International Journal of Independent Research Studies
Vol. 14, No. 3, 1-7, 2025
ISSN(E) 2226-4817
DOI: 10.55220/2304-6953.v14i3.774

Assessment of Relational Risks Associated with Public Infrastructure Projects in Edo and Delta States

Sunday Benedict Oso[1] ✉
Uchenna Obiekwe Ajator[2]

[1,2]*Department of Quantity Surveying, Auchi Polytechnic, Auchi and Department of Quantity Surveying, Faculty of Environmental Sciences, Nnamdi Azikiwe University, Akwa, Nigeria.*
(✉ Corresponding Author)

Abstract

Infrastructure projects in Nigeria, particularly in Edo and Delta States, are frequently plagued by relational risks that compromise project success. This study assesses relational risks associated with public infrastructure projects. It identified relational risks and establishes the mitigating measures to minimize relational risks associated with public infrastructure projects in the study area. The study employed a quantitative survey research design and stratified random sampling technique was employed in reaching the 268 respondents to whom the questionnaires were distributed, 202 questionnaires were duly completed and returned. Data collected were analysed using statistical tools such as SPSS Version 23 Applications. The findings show that the top most frequently occurring relational risks associated with infrastructure projects are misappropriation of resources and information, distortion of information and cutting corners. Furthermore, the results reveal that the most effective relational risks mitigation strategies are encouraging clear communication channels and regular updates. The study contributes to the growing of body of knowledge on relational risks in developing economies and provides actionable strategies for policy makers, contractors and construction professionals in Edo and Delta States.

Keywords: Delta State, Edo State, Project governance, Public infrastructure projects, Relational risks.

1. Introduction

Infrastructure advancement continues to a pillar of socio-economic growth, notably in developing economies like Nigeria where need for sustainable and effective public infrastructure is progressively increasing. Public infrastructure projects are often characterized as complex, non-linear, and dynamic processes that include specific uncertainties and interdependencies among a large number of stakeholders (Khan, Flanagan, & Lu, 2016). Complexities and uncertainties are endemic in large infrastructure construction projects. The uniqueness and individuality of infrastructure projects such as construction of a railway network, airport or tunnel, often come from their distinctive social and environment requirements. However, the performance infrastructure projects often inadequate due to a complex combinations of risks. While technical, financial and environmental risks have received substantial attention but relational has not. Relational risk constitutes a multifaceted management problem that substantially influences the project success. In a large and complex infrastructure projects, relational risk is a major determinant of project success (lehtiranta, 2011). According to Cheng (2011), relational risk can be defined as the probability of occurring opportunistic behaviours, dysfunctional conflicts and power asymmetry. Das and Teng (2001) define relational risk as the possibility of opportunistic behaviour that could arise in the form of shirking, cheating, distorting information, appropriating resources. Furthermore, Boniface, Nnadi and Eze (2024) opined that relational risks are those arising from the interactions, trust, communication and alignment among key project stakeholders have been relatively under explored in the Nigerian context. In public infrastructure projects, where multiple stakeholders; government agencies, contractors, consultants, suppliers, subcontractors, financiers and communities are interdependent, and if these relationships are weak, adversial or opaque, then relational risks such as collusion, misalignment of expectations, inadequate communication, skewed power dynamics and contract enforcement failure can emerge. Relational risks can also significantly influence procurement efficiency, project timelines and quality outcomes. Poor stakeholder relationships and governance gaps often reflect in form of delays, cost overruns or abandoned projects where are recurrent problems in Nigeria's public work sector (Adedeji & Isiaka, 2024). In Edo and Delta States, the scale and diversity of infrastructure investment ranging from roads and housing to energy and water projects have heightened exposure to relational risks. Reports from procurement audits and investigative committees have discovered irregularities in contract awards, lack of transparency and contractor-client conflicts as major barriers to effective project delivery (Edo State Government, 2024). Understanding and managing relational risks is therefore essential for improving public project performance, improving accountability and achieving value for money in infrastructure delivery. This study seeks to assess relational risks associated with public infrastructure projects in Edo and Delta States, focusing on their sources, impacts and management strategies. The findings aim to contribute to policy and practice by

proposing a framework that strengthens relational governance and mitigates the adverse effects of stakeholder relationship failures in the public infrastructure projects.

