

RISK, UNCERTAINTY, SUBJECTIVE RISK AND ATTITUDE TO RISK: A COMPREHENSIVE ANALYSIS OF RISK MANAGEMENT OF PROJECTS IN NIGERIA

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Abstract: This study sought to investigate Risk, Uncertainty, Subjective Risk and Attitude to Risk: A Comprehensive Analysis of Risk Management of Projects in Nigeria and it is narrowed down to public sector projects. Public sector projects in Nigeria play a critical role in national development, infrastructure expansion, poverty reduction, and socio-economic transformation. However, these, delays, abandonment, corruption risks, political interference, policy inconsistency and uncertainty arising from economic volatility. These challenges are the concepts of risk, uncertainty, subjective perception of risk, and institutional attitude toward risk management. While risk is often measurable and manageable through structured frameworks, uncertainty represents unknown variables that complicate forecasting and planning. In the Nigerian public sector context, risk management practices remain inconsistent, reactive, and insufficiently institutionalized. This study presents a comprehensive theoretical and analytical examination of risk and uncertainty in public sector project management in Nigeria. It explores the distinction between objective and subjective risk, analyzes institutional and managerial attitudes toward risk, and evaluates the effectiveness of existing risk management practices. Using documentary research design and secondary data from academic literature, policy documents, and empirical studies, the paper identifies structural weaknesses in governance, planning, implementation, and monitoring mechanisms. It further argues that subjective risk perception, influenced by political, cultural, and administrative factors, significantly shapes project outcomes. The study integrates contemporary risk management theory with public administration practice in Nigeria and highlights the relevance of strategic planning, monitoring, and verification systems in mitigating project risk. Findings indicate that inadequate risk assessment frameworks, weak institutional accountability, and poor implementation culture contribute to project failure. The study concludes with recommendations for institutionalizing proactive risk management systems, strengthening regulatory frameworks, enhancing professional capacity, and integrating data-driven decision-making into public project management processes.

Keywords: Risk, Uncertainty, Comprehensive Analysis, Management, Project, Subjective, Nigeria..

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1. Introduction

1.1 Background to the study

Public sector projects constitute a fundamental instrument through which governments pursue socio-economic development, infrastructure expansion, and public service delivery. In Nigeria, such projects encompass transportation infrastructure, healthcare facilities, educational institutions, water supply systems, energy infrastructure, and digital governance initiatives. These projects absorb a substantial proportion of public expenditure and are central to national development planning. Despite their strategic importance, public sector projects in Nigeria frequently experience cost overruns, delays, scope variations, and, in some cases, abandonment, largely due to structural and managerial inefficiencies (Djemai, D. 2022).

Risk and uncertainty are central concepts in understanding project performance. Although often used interchangeably, they are conceptually distinct. Knight (1921) differentiates risk where probabilities of outcomes can be estimated from uncertainty, where such probabilities cannot be reliably calculated due to incomplete knowledge or unpredictable events. In the Nigerian public sector environment, measurable risks may include inflation, exchange rate fluctuation, contractor default, and procurement delays, while uncertainty often arises from political transitions, regulatory shifts, and security instability. This distinction is crucial because measurable risks can be managed through structured analytical tools, whereas uncertainty requires adaptive and flexible governance mechanisms (Hillson, 2017).

Beyond objective assessment, risk is also shaped by subjective perception. Risk perception theory suggests that individuals and institutions interpret risk through cognitive and socio-cultural filters rather than purely statistical reasoning (Slovic, 1987). In public sector projects, administrators and political leaders

may underestimate fiscal risk due to optimism bias or overestimate reputational risk due to fear of public scrutiny. Such subjective risk perception influences budgeting decisions, procurement processes, contractor selection, and monitoring mechanisms. Consequently, project outcomes are shaped not only by external risk variables but also by internal institutional perceptions and decision-making cultures (Saunders et al., 2019).

Attitude to risk defines how public institutions respond to potential threats. Public organizations are often characterized by risk-averse behavior due to audit scrutiny, anti-corruption oversight, and political accountability pressures. While risk aversion promotes procedural compliance and financial prudence, excessive caution can slow project implementation and discourage innovation. Conversely, politically motivated risk-seeking behavior may result in ambitious projects launched without adequate feasibility studies or risk analysis. Effective risk governance therefore requires a balanced institutional attitude supported by systematic risk identification, analysis, and response planning frameworks (Hillson, 2017; PMI, 2021).

Strategic planning and monitoring systems are equally central to risk mitigation in public sector projects. Structured goal setting, implementation oversight, and verification mechanisms enhance accountability and reduce operational vulnerability. Empirical analysis of institutional planning systems in Nigeria demonstrates that effective monitoring and resource verification significantly improve implementation outcomes (Pillah et al, 2025). Integrating such structured planning and verification systems into public sector project management strengthens risk control, enhances transparency, and promotes sustainability.

