# Exploring The Adoption of Integrated Project Insurance (Ipi) AndTo Enhance Collaboration in Construction

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***Abstract-*** ***The construction industry continues to evolve with a growing emphasis on collaborative delivery models that reduce conflict, improve performance, and enhance value for all stakeholders. Integrated Project Insurance (IPI) represents an innovative procurement model designed to eliminate adversarial relationships and foster trust-based collaboration among key construction stakeholders, including clients, designers, contractors, and insurers. This research assesses the adoption of IPI in the construction sector and its potential to significantly improve collaboration throughout the project lifecycle. By examining existing literature, real-life case studies such as the Dudley College Advance II project, and qualitative data collected through interviews with construction professionals, this study identifies critical factors influencing the adoption of IPI. These include perceived risk-sharing benefits, alignment of team objectives, cost-saving incentives, and the influence of no-blame contractual environments. The research also explores the challenges hindering widespread adoption, such as a lack of awareness, traditional mindsets, and the complexity of structuring IPI contracts. Furthermore, the study investigates how IPI encourages early stakeholder engagement, transparent communication, and integrated decision-making. This research aims to develop a practical framework that supports the implementation of IPI in varying project scales and contexts, providing a strategic guide for construction professionals, developers, and policymakers. The findings offer significant academic and practical contributions promoting IPI as a catalyst for improved project collaboration and delivery efficiency. This study envisions a future where IPI becomes a mainstream solution for addressing systemic inefficiencies and fostering a culture of partnership in the built environment.***

***Index Terms-*** ***Integrated Project Insurance (IPI), Collaborative Procurement, Construction Stakeholders, Project Delivery Models, Risk Sharing, Project Delivery, Insurance in Construction.***

## I. INTRODUCTION

The global construction industry is experiencing rapid transformation in response to rising expectations for efficiency, transparency, collaboration, and sustainability. Historically, construction projects have often been characterised by fragmented responsibilities, adversarial stakeholder relationships, budget overruns, and schedule delays, outcomes that are frequently attributed to traditional procurement models such as Design-Bid-Build (DBB) (Turner & Williams, 2024). These conventional approaches typically separate the roles of design, construction, and project management, leading to siloed operations and a lack of unified decision-making. As construction projects become more complex and interdisciplinary, there is increasing demand for alternative delivery systems that foster integration, reduce conflict, and improve outcomes.

One such emerging model is Integrated Project Insurance (IPI), a novel approach to procurement and risk management developed in the United Kingdom. IPI is designed to enhance collaboration by aligning the objectives of all key project stakeholders, including clients, architects, contractors, consultants, and insurers under a single, jointly held insurance policy (Connaughton & Collinge, 2023). Unlike conventional insurance structures that separate risk

responsibilities, IPI offers a unified insurance framework that collectively insures the entire project team against defined risks. It introduces a "no-blame" culture, which minimises litigation, encourages joint problem-solving, and promotes shared accountability. A landmark example of IPI in practice is the Dudley College Advance II project, which demonstrated its practical benefits. The project was completed on time and within budget, while maintaining a high standard of quality and delivering superior stakeholder satisfaction. The collaborative ethos of IPI encouraged early stakeholder involvement, transparent communication, and seamless information flow across all stages of the project, from design development to post-construction review (Connaughton & Collinge, 2024). These features contribute to its growing appeal in mature construction markets such as the UK and parts of Europe.

Despite its proven effectiveness in such contexts, the adoption of IPI remains minimal in developing countries, including Nigeria. In many African construction environments, procurement systems continue to rely heavily on linear, fragmented approaches. Cultural resistance to change, a lack of regulatory support, limited awareness, and risk-averse mindsets further impede innovation. Moreover, construction stakeholders often view insurance narrowly as a reactive, post-incident tool rather than a proactive facilitator of collaboration and trust. Consequently, while IPI represents a potential game-changer, its adoption faces significant barriers outside the Global North. This research responds to the urgent need for a deeper understanding of how IPI can be adopted in developing economies such as Nigeria. It critically examines both the drivers and barriers to its uptake and investigates how this model could contribute to addressing persistent inefficiencies in Nigeria's construction industry. In doing so, the study seeks to bridge a critical gap in the literature by comparing global best practices with local realities. It provides a valuable platform for policymakers, industry professionals, and academics to engage with a procurement model that holds promise for more sustainable, collaborative, and value-driven construction delivery.

Furthermore, the relevance of IPI extends beyond theoretical interest. With rising demands for improved infrastructure in Nigeria and the pressure to deliver such infrastructure within strict budgetary and time constraints, innovative project delivery models are more essential than ever. IPI's capacity to enable better risk-sharing, reduce adversarial contract relationships, and unify project objectives across all stakeholders makes it a particularly suitable candidate for wider exploration and possible implementation.

Aim

To assess the adoption of Integrated Project Insurance (IPI) and examine its potential to foster collaboration among construction project stakeholders in both developed and developing contexts, with a focus on Nigeria.

Objectives

1. To identify and evaluate the key factors influencing the adoption of IPI in construction projects.
2. To investigate the extent to which IPI enhances collaboration among project stakeholders, particularly design and construction teams.
3. To examine the challenges limiting the adoption of IPI in developing countries, using Nigeria as a case study.
4. To analyse the effectiveness of IPI in improving project outcomes such as cost control, time management, and risk mitigation.
5. To propose a framework or strategic model that supports the implementation of IPI in local construction environments.

Problem Statement

Despite the increasing global awareness of the benefits of collaborative project delivery models, construction industries in many developing economies, including Nigeria, continue to struggle with inefficiencies rooted in outdated procurement practices. Conventional models such as Design-Bid-Build are often marked by sequential operations, contractual fragmentation, and adversarial relationships between key stakeholders. These practices not only increase the risk of project failure but also obstruct innovation, transparency, and cooperation (Dawson & Ali, 2025).

