticulous examination of academic and business literature published over the past five years, focusing on project management (Hadjinicolaou et al., 2022). Furthermore, the literature review was conducted using robust search strategies, with Google Scholar and Sciencedirect.com serving as the primary search tool. This platform was utilized to retrieve articles and publications that focus on success factors and approaches in project management, ensuring that the study is grounded in the most recent and relevant findings in the field. This method of data collection is particularly effective in a VUCA context, where rapid changes and uncertainties demand up-to-date information and insights (Riesener et al., 2023). In addition to academic literature, the study also incorporates industry reports, case studies, and global environmental reports from notable institutions such as the University of Göttingen and the United Nations. These sources provide a broader context for understanding the challenges faced by project management practices in Nigeria, especially in relation to global trends and policy frameworks (Andabai et al., 2017; Paver & Duffield, 2019).The literature review method was chosen because it allows for a broad and in-depth exploration of the topic, drawing on a wide range of sources to provide a nuanced understanding of the issues at hand (Riesener et al., 2023).

In the context of this study, the use of a comprehensive literature review focuses on academic and business sources published over the past five years (2015-2022), ensuring that the information is not only relevant but also reflects the latest trends and developments in the field of project management (Hadjinicolaou et al., 2022). By concentrating on recent literature, the study is more likely to capture current challenges and strategies, thereby enhancing the content validity of the research. Additionally, the literature review incorporates a wide range of sources, including peer-reviewed articles, industry reports, and case studies, which further strengthens the construct validity by providing a comprehensive understanding of the topic from multiple perspectives. The reliability of the literature review in this study is supported by the rigorous search strategies employed, particularly

the use of Google Scholar and Science direct to retrieve articles and publications. The two database are widely recognized academic search engine that provides access to a vast array of scholarly sources. By utilizing this platform with specific search terms related to success factors and approaches in project management, the study ensures that the literature reviewed is both comprehensive and consistent in its focus (Riesener et al., 2023). This methodical approach to literature selection minimizes the likelihood of bias and enhances the reliability of the findings, as it allows for the systematic identification of relevant studies across a broad spectrum of sources.

The main data analysis method used in this study is content analysis. This qualitative approach involves systematically reviewing and interpreting textual data to uncover patterns, themes, and insights relevant to the study's objectives (Okolie & Edo, 2023). Content analysis is particularly suitable for this study because it allows for the extraction of meaningful information from the extensive body of literature reviewed. By identifying recurring themes and patterns within the literature, this method enables the researcher to draw nuanced conclusions about the challenges and strategies associated with project management in a VUCA environment. The data analysis process begins with a thorough synthesis of existing literature, case studies, and practical examples. This synthesis involves combining insights from academic literature, industry reports, and real-world experiences shared by project management professionals (Tolbert & Parente, 2020). Through this synthesis, the study can identify best practices and effective strategies for managing projects in uncertain and complex environments, thereby offering valuable insights into expertise development in the field (Siregar et al., 2020).

4. Results and Discussion

4.1 Analysis of the challenges of project managements in VUCA environment

The analysis of the challenges of project management in a VUCA environment reveals several common challenges. First, the issue of **volatility** is highlighted by the unpredictable nature of economic conditions and market dynamics, which can lead to sudden changes in project scope, funding, and timelines. In Nigeria, the volatility of the global oil market has a direct impact on the availability of funds for large-scale projects, often leading to abrupt project adjustments and delays

(Andabai et al., 2017). Studies by Javed & Liu (2019) and Dittmann, Dirbanis, & Meier (2021) corroborate this, emphasizing that the unpredictability of financial resources is a major challenge in managing projects within volatile environments.

Uncertainty is another critical challenge, driven by frequent changes in government policies, regulatory frameworks, and political instability. These factors create an environment where long-term planning is fraught with risk, making it difficult for project managers to set realistic goals and timelines. Andabai et al. (2017) and Tereso et al. (2018) point out that this uncertainty often leads to project delays and scope changes, further complicating the management process. In Nigeria, the constant shifts in regulatory policies and the uncertain political climate exacerbate these challenges, making it nearly impossible for project managers to plan effectively.