This study therefore examines the interplay between risk, uncertainty, subjective risk perception, and institutional attitude to risk in the management of public sector projects in Nigeria. By integrating classical risk theory, behavioral perspectives, and contemporary project management frameworks, the paper provides a comprehensive analysis of how structured risk governance mechanisms can enhance project performance, institutional accountability, and sustainable development outcomes.

1.2 Statement of the Problem

Public sector projects in Nigeria have long been associated with delays, escalating costs, abandonment, and overall poor performance. Despite significant annual budgetary allocations to critical sectors such as infrastructure, education, healthcare, and public utilities, many government-initiated projects fail to achieve their intended objectives. Roads remain incomplete, hospitals are under-equipped, and public facilities deteriorate before reaching full operational capacity. This recurring pattern raises serious concerns about the effectiveness of risk management practices within the Nigerian public sector.

Several interrelated challenges contribute to this situation. One major issue is the frequent abandonment of projects, often resulting from funding shortfalls, changes in administration, or weak planning processes. Inflation and exchange rate instability further intensify the problem by increasing project costs beyond initial estimates. Policy discontinuity following political transitions also disrupts continuity, as newly elected governments may suspend or abandon projects initiated by their predecessors. Weak procurement compliance, corruption, and misallocation of funds compound these difficulties, undermining transparency and

accountability. Additionally, inadequate monitoring and evaluation systems prevent early detection of emerging risks, allowing small issues to escalate into major setbacks.

Although risk management frameworks exist in theory, they are rarely institutionalized in a systematic and consistent manner across ministries and agencies. Many public institutions initiate projects without comprehensive risk assessments, feasibility studies, or contingency planning mechanisms. Decisionmaking is often influenced by subjective risk perception. Political considerations may override technical evaluations, leading to unrealistic timelines or poorly designed projects. In some cases, fear of audit scrutiny results in excessive bureaucratic rigidity that slows implementation. In other instances, political urgency encourages rushed decisions without adequate due diligence.

Furthermore, the absence of integrated monitoring and verification systems weakens accountability. Structured goal setting and continuous oversight, as highlighted by Pillah et al. (2025), are essential for improving institutional performance. However, such mechanisms remain insufficiently embedded in many public projects. Combined with broader uncertainties such as macroeconomic instability and security challenges, these weaknesses create a high-risk environment. Ultimately, the core problem lies in the inadequate integration of objective risk assessment, subjective risk awareness, and structured risk management systems, resulting in persistent inefficiency and project failure.

2. Review of Related Literature

2.1 Conceptual clarification

2.1.2 Risk and Uncertainty

The concepts of risk and uncertainty are often used interchangeably; however, they are theoretically distinct. Risk refers to situations where the probability of outcomes can be estimated based on available information. Uncertainty, on the other hand, refers to situations where probabilities cannot be reliably determined due to incomplete or unpredictable information (Knight, 1921).

In public sector project management, risk may involve measurable elements such as cost fluctuation, schedule delays, contractor default, or procurement failure. Uncertainty may arise from political transitions, regulatory reforms, macroeconomic shocks, or security crises that are difficult to predict with precision.

Scholars argue that distinguishing between risk and uncertainty is essential for effective management because strategies that mitigate calculable risk may not adequately address structural uncertainty (Hillson, 2017). In Nigeria, where political and economic environments are dynamic, uncertainty often surpasses measurable risk in shaping project outcomes.

2.2 Empirical review of previous studies

2.2.1 Subjective Risk and Perception in Public Administration

Beyond objective measurement, risk also possesses a subjective dimension. Subjective risk refers to how individuals or institutions perceive and interpret potential threats based on cognitive biases, experience, organizational culture, and political context (Slovic, 1987).

In Nigerian public sector institutions, subjective risk perception influences:

- Budget approval processes
- Contractor selection
- Policy implementation decisions
- Monitoring intensity
- Allocation of contingency funds

For example, a ministry may underestimate inflationary risk due to political pressure to initiate projects quickly.

Alternatively, project managers may overestimate reputational risk and therefore avoid innovative procurement methods.

Subjective risk perception can either enhance vigilance or encourage complacency. As Bryman (2016) notes, organizational decision-making is rarely purely rational; it is shaped by social and institutional factors.

2.2.2 Attitude to Risk in Public Sector Projects

Attitude to risk refers to the disposition of individuals or institutions toward risk-taking or risk avoidance. In public sector, risk attitude may be categorized as:

- Risk-averse
- Risk-neutral
- Risk-seeking

Public administrators in Nigeria often exhibit risk-averse behavior due to fear of audit sanctions, anti-corruption scrutiny, and political accountability pressures. While caution is important, excessive risk aversion may delay decision-making and innovation. Conversely, politically motivated risk-seeking behavior may lead to poorly planned —flagship projects— undertaken without comprehensive feasibility assessment.

Saunders, Lewis, and Thornhill (2019) emphasize that managerial attitude toward risk significantly determines strategic planning and project execution quality.