2. Research Problem

Infrastructure projects are very risky due to the amount of money invested in them which shows the necessity of identification of risk drivers, the level of each risk effect, intensity of the influence of the risk on the project and the probability of each risk. Construction is a high risk industry that operates a very complex and dynamic environment which significantly contributes to the existence of high uncertainty and risk in infrastructure projects (Siraj &Fayek, 2019). This largely results from poor understanding of the risk management which is a major success in all types of projects especially in large projects. Infrastructure projects play an important role in developing countries. According to type, size and complexity of the project, the number and importance of each risk could be different and many projects cannot reach the project goals due to exposure to multiple risks (Azadeh &Mehdi, 2015).

Despite the critical role of collaboration and trust in infrastructure projects, the complex relationships between stakeholders, including government agencies, contractors, designers and communities often lead to significant relational risks such conflict, mistrust, poor communication and lack of coordination which can significantly impact project timeliness, costs, quality and overall success, highlighting the need for a deeper understanding and effective mitigation strategies for these relational risks. The primary concern is not just technical risks associated with infrastructure projects but the risks arising from strained relationships between project stakeholders, power imbalances between stakeholders, lack of transparency in decision making, inadequate community engagement, mistrust due to past project experiences and poor conflict. For example, the Warri refinery rehabilitation faced significant setbacks due to conflicting interests among stakeholders which escalated in to legal battles (Ogunleye & Oyeleke, 2018).

Also, Edo road rehabilitation schemes especially contracts awarded for rural feeder roads that have experienced delays or community resistance, Delta State urban infrastructure upgrades specially water supply and urban drainage projects where tender disputes or changes mid contract have emerged and Warri port expansion roads where frequent stakeholder misalignment between federal, State, Local governments and contractors which a typical relational risk factors. Corruption and mismanagement, corruption is another pervasive issue affecting relational risks in Edo and Delta States, Nigeria, corruption among project stakeholders especially within local governments and contracting companies can lead to the misallocation of resources, inefficiencies and project abandonment. A lot of research attention has been paid to examining construction project risks and some infrastructure project risks. In contrast, there is lack of research development on how and what kind of management approaches are used to effectively minimize the relational risks associated with infrastructure projects in Edo and Delta States, Nigeria.

The study of relational risk is rarely undertaken with little literature or research in the field of public procurement and the problematic aspects of relational risk are underestimated, rarely undertaken and there is insufficient both theoretical and empirical analyses in this area (Katarzyna, 2020). Addressing relational risks in infrastructure projects within these states requires a comprehensive approach that includes effective project management, transparent contracting practices, stakeholder engagement and financial planning, by mitigating these relational risks, these States can improve the success rate of its infrastructure projects, thereby enhancing economic development and the well-being of its residents.

3. Literature Review

3.1. Concept of Infrastructure

The importance of infrastructural development in developing economies cannot be over emphasised. Every nation that desires genuine development both economically and socially must invest in infrastructure. Investment especially in infrastructure is capital intensive and it requires enormous investment as a result of its importance of in pivoting economic growth and development. The realisation of the importance of infrastructure was acknowledged in the global circle as it constitutes one of the cardinal agenda of the sustainable development goals. In fact, several economists and scholars have identified it as engine of growth and economic improvement, especially on social, natural and human development. Infrastructure improves the quality of life through the provision of social amenities and consumable goods such as energy, transport and communication services (Nedozi, Obasanmi & Ighata, 2014). Infrastructure has long been identified as catalyst for economic growth. The demand for infrastructure development and the maintenance of existing infrastructure caused by economic growth and population increase has in many instances overtaken the capacity of national government to provide the necessary finance (Babatunde, Perera & Adeniyi, 2019). Infrastructure is an important factor in supporting economic growth, provision of adequate infrastructure can affect the increase in the quality and quantity of economic activity (Bihaki & Pratikso, 2020). According World Bank (2024) Infrastructure includes transport (airports, roads, ports, railways) energy (electricity, natural gas) water and sewerage (water utilities treatment plants) and information and communication technology.

Infrastructure is the basic physical system of countries such as communication, sewage, water, power and transportation (Ebua, *et al.*, 2019). This system is essential and requires large inflow of investments to achieve growth and development of a nation. According to Chan *et al.* (2009) infrastructure is a physical structure used by various industries as input for the goods and services manufactured or produced in the country. Infrastructure entails the facilities or services provided for the good of the people, including healthcare, education, water supply, electricity, tele communication etcetera (Kari, Collins & Ernest, 2019). Ahmed (2011) defined infrastructure as a set of interconnected structural elements such as roads, bridges, water supply, sewers, electrical gadgets and telecommunication that provides the framework for economic growth and development. Infrastructure is the foundation upon which the structure of every economy is laid thus; survival and development of the economy of any nation are predicated on the availability of infrastructure.