Complexity arises from the multitude of stakeholders involved in projects, each with their own interests and expectations. This complexity is particularly pronounced in Nigeria, where projects often involve coordination between various government agencies, private sector partners, and local communities (Sabir et al., 2020). The need to manage these diverse interests, coupled with the intricate nature of the projects themselves, makes decision-making and communication highly challenging. Lawrence (2015) and Unegbu, Yawas, & Dan-asabe (2020) emphasize that the complexity of project management in Nigeria is a significant barrier to successful project execution. Finally, **ambiguity** is a pervasive issue in project management within a VUCA environment. The lack of clear information, coupled with the potential for misinterpretation, often leads to errors in decision-making and project execution. In Nigeria, this ambiguity is further compounded by the inconsistent application of project management standards and the lack of clear communication channels between project managers and stakeholders (Andabai et al., 2017; Oboreh, 2019). Studies by Teo &Loosemore (2017) and Unegbu, Yawas, & Dan-asabe (2020) support this, highlighting that ambiguity in project objectives and expectations often leads to confusion and project failure.

4.2 Analysis of the prospects of project managements in VUCA environment

The prospects for project management in a VUCA environment are closely tied to the ability of project managers and organizations to adapt to the dynamic conditions that characterize such environments. Several studies have highlighted the importance of developing dynamic capabilities, which enable organizations to integrate, build, and reconfigure internal and external resources to address rapidly changing circumstances (Baran & Woznyj, 2021; Mayo-Alvarez et al., 2024; Kienl & Blokhina, 2024). These dynamic capabilities are essential for navigating the volatility, uncertainty, complexity, and ambiguity inherent in VUCA environments. For instance, in environments where market conditions can change rapidly, project managers must be able to adjust project plans and strategies on the fly, ensuring that projects remain aligned with evolving objectives and stakeholder expectations (Unegbu, Yawas, & Dan-asabe, 2020). The ability to anticipate and respond to changes is a key determinant of project success in a VUCA context.

The adoption of agile project management methodologies has also been identified as a critical factor in enhancing project outcomes in VUCA environments. Agile methodologies, which emphasize flexibility, collaboration, and iterative processes, are particularly well-suited to environments where uncertainty and complexity are prevalent (Mayo-Alvarez et al., 2024; Sabir et al., 2020; Mikkelsen, 2020). By breaking projects down into smaller, manageable tasks and continuously reassessing priorities, agile approaches allow project teams to respond more effectively to unexpected changes and challenges. This adaptability is crucial in a VUCA environment, where traditional, linear project management methods often fall short (Gutterman, 2023). In the Nigerian context, however, the widespread adoption of agile methodologies has been slow, partly due to resistance to change and a lack of understanding of the benefits of these approaches (Andabai et al., 2017; Paver & Duffield, 2019; Tereso et al., 2018). Nonetheless, there is growing recognition of the need to embrace agile practices, particularly as the limitations of traditional methods become increasingly apparent.

Another key prospect for project management in a VUCA environment is the integration of advanced project management tools and technologies. Digital tools, such as project management software, data analytics, and artificial intelligence,

offer significant potential for improving project outcomes by enhancing decision-making, streamlining processes, and facilitating better communication among stakeholders (Mayo-Alvarez et al., 2024; Sabir et al., 2020; Baran & Woznyj, 2021). In particular, the use of predictive analytics can help project managers identify potential risks and opportunities early on, allowing for more proactive management of projects. The deployment of these technologies in Nigeria, however, has been limited by factors such as high costs, inadequate infrastructure, and a lack of technical expertise (Andabai et al., 2017; Lawrence, 2015; Teo & Loosemore, 2017). Despite these challenges, the potential benefits of leveraging advanced tools and technologies in project management are considerable, and there is a strong case for increased investment in this area.

The role of leadership in project management within a VUCA environment cannot be overstated. Effective leadership is crucial for navigating the complexities and uncertainties that characterize such environments, as it involves setting clear goals, fostering collaboration, and maintaining focus amidst changing conditions (Kienl & Blokhina, 2024; Sabir et al., 2020; Gutterman, 2023). Leadership that is adaptable and resilient is particularly important in a VUCA context, where project teams may face unexpected challenges that require quick decision-making and a willingness to pivot when necessary (Mayo-Alvarez et al., 2024). In Nigeria, the development of leadership skills among project managers has been identified as a critical area for improvement, with studies highlighting the need for more training and development opportunities to build the capacity of leaders to manage projects effectively in a VUCA environment (Andabai et al., 2017; Paver & Duffield, 2019; Unegbu, Yawas, & Dan-asabe, 2020). Strengthening leadership capabilities is therefore a key prospect for enhancing project management outcomes in Nigeria.
Overall, the prospects for project management in a VUCA environment, particularly in Nigeria, are closely linked to the ability of project managers and organizations to adapt to the dynamic and unpredictable conditions that characterize the environments. The development of dynamic capabilities, the adoption of agile methodologies, the integration of advanced project management tools and technologies, and the enhancement of leadership skills are all critical factors that can contribute to improved project outcomes. While there are significant challenges to be addressed, including resistance to change, inadequate infrastructure, and a lack of technical expertise, the potential benefits of embracing