2.2.3 Risk Management in Public Sector Projects

Risk management refers to the systematic identification, assessment, mitigation, monitoring, and control of risks that may affect project objectives (PMI, 2021). In theory, effective public sector risk management should involve:

- Risk identification
- Risk analysis (qualitative and quantitative)
- Risk response planning
- Risk monitoring and control

However, empirical evidence suggests that risk management in Nigerian public sector projects is often reactive rather than proactive. Many projects lack comprehensive risk registers, scenario planning mechanisms, or contingency budgeting frameworks.

Strategic planning and monitoring systems are crucial components of risk management. Pillah, Goyit, and Pillah (2025)

emphasize that structured verification, monitoring, and implementation oversight significantly enhance institutional effectiveness. Their analysis of resource verification in Nigerian universities demonstrates that goal setting, strategic planning, and monitoring reduce operational inefficiencies principles that are equally applicable to public sector project risk management.

2.2.4 Risk Environment in Nigeria

The Nigerian public project environment operates within a complex network of risks that significantly affect project planning and execution. One major source of risk is macroeconomic volatility. Fluctuations in inflation and currency instability often increase the cost of materials, labor, and imported equipment, making it difficult for projects to remain within their original budgets. Political transitions also contribute to instability. Changes in government frequently lead to policy discontinuity, where ongoing projects are reviewed, modified, or even abandoned due to shifting political priorities.

Procurement irregularities further complicate the system. Weak compliance with procurement regulations can result in contract inflation, delays, and disputes. In addition, security challenges such as insurgency, vandalism, and communal conflicts disrupt project sites and increase operational costs. Weak institutional capacity particularly in technical expertise, planning, and monitoring limits the ability of public agencies to effectively manage these risks. Corruption risks also undermine transparency and accountability, reducing public confidence in government initiatives.

As noted by Kothari (2004), environmental and contextual factors strongly influence project outcomes, especially in developing economies where institutional systems are still evolving. In Nigeria, the interaction between measurable risks, subjective risk perception, and institutional attitudes toward risk creates a complicated management environment. Without structured and proactive risk management frameworks, public projects remain highly vulnerable to cost overruns, delays, abandonment, and erosion of public trust.

2.2.5 Project Risk Management Framework

The Project Risk Management Framework was developed and standardized by the Project Management Institute (PMI) in its 2021 edition of the Project Management Body of Knowledge (PMBOK Guide). According to PMI (2021), risk management is a continuous and systematic process that includes risk identification, qualitative and quantitative analysis, response planning, implementation of responses, and ongoing monitoring and control.

This framework provides a structured approach to managing uncertainty in projects. Unlike theoretical models that only explain risk, the PMI framework offers practical steps that organizations can follow. It emphasizes documentation, stakeholder communication, and proactive planning to reduce negative impacts while maximizing opportunities.

In the Nigerian public sector, applying this framework requires strong institutional capacity, transparency, and accountability. Many public projects fail not because risks are unknown, but because they are poorly documented or inadequately monitored. Political interference, weak procurement systems, and limited technical expertise often undermine risk management processes.

The PMI framework highlights the importance of integrating risk management into every stage of the project lifecycle. When properly implemented, it can enhance project success, improve public trust, and ensure better utilization of public funds (PMI, 2021).

2.2.6 Issues of Determination

This section examines the core analytical issues shaping risk management in Nigerian public sector projects.

2.2.7 Determination of Uncertainty Factors

Uncertainty in public sector projects arises from multiple structural and environmental conditions that are often beyond managerial control. Unlike measurable risks, uncertainty does not have clear probability estimates or historical data that can guide prediction. As explained by Frank Knight, uncertainty refers to situations where outcomes cannot be calculated or statistically forecasted (Knight, 1921). In the Nigerian public sector, several factors contribute significantly to uncertainty.

One major source is political transition. Changes in government leadership often bring new policy priorities, resulting in the abandonment or restructuring of ongoing projects. Policy reversals and sudden regulatory changes also create instability, particularly in sectors such as finance, infrastructure, and energy. Additionally, national security crises such as insurgency, vandalism, or civil unrest can disrupt project timelines and increase operational costs. Global economic shocks, including fluctuations in oil prices, inflation, or currency depreciation, further intensify uncertainty in a developing economy like Nigeria.

Because these factors are difficult to predict using conventional risk assessment models, adaptive governance mechanisms become necessary. Flexible planning, contingency budgeting, scenario analysis, and institutional resilience are essential tools for managing uncertainty. Rather than relying solely on probability-based forecasting, public institutions must build systems capable of responding quickly to unforeseen developments. This adaptive approach strengthens long-term sustainability and reduces vulnerability to environmental shocks (Knight, 1921).