3.2. Relational Risks Associated with Public Infrastructure Projects

According to Cheng (2011), relational risk can be defined as the probability of occurring opportunistic behaviours, dysfunctional conflicts and power asymmetry. Das and Teng (2001) define relational risk as the possibility of opportunistic behaviour that could arise in the form of shirking, cheating, distorting information, appropriating resources. Relational risk refers to the probability and sequences of not having satisfactory cooperation (Das & Teng, 2001). Relational risk is the probability and consequences of a lack of satisfaction with the collaboration resulting mainly from negative behaviour of entities that are linked by specific relationships (Das and Teng, 2001) It is very difficult and complex research issue since it depends primarily on informal conditions affecting the infrastructure procurement processes (Delerue, 2004). It refers to the behaviours of boundary spanners from particular construction organisations which make it impossible to implement effective risk management processes. It includes barriers limiting the building of a common and transparent picture of the existing situation and limiting trust and commitment, reciprocity, openness, honesty or mutual respect between entities. The relational risk may result from a different organisational culture, the use of different concepts and symbols, as well as focusing on own tasks. Relational risk is said to arise because of the potential for opportunistic behaviour by partners (Das & Teng, 2001). And due to lack of cooperation between partners (Grafton & Mundy, 2017). Opportunism represents one of the main sources of relational risk (Das & Teng, 2001; Anzilago & Benren, 2022).

Opportunistic behaviour is refers to as self-interest seeking with guile and includes action against the interests of a partner or intent of an agreement with some partners being more concerned with fulfilling their private benefits than the common goals of the partnership. Behaviours such as shirking that is contributing less than agreed, misappropriation of resources and information, and hold-up that is the exploitation of a superior bargaining position, distort, disguise, obfuscate are commonly identified as opportunistic actions or relational risk in public infrastructure projects. Relational risk also includes blatant forms of lying, stealing and cheating.

By contrast, relational risks between partners include problems related to information sharing, lack of joint problem solving, unwillingness to adapt to changes and use of power. Prior research has shown that relational risk in infrastructure projects is mostly caused by conflicting goals, information asymmetry, high specificity of the investment and lack of familiarity and mutual relatedness. Information asymmetry or lack of information sharing can also create relational risks among infrastructure project stakeholders. Lack of information about infrastructure procurement stakeholders may lead to disputes among partners which can be particularly damaging to a trusting relationship (Abdullah & Khadaroo, 2020). Abdullah *et al.*, (2020) states that when stakeholders not share information effectively, feelings of exploitation, betrayal, scepticism and mistrust are created, leads to relational risk among stakeholders.

Relational risk includes secretly extorting or misusing a partner's skill and knowledge to maximize their own benefits, expropriation, threats and power play, lack of benevolence, hidden characteristics, hidden information, moral hazard, adverse selection, hidden intentions, hidden action, deliberate distortion of facts, deliberate misdirection and active breach of contract, indolence, evasion of obligations, obfuscating, making false promises, covering up, cutting corners, stealing, withdrawing commitments, deceiving and misrepresenting, and delivering substandard products. Conflicts, miscommunication and unbalanced information are also regarded as sources of relational risk. According to Delerue (2004), relational risks include parallel risks associated with the cooperation and risks associated with the partner's behaviour. The consequence of relational risk has been linked to the possibility of worse than expected outcomes of collaboration. Delerue (2004) opines that perpetuation of opportunistic tendencies such as dishonesty, shirking, distortion of information as well as poaching partners' skills, clients or personnel are manifestations of relational risk. Relational risk or opportunism is seen as incomplete disclosure or calculated distortion of information to mislead, disguise, obfuscate or confuse a party to a contract by another with the view to extracting excess benefits than those promised in the contract. More so, when the contract has been awarded during the phases of design, construction operation and maintenance, the contractor can still use tactics inconsistent with the clauses defined in the contract, shirk from duties and display doubtful morality in performing its tasks. During tendering, bidders may behave opportunistically by colluding among themselves there by colluding among them there by preventing the principals from having accurate information on the bidders leading to selection of non-optimal contractors (Ceric, 2013). Relational risk can also manifest in free riding in which a party obtains benefits from their partners without bearing proportional share of the costs of providing the benefits.