these prospects are substantial. By focusing on these areas, Nigeria can enhance its project management practices and increase the likelihood of successful project delivery in a VUCA environment.

4.3 Analysis of the strategies adopted by project managers for project management in a VUCA environment

To manage projects effectively in a VUCA environment, project managers must adopt a range of strategies that enable them to navigate the complexities and uncertainties inherent in such conditions. One of the most widely adopted strategies is the development of dynamic capabilities, which involve the ability to integrate, build, and reconfigure internal and external resources to respond to changing circumstances (Baran & Woznyj, 2021; Mayo-Alvarez et al., 2024; Kienl & Blokhina, 2024). Dynamic capabilities are crucial for maintaining project alignment with evolving objectives and stakeholder expectations, particularly in environments characterized by high volatility and uncertainty (Unegbu, Yawas, & Dan-asabe, 2020). By focusing on flexibility and adaptability, project managers can ensure that projects remain on track despite the challenges posed by a VUCA environment.

Another critical strategy for managing projects in a VUCA environment is the adoption of agile project management methodologies. Agile approaches emphasize flexibility, collaboration, and iterative processes, making them well-suited to environments where uncertainty and complexity are prevalent (Mayo-Alvarez et al., 2024; Sabir et al., 2020; Mikkelsen, 2020). Agile methodologies allow project teams to break down projects into smaller, manageable tasks, continuously reassess priorities, and respond to changes more effectively. This iterative approach is particularly beneficial in VUCA environments, where traditional, linear project management methods often fall short (Gutterman, 2023). However, in Nigeria, the adoption of agile methodologies has been slow due to resistance to change and a lack of awareness of the benefits of these approaches (Andabai et al., 2017; Paver & Duffield, 2019; Tereso et al., 2018). Despite these challenges, there is growing recognition of the need to embrace agile practices as a strategy for improving project management outcomes in a VUCA environment.

The integration of advanced project management tools and technologies is another strategy that has proven effective in managing projects in a VUCA environment. Digital tools, such as project management software, data analytics, and artificial intelligence, provide project managers with the capabilities to enhance decision-making, streamline processes, and improve communication among stakeholders (Mayo-Alvarez et al., 2024; Sabir et al., 2020; Baran & Woznyj, 2021). Predictive analytics, in particular, can help project managers identify potential risks and opportunities early in the project lifecycle, allowing for more proactive management. In Nigeria, the adoption of these technologies has been limited by high costs, inadequate infrastructure, and a lack of technical expertise (Andabai et al., 2017; Lawrence, 2015; Teo & Loosemore, 2017). However, the potential benefits of leveraging advanced tools and technologies are substantial, and there is a strong case for increased investment in this area as a strategy for improving project outcomes in a VUCA environment.

Effective leadership is another crucial strategy for managing projects in a VUCA environment. Project managers must demonstrate strong leadership skills to navigate the complexities and uncertainties that characterize such environments. Effective leadership involves setting clear goals, fostering collaboration, and maintaining focus amidst changing conditions (Kienl & Blokhina, 2024; Sabir et al., 2020; Gutterman, 2023). Adaptable and resilient leadership is particularly important in a VUCA context, where project teams may encounter unexpected challenges that require quick decision-making and a willingness to pivot when necessary (Mayo-Alvarez et al., 2024). In Nigeria, developing leadership capabilities among project managers has been identified as a critical area for improvement. Studies have highlighted the need for more training and development opportunities to build the capacity of leaders to manage projects effectively in a VUCA environment (Andabai et al., 2017; Paver & Duffield, 2019; Unegbu, Yawas, & Dan-asabe, 2020). Strengthening leadership capabilities is, therefore, a key strategy for enhancing project management outcomes in Nigeria.