2.2.8 Subjective Risk Perception and Cognitive Bias

Risk management is not only a technical exercise but also a psychological process influenced by human perception. Paul Slovic argues that individuals interpret risks subjectively, often allowing emotions and social context to shape their judgments (Slovic, 1987). In public administration, cognitive biases significantly influence decision-making processes.

Public administrators may display optimism bias, assuming that projects will succeed despite warning signs. Political bias may also occur when decisions are influenced by partisan considerations rather than objective evaluation. Status quo bias can prevent officials from adopting innovative reforms, while fear of audit investigations may lead to excessive risk avoidance. These tendencies affect procurement processes, contractor selection, budget allocation, and project approval decisions.

When perception diverges from statistical evidence, decisions may become suboptimal. For example, officials might overestimate politically visible risks while underestimating systemic corruption risks. This imbalance weakens institutional

performance and reduces project effectiveness. Therefore, strengthening training in behavioral risk awareness and promoting evidence-based decision-making are critical steps toward improving governance outcomes (Slovic, 1987).

2.2.9 Institutional Attitude to Risk

Institutional attitude to risk refers to the collective orientation of an organization toward uncertainty, decision-making, and exposure to potential loss or opportunity. In the public sector, this attitude significantly influences how projects are conceived, approved, financed, and monitored. Unlike private firms that often balance risk with profit incentives, public institutions operate within political, legal, and bureaucratic constraints that shape their tolerance for risk. According to the Project Management Institute (PMI, 2021), effective risk management depends not only on technical processes but also on organizational culture and leadership commitment.

In Nigeria, public institutions frequently display mixed or inconsistent attitudes toward risk. In routine administrative procedures, agencies tend to be risk-averse. Strict adherence to civil service rules, extensive documentation, and fear of audit sanctions often slow down decision-making. This conservative posture is partly driven by concerns about investigation by oversight bodies and reputational damage. While such caution may reduce exposure to procedural errors, it can also discourage innovation and timely execution of projects.

Conversely, institutions may adopt a risk-seeking attitude in politically significant or high-visibility projects. Flagship infrastructure programs sometimes proceed with ambitious timelines and limited feasibility analysis, particularly when driven by electoral considerations. This dual behavior creates imbalance in project execution and resource allocation.

Scholars of risk perception, such as Paul Slovic, argue that institutional decisions are influenced by perception and social context, not purely objective calculations (Slovic, 1987). Therefore, building a consistent risk culture requires leadership stability, transparent accountability systems, and structured training in risk assessment. A balanced institutional attitude—neither excessively risk-averse nor recklessly risk-seeking is essential for sustainable governance and effective public project management.

2.2.10 Governance and Accountability Challenges

Governance and accountability challenges remain central obstacles to effective risk management in Nigeria's public sector. Good governance requires transparency, rule of law, responsiveness, and institutional responsibility. However, where accountability mechanisms are weak, risk management processes often become reactive rather than preventive. According to the World Bank (1992), governance refers to the manner in which power is exercised in the management of a country's economic and social resources for development. When this exercise of power lacks transparency and answerability, public projects become vulnerable to mismanagement and failure.

One major governance challenge is weak oversight. Internal control systems, audit mechanisms, and legislative supervision are sometimes underfunded or politically influenced. As a result, early warning signs of project risk such as cost overruns, procurement irregularities, or contractor nonperformance may be ignored. Without strong monitoring institutions, risk

identification and mitigation processes outlined by the Project Management Institute (PMI, 2021) are difficult to implement effectively.

Another critical issue is limited enforcement of sanctions. When public officials or contractors face minimal consequences for poor risk planning or project failure, institutional learning declines. This situation creates moral hazard, where actors take excessive or careless risks because they do not bear the full cost of failure. Over time, this weakens public trust and reduces incentives for professionalism in project execution.

Furthermore, political interference can undermine accountability systems. Projects may be initiated for political visibility rather than strategic necessity, and oversight agencies may be reluctant to challenge executive decisions. Strengthening governance therefore requires enhancing audit independence, promoting transparency in procurement, and institutionalizing performance-based evaluation systems. Effective accountability not only deters corruption but also encourages proactive risk management and sustainable public service delivery (Ofori, G. 2023).

2.2.11 Capacity and Professional Competence

Effective risk management in public sector projects depends largely on the technical capacity and professional competence of personnel. According to the Project Management Institute (PMI, 2021), managing project risk requires structured processes supported by skilled professionals who understand quantitative risk analysis, scenario planning, financial modeling, and contract risk allocation. These competencies enable institutions to identify potential threats, estimate their probability and impact, and design appropriate mitigation strategies.

Quantitative risk analysis involves the use of statistical tools to measure the likelihood of cost overruns or schedule delays. Scenario planning helps project managers prepare for alternative future conditions, especially in volatile economic environments. Financial modeling allows agencies to forecast funding gaps and test the sustainability of project financing. Similarly, proper contract risk allocation ensures that risks are assigned to the parties best able to manage them.