3.3. Relational Risk Response Strategies/Mitigation Strategies

Developing proactive measures to address relational risks including establishing regular communication channels, meeting protocols and documentation procedures, encouraging joint problem solving and consensus building, predefined processes for resolving conflicts such as mediation or arbitration, fostering trust and rapport through team building exercises and open dialogue. Tailoring communication and engagement approaches to specific stakeholder needs develop compliance checklists; develop governance frameworks that encourage cooperation rather than completion. This could involve joint decision making, shared risk and reward models or establishing steering committees, implement systems and strategies to resolve conflicts early through communication, negotiation or other conflict resolution techniques, manages the behaviour of the parties by promoting dependence, flexibility of information exchange and cooperation, manage the behaviour of the parties by promoting trust based patterns, implement feedback loops to identify emerging relational risks, develop compliance checklists and involve legal advisers early (Ebohon & Akinmoladun, 2018).

4. Methodology

This study set out to assess relational risks associated with public infrastructure projects in Edo and Delta States. The study adopts survey research design because survey allows researchers to collect data from a large group, making results more generalizable. The population for the study comprised all those who are either directly or indirectly involved in public infrastructure project activities within Edo and Delta States. These include Clients, Project Managers, Quantity Surveyors, Architects, Builders, Engineers and Contractors. The list of all

professionals who are registered and practicing within the study area was obtained from the respective institution of each profession. This research makes use of stratified random sampling technique to ensure comprehensive and representative coverage of the population involved in infrastructure projects across Edo and Delta States. The sample size for this study was determined from sampling frame using Yamane formula of 1967. The set of questions was split into two sections; the preliminary section of the questionnaire emphasised on the general information of the respondents while the other section focused on matters relating to the research objectives. Questions inherent in the structured questionnaire were multiple-choice type with different checkboxes and tables posed on a 5-point likert-type scale for ease and uniformity of response. A total number of 268 questionnaires were distributed to professionals engaged in infrastructure projects across Edo and Delta States. Out of the 268 distributed questionnaires, 202 were duly completed and returned, yielding a response rate of 75.37%. The data collected was analysed applying percentiles and mean item score. The general information of the respondents was analysed using percentiles, while mean item score was used to analyse identified relational risks associated with public infrastructure projects and identified mitigating strategies .

4.1. Mean Item Score (MIS)

Mean item score was used to rank the causes of cost overrun. The premise of decision for the ranking is that the causes with the highest mean item score is ranked 1st and others in such subsequent descending order.

The formula for mean score is = $\frac{\sum (FX)}{N}$

Where X is the rating used per column

F is the sample size for each rating and

N is the total sample size.

Since a Likert of 5-point scale was employed for the collection of data, the formula can thus be Written as;

Mean Score = $\frac{5F_5 + 4F_4 + 3F_3 + 2F_2 + F_1}{N}$

Cronbach's reliability test was applied to check the reliability of the questionnaires. Creswell (2013) noted that for all the items of an instrument to be internally consistent and reliable, the result of the reliability test should produce a minimum Cronbach's Alpha of 0.7. In this study, all the items of the three variables were subjected to the reliability test. The results according to Creswell (2013) suggested that all the items are good and consistent internally because the Cronbach's Alpha coefficient for the items were 0.7 and above. The results are displayed in Table 1 below.

Table 1. Test of Reliability for Measuring Scale

Scale of Measure	Cronbach α – Value
Identified relational risks associated with public infrastructure projects	0.980
Identified mitigating measures to minimise relational risks	0.958

5. Results and Discussion

Table 2. Summary of Demographic Information of the Respondents.