4.4 Analysis of how VUCA environment affect project managements in Nigeria.
The VUCA environment significantly affects project management in Nigeria, influencing both the strategic and operational aspects of project execution. One of the most prominent effects is the increased difficulty in project planning due to the

high levels of volatility and uncertainty present in the Nigerian environment. Economic instability, driven by fluctuations in oil prices and exchange rates, creates an unpredictable financial landscape, making it challenging for project managers to develop accurate budgets and timelines (Andabai et al., 2017; Kienl & Blokhina, 2024). This volatility is further exacerbated by the political uncertainty that characterizes the Nigerian context, where frequent policy changes and political instability can derail project plans and result in delays or cancellations (Lawrence, 2015; Unegbu, Yawas, & Dan-asabe, 2020).

The complexity inherent in the Nigerian environment also poses significant challenges to project management. Projects often involve a diverse range of stakeholders, including government agencies, private sector entities, and local communities, each with their own interests and agendas. This multiplicity of stakeholders increases the complexity of project execution, requiring project managers to navigate a web of relationships and manage competing demands (Teo&Loosemore, 2017; Dittmann, Dirbanis, & Meier, 2021). Moreover, the lack of infrastructure and technical expertise in Nigeria adds another layer of complexity, making it difficult to implement modern project management practices and technologies effectively (Andabai et al., 2017; Paver & Duffield, 2019).

Ambiguity, as a component of the VUCA framework, affects project management in Nigeria by creating a lack of clarity around project objectives, roles, and responsibilities. This ambiguity can lead to misunderstandings and miscommunications among project teams, stakeholders, and clients, resulting in project delays, cost overruns, and a failure to meet project goals (Mayo-Alvarez et al., 2024; Sabir et al., 2020). In the Nigerian context, ambiguity is often exacerbated by the fluid and sometimes opaque regulatory environment, where inconsistent enforcement of laws and regulations can create confusion and uncertainty for project managers (Unegbu, Yawas, & Dan-asabe, 2020; Gutterman, 2023). This ambiguity can also extend to project scope and deliverables, where unclear or shifting project goals make it difficult to define success and measure progress effectively (Tereso et al., 2018).

The impact of the VUCA environment on project management in Nigeria is further complicated by the limited availability of resources and the challenges associated

with resource allocation. In a VUCA environment, project managers must often contend with scarce resources, including financial, human, and technological assets, which can hinder project progress and lead to suboptimal outcomes (Andabai et al., 2017; Lawrence, 2015). The competition for these limited resources is intense, particularly in a country like Nigeria, where the demand for skilled labor and modern technology often exceeds supply (Kienl & Blokhina, 2024; Mayo-Alvarez et al., 2024). This scarcity of resources, coupled with the high levels of volatility and uncertainty, makes it difficult for project managers to secure the necessary inputs for successful project execution.

In response to these challenges, project managers in Nigeria have had to develop adaptive strategies to mitigate the effects of the VUCA environment. One such strategy is the emphasis on flexibility and adaptability in project planning and execution. By adopting more flexible approaches, such as agile methodologies, project managers can better respond to changes and uncertainties as they arise, ensuring that projects remain on track despite the volatile and complex environment (Mayo-Alvarez et al., 2024; Baran & Woznyj, 2021; Mikkelsen, 2020). However, the adoption of these adaptive strategies is often hampered by the aforementioned challenges, including resistance to change and a lack of awareness of the benefits of modern project management practices (Andabai et al., 2017; Paver & Duffield, 2019).

5. Summary, Conclusion and Recommendations

This study explores the issues and prospects of projects Management in a VUCA Environment in Nigeria. The study specifically investigate the challenges of project managements in VUCA environment, examine the prospects of project managements in VUCA environment, investigate the strategies adopted by project managers for project management in a VUCA environment, and analyse the effect of VUCA environment on project managements in Nigeria. This investigation is crucial because the Nigerian project management landscape is riddled with complexities that significantly impact the success of development projects across various sectors. Many projects in Nigeria suffer from poor planning, execution, and control, leading to delays and cost overruns, as evidenced by numerous cases of project failures despite substantial investments. The consequences of these challenges are far-reaching, resulting in wasted resources, unmet project

objectives, and a general distrust in the ability of projects to deliver intended benefits. Statistics indicate that many projects in the country fail to meet their deadlines and budgets, with over 60% of public projects experiencing significant delays and cost overruns. In response to these challenges, Nigerian policymakers and project management professionals have made various attempts to improve project outcomes. Despite these efforts, the success rate of projects remains low, with many still plagued by the same issues of inefficiency, poor stakeholder alignment, and mismanagement. Existing studies have largely focused on traditional management practices and have not adequately addressed the need for tailored approaches that reflect the realities of Nigeria's complex and rapidly changing environment.