In many Nigerian public agencies, however, limited professional capacity undermines effective implementation. Shortage of trained project managers, inadequate exposure to modern risk software, and weak institutional training systems reduce the ability to apply structured methodologies. As Saunders et al. (2019) emphasize, research-based decision-making and analytical competence are essential for sound project governance. Without adequate expertise, risk registers may be poorly developed, and mitigation plans may remain theoretical rather than practical.

Strengthening institutional capacity through continuous training, professional certification, and recruitment of skilled experts is therefore critical. Building technical competence not only improves risk identification but also enhances transparency, accountability, and project sustainability (PMI, 2021; Saunders et al., 2019).

2.2.12 Macroeconomic Volatility and Fiscal Risk Determination

Macroeconomic instability represents one of the most persistent objective risks confronting Nigerian public sector projects. Because government expenditure relies heavily on oil revenue, fluctuations in global oil prices directly affect annual budgetary allocations. According to the Project Management Institute (PMI, 2021), failure to integrate economic forecasting into project planning exposes institutions to financial instability and schedule disruption.

Inflation significantly increases construction material costs, labor expenses, and procurement prices. When project budgets are not adjusted to reflect inflationary trends, funding gaps emerge, resulting in cost overruns or project abandonment. Exchange rate depreciation further increases the cost of imported equipment and technical services. Without structured financial risk modeling, these macroeconomic factors generate unexpected capital escalation.

Quantitative tools such as sensitivity analysis and scenario forecasting help decision-makers assess how changes in inflation or exchange rates affect project viability. By incorporating macroeconomic variables into feasibility studies, public agencies can anticipate fiscal stress and design contingency funding mechanisms. Integrating economic risk determination into planning therefore enhances financial resilience and project continuity (PMI, 2021).

2.2.13 Political Risk and Policy Discontinuity

Political risk remains a major source of uncertainty in Nigerian public sector projects. Changes in government leadership often lead to suspension of ongoing projects, reprioritization of investments, and reassessment of contractor agreements. Frank Knight argued that uncertainty exists where probability cannot be reliably calculated (Knight, 1921). Political transitions exemplify such uncertainty because outcomes depend on electoral dynamics and ideological shifts.

Policy discontinuity undermines long-term infrastructure planning. Projects initiated by one administration may be abandoned by successors due to political rivalry rather than technical inefficiency. This instability reduces investor confidence and increases reputational risk for government institutions.

Mitigating political risk requires legal safeguards, continuity clauses in contracts, and bipartisan legislative backing. Institutionalizing long-term development plans beyond electoral cycles can enhance stability and reduce uncertainty (Knight, 1921).

2.2.14 Corruption and Ethical Risk

Corruption constitutes a systemic risk in Nigerian public sector projects. Ethical risk manifests through contract inflation, procurement manipulation, ghost projects, diversion of funds, and conflicts of interest. These practices introduce both financial loss and moral hazard. As David Hillson (2017) explains, weak ethical controls undermine structured risk management because stakeholders may intentionally bypass safeguards.

Corruption distorts project costs, reduces quality standards, and weakens public trust. When accountability mechanisms are ineffective, risk mitigation strategies become superficial. Strengthening internal controls, audit compliance, and transparency frameworks is therefore essential. Anti-corruption reforms must be

integrated into risk management systems to reduce systemic vulnerability (Hillson, 2017).

2.2.15 Procurement Risk and Contractual Allocation

Procurement processes significantly determine project risk exposure. Poorly drafted contracts may allocate disproportionate risk to contractors or fail to protect public interest. According to the Project Management Institute (PMI, 2021), risk response planning must be embedded in contractual agreements to ensure enforceability.

Effective risk allocation requires clear definitions of cost responsibility, delay penalties, performance bonds, insurance coverage, and force majeure provisions. Balanced contractual structures encourage accountability and performance. Without proper allocation, disputes, litigation, and project delays become frequent. Embedding structured risk clauses strengthens project governance and reduces financial exposure (PMI, 2021).

2.2.16 Capacity Constraints and Technical Competence

Capacity constraints remain a recurring challenge in public institutions. Effective risk management requires skills in statistical modeling, probability estimation, PERT/CPM scheduling, financial forecasting, and environmental impact assessment. Saunders et al. (2019) argue that analytical competence is fundamental to evidence-based decision-making.

However, many agencies lack adequately trained professionals and modern analytical tools. This gap limits the application of quantitative methods and weakens project monitoring systems. Continuous professional development and certification in project management can enhance institutional competence and reduce technical vulnerability (Saunders et al., 2019).

2.2.17 Monitoring, Evaluation, and Verification Systems

Risk management is incomplete without continuous monitoring and evaluation. Monitoring enables early detection of emerging threats, while evaluation measures project performance against strategic objectives. Pillah, et al (2025), emphasize that structured verification and goal alignment improve institutional effectiveness.