Category	Classification	Frequency	Percent
Profession of	Quantity surveying	60	29.7
Respondent	Architecture	30	14.9
	Building	52	25.7
	Engineering	48	23.8
	Others	12	5.9
	Total	202	100.0
Position of	Project Manager	42	20.8
of Respondent in	Managing Director	22	10.9
the Establishment	Financial Adviser/Quantity Surveyor	60	29.7
	Engineer	24	11.9
	Architect	24	11.9
	Others	30	14.9
	Total	202	100.0
Highest Level	HND	70	34.7
Educational	B.sc/B.Tech	42	20.8
Qualification	PGD	10	5.0
of Respondent	M.sc/M.Tech/M.Eng	56	27.7
	Phd	24	11.9
	Total	202	100.0
Years of	1-5 years	62	30.7
working	6-10 years	38	18.8
Experience	11-15 years	30	14.9
	16-20 years	36	17.8
	21 years and above	36	17.8
	Total	202	100.0
	Average	11.3	

This is the first part of the quantitative analysis associated with the study. Table 2 has provided a summary of the demographic information pertaining to respondents. It is evident from the Table 2 that 29.7% of the respondents are Quantity Surveyors, followed by Builders and Engineers with 25.7% and 23.8% respectively while

14.9% are Architects. Table 2 reveals the position of the respondents in their various establishments, Financial Advisers/Quantity Surveyors make up the largest group (29.7%), this suggests that cost and financial experts were most represented in the study; Project Managers (20.8%) are also significantly represented, Engineers (11.9%) and Architects (11.9%) together account for 23.8%, providing insight from the design and construction execution side of procurement.

Managing Directors (10.9%) represent executive level leadership, providing insight into organisational priorities, risk management strategies and governance. It is evident from the Table that 27.7% of the respondents have obtained Masters' Degrees; whilst 34.7% have minimum of Higher National Diploma in their various fields of study. In terms of construction experience, it is evident from Table 2 that respondents have about 11.3 years' experience in the construction industry. It can therefore be concluded that the data provided by respondents can be relied upon for the purposes of analysis.

Table 3. Frequency of Occurrence of Identified Relational Risks

Code	Frequency of occurrence of Relational Risks	Mean	Std. Deviation	Ranking
IR4	Misappropriation of resource and information	3.87	1.143	1st
IR3	Distortion of information	3.85	1.147	2nd
IR9	Threats and power play	3.81	1.024	3rd
IR12	Hidden information	3.79	1.079	4th
IR7	Stealing	3.77	1.036	5th
IR22	Cutting corners	3.75	1.132	6th
IR23	Withdrawing commitments	3.74	1.099	7th
IR8	Expropriation	3.73	1.101	8th
IR11	Hidden characteristics	3.73	1.093	9th
IR14	Adverse selection	3.72	1.066	10th
IR31	Goal misalignment and lack of clarity	3.72	1.147	11th
IR25	Delivering substandard products	3.70	1.116	12th
IR10	Lack of benevolence	3.70	1.013	13th
IR19	Evasion of obligations	3.69	1.108	14th
IR28	Bribing a client's key personnel	3.66	1.157	15th
IR27	Violations of relational norms not specified in the contract	3.66	1.086	16th
IR2	Cheating	3.65	1.106	17th
IR29	Padding or inflating contract sums with facilitators	3.65	1.209	18th
IR13	Moral hazard	3.65	1.167	19th
IR16	Deliberate distortion of facts	3.64	1.134	20th
IR6	Blatant forms of lying	3.63	1.024	21st
IR1	Shirking	3.63	1.178	22nd
IR17	Deliberate misdirection and active breach of contract	3.62	1.145	23rd
IR24	Deceiving and mispresenting	3.62	1.082	24th
IR15	Hidden intentions/actions	3.62	1.179	25th
IR20	Making false promises	3.59	1.165	26th
IR18	Indolence	3.59	1.121	27th
IR26	Secret extorting or misusing a partner's skill and knowledge to maximize their own benefits	3.59	1.207	28th
`1IR5	Disguise	3.47	1.089	29th
IR30	Power imbalance	3.46	1.107	30th
IR21	Covering up	3.42	1.104	31st

Table 3 presents the frequency of relational risks associated with infrastructure procurement/projects. Top five most frequently occurring relational risks are misappropriation of resources and information with a mean item score of 3.87, followed by distortion of information with a mean item score of 3.85, threats and power play with a mean item score of 3.81, hidden information with a mean item score of 3.79 and stealing with a mean item score of 3.77. These relational risks are seen as most commonly by stakeholders. Their high scores above 3.75 suggest that misappropriation and stealing of resources/information point to unethical behaviours and weak internal controls. Distortion and concealment of information compromise transparency and informed decision making often resulting in mistrust. Threats and power play reflect abuse of authority, leading to coercion or fear among weaker parties, an indicator of poor governance and imbalanced stakeholder relationships. Three least frequently occurring relational risks are disguise with a mean item score of 3.47, power imbalance with a mean item score of 3.46 and cover up with a mean item score of 3.42.