In the analysis, the study employed **qualitative approach** guided by the naturalistic paradigm based on the population comprising a broad range of academic and business literature, including scholarly articles, research papers, and case studies relevant to project management in a VUCA environment. The research primarily utilizes a literature review methodology, which involves synthesizing existing knowledge and examining prior studies. The sample consists of a wide range of academic and business literature, such as scholarly articles, research papers, and case studies relevant to project management in a VUCA environment selected using the purposive sampling technique. The data were analysed using is content analysis involving systematically reviewing and interpreting textual data to uncover patterns, themes, and insights relevant to the study's objectives.

The result of the analysis shows that the challenges of project management in a VUCA environment are exacerbated by economic instability, political uncertainty, and a lack of standardized project management practices. While global strategies such as agile methodologies and advanced project management tools offer potential solutions, their implementation in Nigeria has been limited by resource constraints and systemic issues. Also, the prospects for project management are linked to the ability of project managers and organizations to adapt to the dynamic and unpredictable conditions that characterize the environments. The development of dynamic capabilities, the adoption of agile methodologies, the integration of advanced project management tools and technologies, and the

enhancement of leadership skills are all critical factors that can contribute to improved project outcomes. Furthermore, the study shows that the strategies adopted by project managers for managing projects in a VUCA environment are dynamic capabilities, agile methodologies, advanced project management tools and technologies, and effective leadership. Furthermore, the study shows that the VUCA environment in Nigeria significantly affects project management by introducing high levels of volatility, uncertainty, complexity, and ambiguity into the project management process affecting project planning, execution, and resource allocation, leading to frequent project delays, cost overruns, and failures to meet project objectives. Finally, it was found that transformational leadership emerges as the most efficient leadership style in mitigating the challenges of project management in a VUCA environment, particularly in Nigeria.

The study provides a comprehensive examination of project management in the VUCA (Volatile, Uncertain, Complex, and Ambiguous) environment of Nigeria. The analysis highlights that project management in Nigeria faces significant challenges primarily due to economic instability, political uncertainty, and a lack of standardized practices. These factors contribute to frequent project delays, cost overruns, and failures to meet objectives, undermining the effectiveness and efficiency of development projects across various sectors. Despite attempts by policymakers and project management professionals to address these issues, the overall success rate remains low, revealing persistent inefficiencies, poor stakeholder alignment, and mismanagement.

The research underscores that the VUCA environment introduces unique challenges at each component level. Volatility can lead to sudden changes in project scope or funding, requiring enhanced adaptability from project managers. Uncertainty, fueled by political instability and economic fluctuations, complicates long-term planning and increases project risk. Complexity arises from the need to coordinate multiple stakeholders and manage interdependencies, while ambiguity can obscure decision-making processes, leading to errors and misinterpretations. The study reveals that dynamic capabilities and high-reliability organizations theories offer valuable insights into managing these challenges. Dynamic capabilities focus on the ability to integrate and reconfigure competencies to address rapidly changing environments, while high-reliability

organizations emphasize practices that enable effective operation in complex and high-risk contexts.

In light of these findings, several policy recommendations are proposed. First, there should be a concerted effort to standardize project management practices across Nigeria to create a more consistent and reliable framework for project execution. Second, investment in training and development programs for project managers, with a focus on dynamic capabilities and agile methodologies, is crucial for enhancing their ability to handle VUCA challenges. Third, the government should support the integration of advanced project management tools and technologies by providing resources and incentives for their adoption. Fourth, fostering an environment that encourages transformational leadership can improve project outcomes by promoting adaptability and resilience among project teams. Finally, it is important to create mechanisms for continuous feedback and learning, allowing project managers to refine their approaches based on real-world experiences and evolving VUCA conditions.

Further research is recommended to explore the implementation of these strategies in greater detail, including case studies of successful projects in similar VUCA environments. Additionally, studies focusing on the impact of different leadership styles on project success in various VUCA contexts could provide deeper insights into effective management practices. Such research would contribute to the development of more tailored and context-specific solutions for enhancing project management in Nigeria and other regions facing similar challenges.

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