Integrating real-time monitoring systems into public projects enhances transparency and reduces resource misallocation. Weak monitoring structures allow risks to escalate unchecked, leading to cumulative failure. Therefore, systematic oversight must be embedded throughout the project lifecycle.

2.2.18 Risk Communication and Stakeholder Engagement

Public sector projects involve multiple stakeholders, including government agencies, contractors, civil society groups, host communities, and donors. Effective communication reduces uncertainty and builds trust. The R. Edward Freeman stakeholder theory highlights that inclusive participation enhances legitimacy and risk mitigation (Freeman, 1984).

Failure to communicate risks transparently can generate resistance, litigation, and project delays. Proactive stakeholder

engagement ensures shared understanding of project objectives and potential challenges. Transparent dialogue strengthens cooperation and improves overall project sustainability.

3. Theoretical Framework

3.1 Risk and Uncertainty Theory

Risk and Uncertainty Theory was propounded by Frank Knight in 1921. In his seminal work, *Risk, Uncertainty and Profit*, Knight (1921) made a fundamental distinction between risk and uncertainty. According to him, risk refers to situations where outcomes are measurable and probabilities can be calculated using statistical tools. Uncertainty, however, refers to situations where outcomes cannot be predicted or quantified because there is insufficient information. Knight argued that most real-world economic decisions are influenced more by uncertainty than by measurable risk.

This theory is highly relevant to public sector project management in Nigeria. While some risks such as cost overruns or delays can be estimated using past data, many challenges facing government projects arise from uncertainty. Examples include sudden political transitions, changes in policy direction, and fluctuations in revenue allocation, insecurity, and regulatory reforms. These factors are often unpredictable and cannot be easily quantified. As a result, decision-makers must operate in environments where future outcomes are largely unknown.

Knight's theory helps explain why many public projects in developing countries struggle despite careful planning. The presence of deep uncertainty makes forecasting difficult and increases the likelihood of project failure. Therefore, policymakers must design flexible systems capable of adapting to unforeseen changes rather than relying solely on probability-based risk calculations (Knight, 1921).

3.2 Behavioral Risk Theory

Behavioral Risk Theory was strongly advanced by Paul Slovic in 1987, though it's said —that there is no single individual identified as the sole proponent. Slovic (1987) argued that risk is not purely objective or statistical; rather, it is shaped by human perception, emotions, and social context. According to this theory, individuals interpret and respond to risk differently depending on their experiences, beliefs, cultural background, and institutional environment.

Traditional risk models assume that decision-makers are rational and base their judgments on objective probabilities. However, Behavioral Risk Theory challenges this assumption by showing that people often rely on subjective judgment. For example, some risks may appear more threatening because they are dramatic or politically sensitive, even if their statistical probability is low. Conversely, familiar or normalized risks may be underestimated.

In Nigeria's public sector, this theory is particularly relevant. Public officials may underestimate corruption risks because such practices have become institutionalized in certain environments. At the same time, they may overestimate political backlash risks, leading to excessive caution or project delays. Institutional culture and social pressure significantly influence how risks are perceived and managed.

Slovic's contribution emphasizes that effective risk management must address not only technical calculations but also human psychology. Understanding how perception shapes decision-making can improve governance and project outcomes (Slovic, 1987).

4. Methodology

4.1 Research Design

This study adopts a qualitative documentary research design supported by analytical and interpretive methods. Documentary research is appropriate for studies that rely on existing literature, policy frameworks, empirical studies, and institutional reports to construct theoretical and contextual arguments (Saunders, Lewis, & Thornhill, 2019). Given that this paper seeks to examine risk, uncertainty, subjective risk perception, and attitude to risk within Nigerian public sector projects, reliance on established theoretical and empirical sources provides a comprehensive analytical foundation.

The study integrates classical risk theory (Knight, 1921), behavioral risk perception theory (Slovic, 1987), and modern project management frameworks (PMI, 2021) to examine how public institutions in Nigeria conceptualize and manage risk. The approach is interdisciplinary, combining insights from public administration, project management, economics, and behavioral decision theory.

4.2 Sources of Data

Data for this study were derived exclusively from secondary sources, including:

- Peer-reviewed academic journals on risk management and public administration
- Books and scholarly publications on uncertainty and decision-making
- Government policy documents and procurement guidelines
- Reports on public project performance in Nigeria
- Institutional research on planning, monitoring, and implementation frameworks

The study also incorporates insights from Pillah, Goyit, and Pillah (2025), whose examination of resource verification, goal setting, and monitoring in Nigerian institutions provides valuable parallels for understanding risk mitigation through strategic oversight mechanisms.

4.3 Analytical Framework

The analytical framework of this study is structured around five core dimensions:

- Conceptual differentiation between risk and uncertainty
- Examination of subjective risk perception in public institutions
- Analysis of institutional risk attitude in Nigeria's public sector
- Assessment of existing risk management mechanisms
- Identification of systemic gaps and reform imperatives

The framework adopts a systems perspective, viewing public sector projects as embedded within economic, political, administrative, and social subsystems. This perspective aligns with modern project governance theory, which emphasizes environmental interdependence in risk determination (Hillson, 2017).