Table 4. Relational risk Mitigation Measures to Minimise Relational risks

Code	Identified Relational Risk Strategies	Mean	Std. Deviation	Ranking
RRM10	Encourage clear communication channels and regular updates	3.97	1.106	1st
RRM13	Implement feedback loops to identify emerging relational risks	3.96	1.074	2nd
RRM11	Implement conflict resolution mechanisms like arbitration, mediation	3.86	1.102	3rd
RRM14	Make adjustments to relational risk management strategies based on real time data	3.84	1.108	4th
RRM12	Develop compliance checklists and involve legal advisers early	3.83	1.037	5th
RRM8	Establishment of effective governance mechanisms	3.80	1.138	6th
RRM7	Manages the behaviour of the parties by promoting bureautic based patterns	3.80	1.120	7th
RRM1	Manages the behaviour of the parties by promoting trust based patterns	3.78	1.160	8th
RRM6	Rely on the rules made in a contract such as procedures for unexpected events and penalties for breach of contract	3.77	1.110	9th
RRM3	Flexibility of information exchange and cooperation	3.74	1.071	10th
RRM5	Rely on the rules made in a contract such as code of behaviour, coordination between the parties	3.72	1.057	11th
RRM4	Establish a detailed progress control system	3.72	1.138	12th
RRM9	Innovative financial incentives to support teamwork	3.66	1.086	13th
RRM2	Manages the behaviour of the parties by promoting dependence	3.53	1.089	14th

Table 4. Shows relational risk mitigation strategies on their level of effectiveness. Top ranked mitigation strategies are communication channels and regular updates with a mean item score of 3.97, followed by implement feedback loops to identify emerging relational risks with a mean item score of 3.96, implement conflict resolution mechanisms like arbitration and mediation with a mean item score of 3.86 and make adjustments to relational risk management strategies based on real time data with a mean item score of 3.84. These strategies are rooted as most effective and reflect a strong emphasis on proactive and open communication which reduces misunderstandings and builds trust, continuous feedback and real time monitoring which allow early detection and response to relational risks, structured conflict resolution mechanisms which provide formal paths to resolve disputes constructively.

The lowest ranked strategies are innovative financial incentives to support teamwork with a mean item score of 3.65, manage the behaviour of the parties by promoting dependence with a mean item score of 3.53. These were rated least effective, indicating financial incentives while potentially useful, did not address deep rooted relational issues like trust, communication and power imbalance and promoting dependence between parties is seen as risky, perhaps reducing autonomy and increasing vulnerability, which may worsen rather than mitigate relational frictions.

5.1. Discussion

The findings indicate that relational risks occur frequently in infrastructure projects, largely due to complex, multi-stakeholder environments and long project lifecycles involved. Misappropriation emerges as the most frequent relational risk because infrastructure projects often involve large budgets, material flows, and privileged information, making them highly vulnerable to misuse. For instance, manipulation of financial data, diversion of project materials, and misuse of confidential project documents and this behaviour tends to occur where monitoring is weak, enabling individuals or groups to exploit gaps for personal benefit. Information distortion is also discovered as highly frequent because project parties often possess vary levels of technical, financial or operational knowledge. In infrastructure projects, where decisions depend heavily on timely and accurate information, such distortions frequently occur as stakeholders attempt to protect reputations, avoid penalties, or gain negotiation advantages.

Buvik and Rolfsen (2015) argue that disguise and cover up was due to their covert nature, making them harder to detect unless exposed. The findings align with previous research that underscores how relational risks often manifest through opportunistic behaviour, lack of transparency and misuse of authority in procurement settings. Zou, Zhang and wang (2007) emphasizes that information asymmetry and lack of trust significantly heighten relational risks in infrastructure projects. Also, Khan, Rahman and Al-badi (2019) found that corruption, misuse of power and distorted communication were common in public sector infrastructure procurement, particularly in developing Countries. The high ranking of threats and power play suggests that coercive behaviours and dominance tactics are familiar experiences for project participants, especially when disputes arise or negotiations reach impasses. Hidden information is inherently frequent in infrastructure projects due to information asymmetry and this includes hidden project defects, undisclosed risks, concealed cost overruns, or unreported delays. The frequency of this risk shows that project teams always struggle with transparency and to verify the accuracy of the information shared by partners.