5. Recommendations

This study proposed the following recommendations based on the foregoing analysis:

➤ *Institutionalization of Comprehensive Risk Management Frameworks*

The institutionalization of comprehensive risk management frameworks is essential for improving the success rate of public sector projects in Nigeria. Public agencies operate in an environment characterized by economic instability, political uncertainty, and administrative challenges. To effectively manage these uncertainties, agencies should adopt standardized risk management frameworks that align with international best practices such as those recommended by the Project Management Institute (PMI, 2021). A structured framework ensures that risk management is not treated as an informal or occasional activity but as a continuous and integrated part of project management.

One important component of such frameworks is the use of mandatory risk registers. Risk registers help identify, categorize, and prioritize potential risks at the early stages of a project. They also assign responsibility for monitoring and mitigating those risks. In addition, periodic risk reviews should be conducted throughout the project lifecycle to reassess emerging threats and adjust strategies accordingly. Quantitative risk modeling is another critical element. By using statistical tools and forecasting techniques, agencies can estimate the probability and impact of risks more accurately, thereby improving decision-making.

Furthermore, contingency budgeting must be incorporated into project planning. Allocating financial reserves for unforeseen events helps prevent project delays and cost overruns. When properly institutionalized, these measures create a proactive risk culture within public institutions, reduce uncertainty, and enhance accountability. Ultimately, comprehensive risk management frameworks contribute to improved project delivery, financial discipline, and sustainable development outcomes in Nigeria's public sector.

➤ *Strengthening Strategic Planning and Monitoring*

Effective strategic planning is fundamental to the success of public sector projects. Before initiating any project, there must be a clearly defined vision, measurable objectives, and a realistic implementation plan. Strategic planning ensures that projects align with national development goals and institutional mandates. According to Pillah et al. (2025), proper goal setting, structured implementation planning, and continuous verification significantly enhance institutional performance and service delivery outcomes.

In many Nigerian public institutions, projects are sometimes initiated without adequate feasibility studies or clear performance indicators. This often results in abandoned projects, duplication of efforts, and inefficient use of public funds. To address this challenge, strategic planning must precede project approval and funding. Agencies should conduct needs assessments,

cost-benefit analyses, and risk evaluations before committing resources. Clear timelines, budget projections, and performance benchmarks should also be established at the planning stage.

Monitoring and evaluation mechanisms are equally important. Public agencies should integrate digital monitoring dashboards that track progress in real time. These dashboards can provide information on financial expenditures, project milestones, and performance indicators. Additionally, independent evaluation units should be established to assess project outcomes objectively and ensure transparency. Such units can identify deviations from plans and recommend corrective measures promptly.

By strengthening strategic planning and monitoring systems, public institutions can reduce waste, improve accountability, and enhance public trust. Effective planning and continuous oversight create a culture of performance management, ensuring that projects deliver their intended social and economic benefits.

➤ ***Enhancing Professional Capacity***

The success of risk management and strategic planning initiatives largely depends on the competence of the personnel responsible for implementation. Therefore, enhancing professional capacity within the public sector is critical. Government agencies must invest in continuous training and development programs for project managers, administrators, and financial officers. Building technical expertise ensures that public officials can effectively manage complex projects in a dynamic and uncertain environment.

Capacity development programs should focus on key areas such as risk analysis, financial modeling, procurement compliance, and scenario planning. Risk analysis training enables project managers to identify potential threats and develop mitigation strategies. Financial modeling skills help administrators prepare realistic budgets and assess financial sustainability. Procurement compliance training ensures adherence to established laws and regulations, thereby reducing corruption and legal disputes. Scenario planning equips officials with the ability to anticipate different future possibilities and prepare adaptive responses.

In addition to training programs, professional certification standards should be encouraged. Certifications from recognized professional bodies enhance credibility and promote adherence to global best practices. Encouraging civil servants to obtain professional qualifications fosters a culture of excellence and accountability within public institutions.

Investing in professional capacity not only improves project outcomes but also strengthens institutional resilience. Skilled personnel are better equipped to respond to challenges, minimize errors, and deliver projects efficiently. Ultimately, enhancing human capital is a sustainable strategy for improving governance and achieving long-term national development goals.

➤ ***Legal Safeguards Against Policy Discontinuity***

Policy discontinuity remains a major challenge in Nigeria’s public sector, particularly when political transitions lead to abrupt changes in priorities. Many long-term infrastructure projects are abandoned or altered due to changes in administration, resulting in financial losses and reduced public confidence. To address this issue, strong legal safeguards must be established to protect ongoing projects from political interference.

Legislative frameworks should clearly define procedures for initiating, funding, and terminating public projects. Once a project has passed through due process and received necessary approvals, it should not be easily discontinued without objective justification. Laws can require thorough reviews and legislative approval before any major project is terminated. This ensures continuity and protects public investments.

Bipartisan approval mechanisms can also reduce political uncertainty. When projects receive support from multiple political parties, they are more likely to survive changes in government. Encouraging cross-party collaboration in infrastructure planning promotes stability and long-term development.

Furthermore, long-term national development plans should be institutionalized through legislation rather than treated as temporary political agendas. This approach ensures that projects align with a broader national vision that transcends individual administrations. Legal safeguards against policy discontinuity therefore promote consistency, reduce waste, and enhance investor confidence. By protecting strategic projects from abrupt termination, Nigeria can achieve sustainable growth and improve infrastructure development outcomes.

➤ ***Anti-Corruption and Transparency Measures***

Corruption and lack of transparency significantly increase project risks in the public sector. Financial mismanagement, inflated contracts, and procurement irregularities undermine project efficiency and erode public trust. To mitigate these risks, strong anti-corruption and transparency measures must be implemented across all levels of government.

Strengthening anti-corruption agencies is a crucial step. These agencies should be adequately funded, independent, and empowered to investigate and prosecute cases without political interference. Transparent procurement processes must also be enforced. Open bidding systems, public disclosure of contract awards, and clear evaluation criteria reduce opportunities for manipulation.

Digitizing contract management systems is another effective strategy. Electronic procurement platforms can track project progress, financial disbursements, and contractor performance in real time. Digital records reduce human discretion and create audit trails that enhance accountability. Public access to project information further promotes transparency and civic engagement.

Whistleblower protection mechanisms should also be strengthened to encourage reporting of unethical practices. When individuals feel safe to expose corruption, institutions become more accountable. Implementing these measures reduces ethical risk exposure and enhances the credibility of public institutions. Ultimately, combating corruption and promoting transparency improve resource utilization and ensure that public projects deliver value to citizens.

➤ ***Adoption of Adaptive and Scenario-Based Planning***

Nigeria’s economic and political environment is characterized by volatility, including inflation, currency fluctuations, security challenges, and policy changes. In such a context, rigid planning approaches are often ineffective. Public institutions must therefore

adopt adaptive and scenario-based planning strategies that allow flexibility under changing conditions.

Adaptive management involves continuously assessing project performance and making adjustments in response to new information. Instead of following a fixed plan regardless of circumstances, managers regularly review assumptions and revise strategies when necessary. This approach enhances responsiveness and reduces the impact of unexpected events.

Scenario-based planning complements adaptive management by preparing institutions for multiple possible futures. Agencies can develop alternative scenarios based on economic, political, or social trends. For each scenario, contingency strategies are formulated in advance. This proactive approach reduces uncertainty and enhances preparedness.

For example, projects can include flexible budgeting arrangements that account for inflation or exchange rate fluctuations. Timelines can also be adjusted based on security conditions or regulatory changes. By incorporating flexibility into project design, public institutions can maintain stability even in uncertain environments.

Adopting adaptive and scenario-based planning strengthens resilience and improves project sustainability. It enables government agencies to navigate uncertainty effectively while maintaining alignment with long-term development objectives.

1. Conclusion

This study has provided a comprehensive examination of risk and uncertainty in public sector project management in Nigeria. It clearly distinguished between objective risk and uncertainty. Objective risk refers to identifiable and measurable threats that can be analyzed using statistical tools and empirical data, such as cost overruns, project delays, inflation, and exchange rate fluctuations. In contrast, uncertainty arises from unpredictable and dynamic environmental conditions, including political transitions, security challenges, and sudden policy changes. Unlike objective risk, uncertainty is often difficult to quantify because it is shaped by complex and evolving circumstances.

The study further examined subjective risk perception and institutional attitudes toward risk, emphasizing that project outcomes are influenced not only by technical assessments but also by human and organizational factors. Cognitive biases, political interference, and entrenched organizational cultures can distort risk identification and decision-making processes. For instance, optimism bias may lead to underestimation of potential threats, while political considerations may result in the neglect of critical warning signals. These subjective dynamics play a significant role in determining the success or failure of public sector projects.

In Nigerian, public sector projects operate in a highly volatile environment characterized by macroeconomic instability, corruption exposure, procurement inefficiencies, and limited professional capacity. Although established theoretical frameworks for risk management are available, their implementation remains inconsistent and often inadequate.

The findings underscore the need for institutionalized risk assessment frameworks, strengthened monitoring and verification mechanisms, integration of risk management into strategic planning, enhanced professional capacity, robust anti-corruption

safeguards, and adaptive governance structures. Consistent with the position of Pillah et al. (2025), structured goal setting, systematic implementation, and continuous verification are essential for institutional resilience. Ultimately, sustainable national development depends not merely on project initiation, but on disciplined, transparent, and proactive risk governance systems that effectively manage both measurable risks and inherent uncertainties.

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