Furthermore, clear and persistent communication is generally recognized as one of the most efficient mechanisms for reducing relational risks such as misunderstanding, distrust and misaligned expectations. Manu et.al (2019) shows that high-quality communication improves transparency, supports coordination, and reduced the likelihood of opportunistic behaviour in project based relationships. Feedback loops whether formal or informal enable early detection of relational risks. They assist parties to the infrastructure project to identify behavioural signals such as reduced cooperation, unmet expectations before they evolve in to conflicts. Conflicts are inevitable in construction environments; therefore practice conflict resolution structures are important. Mechanisms like arbitration, dispute review boards and mediation provides non-adversarial ways to resolve disputes efficiently, preserving the relationship rather than damaging it through formal litigation. Chakkol *et al.* (2022) stress that regular communication builds trust, increases transparency, and reduces the likelihood of relational dispute especially in uncertain or evolving project environments and Manu *et al.* (2019) argue that feedback loops are a key mechanism of relational governance that promotes responsiveness and adaptability in project teams.

6. Conclusion

Assessing the relational risks associated with public infrastructure projects in Edo and Delta States emphasizes the importance of understanding the complex interactions among stakeholders, institutions, and project delivery systems. The findings reveal that the top five most frequently occurring relational risks in infrastructure projects are misappropriation of resources and information, distortion of information and stealing and cutting corners. Also, the results reveal that the most effective relational risks mitigation strategies are identified as encouraging clear communication channels and regular updates, implementing feedback loops to detect emerging relational risks, establishing conflict resolution mechanisms such as arbitration and mediation. It recommends that there is a need to establish transparent communication and information sharing protocols that is implement a digital platform for real time information access and tracking to minimize distortion, hiding or misappropriation of data and resources. The study contributes to the body of knowledge by deepening the understanding of how relational risks influence the performance and sustainability of infrastructure projects in Edo and Delta States.

References

Abdullah, A., & Khadaroo, I. (2020). The trust–control nexus in public–private partnership (PPP) contracts. *Journal of Accounting and Public Policy, 39*(6), 106768. https://doi.org/10.1016/j.jaccpubpol.2020.106768

Adedeji, A., & Isiaka, A. R. (2024). *Public procurement in Nigeria: How to reform the unreformable.* Brookings Institution. https://www.brookings.edu

Ahmed, M. (2011). Public–private partnership for infrastructure development: The Nigeria experience. *Infrastructure Concession Regulatory Commission (ICRC).* http://www.icrc.gov.ng

Anzilago, M., & Beuren, I. M. (2022). Relational norms and satisfaction with interorganisational cooperation. *RAUSP Management Journal, 57*(3), 298–315. https://doi.org/10.1108/RAUSP-08-2021-0185

Azadeh, S., & Mehdi, R. (2015). Risk determination, prioritization, and classification in construction project: Case study of Gharabtehran Commercial Administrative Complex. *Journal of Construction Engineering, 2015*, 1–10. https://doi.org/10.1155/2015/182054

Babatunde, S. O., Perera, S., & Adeniyi, O. (2019). Identification of critical risk factors in public–private partnership project phases in developing countries: A case of Nigeria. *Benchmarking: An International Journal, 26*(2), 334–355. https://doi.org/10.1108/BIJ-01-2017-0008

Bihaki, R., & Pratikso. (2020). Modelling relationship of risk factors affecting the success of construction projects from private–public cooperation in West Java Province. In *Proceedings of the 1st International Conference on Research in Social Science and Humanities (ICORSH)* (Vol. 584). Atlantis Press. https://doi.org/10.2991/assehr.k.200225.004

Boniface, A., Nnadi, E., & Eze, V. U. (2024). Evaluating public procurement challenges in Nigeria's construction industry. *International Journal of Recent Technology and Applied Science, 6*(1), 25–36. https://doi.org/10.36079/lamintang-ijotas-0601.621

Buvik, A., & Rolfsen, M. (2015). Priorities and trust development in project teams: A case study from the construction industry. *International Journal of Project Management, 33*(7), 1484–1494. https://doi.org/10.1016/j.ijproman.2015.06.002

Chakkol, M., Selviaridis, K., & Koehrich, J. K. (2022). Managing relational risk in collaborative infrastructure projects: A governance perspective. *International Journal of Project Management, 40*(4), 412–425. https://doi.org/10.1016/j.ijproman.2022.02.004

Chan, A. P. C., Lam, D. W., Chan, E. H. W., Cheung, E., & Ke, Y. (2009). Drivers for adopting public–private partnership (PPP): Empirical comparison between China and Hong Kong Special Administrative Region. *Journal of Construction Engineering and Management, 135*(11), 1115–1124. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000088

Cheng, J. H. (2011). Inter-organisational relationships and knowledge sharing in green supply chains: Moderating by relational benefits and guanxi. *Transportation Research Part E: Logistics and Transportation Review, 47*(6), 837–849. https://doi.org/10.1016/j.tre.2011.05.003

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.

Das, T. K., & Teng, B. S. (2001). A risk perception model of alliance structuring. *Journal of International Management, 7*(1), 1–29. https://doi.org/10.1016/S1075-4253(00)00037-5

Delerue, H. (2004). Relational risk perception in European biotechnology alliances: The effects of contextual factors. *European Management Journal, 22*(5), 546–556. https://doi.org/10.1016/j.emj.2004.09.020

Ebohon, O. J., & Akinmoladun, O. F. (2018). Challenges of infrastructure development in the Niger Delta region of Nigeria. *International Journal of Sustainable Development, 10*(4), 233–246.

Ebuh, G. U., Ezike, I. B., Shitile, T. S., Smith, E. S., & Haruna, T. M. (2019). The infrastructure–growth nexus in Nigeria: A reassessment. *Journal of Infrastructure Development, 11*(1), 41–58. https://doi.org/10.1177/0974930619862944

Edo State Government. (2024). *Report of the assets verification committee on public infrastructure contracts.* Government of Edo State.

Grafton, J., & Mundy, J. (2017). Relational contracting and the myth of trust: Control in a cooperative setting. *Management Accounting Research, 36*, 24–42. https://doi.org/10.1016/j.mar.2016.07.001

Kari, U., Collins, O., & Ernest, E. (2019). The challenges of infrastructural development in Nigeria: An assessment of the pains and the gains. *International Journal of Political Science and Development, 7*(4), 101–108.

Katarzyna, S. M. (2020). Antecedents of collaboration and drivers of relational risk in public safety networks. *International Journal of Emergency Services, 9*(1), 56–68. https://doi.org/10.1108/IJES-12-2018-0061

Khan, K. I. A., Flanagan, R., & Lu, S. (2016). Managing information complexity using system dynamics on construction projects. *Construction Management and Economics, 34*(3), 192–204. https://doi.org/10.1080/01446193.2016.1178392

Khan, S., Rahman, M. S., & Al-Badi, A. (2019). Barriers to effective public procurement in developing countries: The case of Pakistan. *Journal of Public Procurement, 19*(1), 1–20. https://doi.org/10.1108/JOPP-03-2018-0010

Lehtiranta, L. (2011). Relational risk management in construction projects: Modelling the complexity. *Leadership and Management in Engineering, 11*(2), 141–154. https://doi.org/10.1061/(ASCE)LM.1943-5630.0000114

Manu, E., Ankrah, N., Chinyio, E., & Proverbs, D. (2019). Mitigating project complexity through relational contracting: Evidence from infrastructure megaprojects. *International Journal of Project Management, 37*(4), 546–558. https://doi.org/10.1016/j.ijproman.2019.02.004

Nedozi, F. O., Obasanmi, J. O., & Ighata, J. A. (2014). Infrastructural development and economic growth in Nigeria: Using simultaneous equations. *Journal of Economics, 5*(3), 325–332.

Ogunleye, O. O., & Oyeleke, O. A. (2018). Contractual conflicts and their impact on major infrastructure projects in Nigeria: A case study of the Port Harcourt refinery. *Journal of Construction Economics and Policy, 7*(4), 205–220.

Siraj, N. B., & Fayek, A. R. (2019). Risk identification and common risks in construction: Literature review and content analysis. *Journal of Construction Engineering and Management, 145*(9), 03119004. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001679

Transparency International. (2023). *Global corruption report: Infrastructure and construction.* https://www.transparency.org

World Bank. (2024). *Private Participation in Infrastructure (PPI) database 2018.* https://ppi.worldbank.org

Zou, P. X. W., Zhang, G., & Wong, J. (2007). Understanding the key risks in construction projects in China. *International Journal of Project Management, 25*(6), 601–614. https://doi.org/10.1016/j.ijproman.2007.03.001