The consequences of these challenges are manifold: projects are frequently delayed, exceed budget limits, or fail to meet expected quality standards. Disputes between stakeholders are common, often resulting in costly litigation or arbitration proceedings. Such outcomes are particularly damaging in a country like Nigeria, where infrastructure deficits are high and public resources are limited. There is a growing recognition that traditional procurement frameworks are no longer sufficient to meet the complex demands of contemporary construction projects.

Integrated Project Insurance offers a compelling alternative. It consolidates risk under a shared insurance policy, aligns stakeholder goals from project inception, and introduces a no-blame culture that emphasises cooperation over conflict. However, while IPI has shown success in countries like the UK, its uptake in Nigeria is virtually non-existent. The lack of empirical research on its applicability within developing economies further exacerbates this gap. This study addresses the critical question of how IPI can be successfully adapted and implemented in the Nigerian context to support more effective collaboration and project delivery.

Justification of the Study

The justification for this study is rooted in the urgent need to improve construction project delivery in Nigeria and other similar developing contexts. The persistent issues of time overruns, cost escalation, and stakeholder disputes demand innovative solutions. Integrated Project Insurance, as a collaborative procurement model, presents an opportunity to move away from the fragmented, litigation-prone delivery mechanisms currently in use.

According to Greene and Han (2023), early stakeholder engagement and risk alignment through integrated delivery systems are crucial to enhancing performance and reducing conflicts. IPI embodies these principles by requiring all stakeholders to operate within a single contractual and insurance framework. This shift not only supports better project governance but also cultivates a culture of trust and mutual accountability qualities often missing in traditional systems.

Moreover, as infrastructure demands grow and public scrutiny over project outcomes intensifies, clients, particularly in the public sector, are seeking more reliable delivery models. IPI is especially relevant in this regard, as it ensures cost transparency and performance guarantees through structured collaboration. Additionally, the model's flexibility allows it to be adapted to various project scales and types, making it suitable for both public and private sector initiatives.

The study contributes to the academic literature by expanding the discourse on integrated procurement frameworks to include under-researched regions. Scholars such as Liu and Mensah (2025) have stressed the importance of contextualising collaborative models within the socio-economic realities of developing countries. By incorporating stakeholder perspectives from Nigeria and analysing both the perceived opportunities and structural barriers to IPI adoption, this research offers a grounded, evidence-based exploration of how global innovations can be tailored to local needs. The adoption of Integrated Project Insurance has the potential to significantly transform the construction sector by reducing inefficiencies, enhancing stakeholder collaboration, and improving project outcomes. This study is therefore both timely and necessary, offering critical insights for practitioners, regulators, and academics committed to advancing construction project performance in developing economies

## II. LITERATURE REVIEW

Integrated Project Management and Types of Insurance in Construction

Integrated Project Management (IPM) is an approach that coordinates planning, execution, and monitoring by promoting early stakeholder involvement, real-time decision-making, and shared accountability. It emerged to address inefficiencies and fragmented accountability in traditional construction methods (Mensah & Bright, 2025). However, while Mensah and Bright argue that IPM facilitates the optimisation of cost and quality, Turner and Williams (2024) suggest that IPM's success is highly contingent upon a project's complexity, digital maturity, and

leadership capability factors, which are often lacking in emerging markets.

A parallel innovation is Integrated Project Insurance (IPI), which aligns with IPM principles by embedding collaborative risk-sharing through a multi-party insurance policy. IPI shifts the focus from adversarial claims to a joint risk-reward structure, effectively transforming stakeholder dynamics (Connaughton & Collinge, 2024). However, the literature often emphasises IPI's potential benefits without proportionate discussion of its legal, cultural, and institutional limitations. For example, Greene and Han (2023) recognise IPI's reduction in litigation costs, but they also highlight that policy enforceability in multi-party contracts remains ambiguous, particularly where legal frameworks are fragmented or inconsistent, as is common in developing countries.

Diversified Overview of Insurance Types in Construction: Emphasising Integrated Project Insurance in Nigeria

Construction projects inherently involve multifaceted risks ranging from physical damage and professional errors to unforeseen defects and third-party liabilities. Conventional insurance models offer distinctly siloed protections: Contractor's All-Risk (CAR) covers physical damage and third-party liability, Professional Indemnity Insurance (PII) addresses design/specification errors, Public Liability Insurance attends to injury or damage to third parties, and Latent Defects Insurance (LDI) safeguards against structural imperfections emerging post-completion. Integrated Project Insurance (IPI) attempts to unify these protections under a single policy and risk pool. This article elaborates on each insurance type, explores the advantages and constraints of IPI, and illustrates examples from Nigeria to ground theoretical discussion in real-world practice.

Contractor's All-Risk Insurance (CAR)

Contractor's All-Risk Insurance (CAR) is a cornerstone for construction sites, covering unexpected physical damage to the works under construction, materials, equipment, and temporary site installations, along with third-party liabilities for injury or property damage (Industrial & General Insurance Plc, n.d.). In Nigeria, firms such as Industrial and General Insurance (IGI), Universal Insurance Plc., and Minet Insurance Brokers offer CAR policies that protect both the principal and contractor against perils like fire, flood, theft, collapse, or malicious damage, often including liability extensions and debris removal (IGI, n.d.; Universal Insurance Plc., n.d.; Minet Insurance Brokers, n.d.).

Despite its breadth, CAR is fundamentally reactive, paying out after losses occur. The claim-driven environment can foster adversarial interactions between clients and contractors—each guarding against blame and inflating costs where possible (Ahmed & Zhou, 2023). Moreover, because CAR excludes design and professional errors, responsibility for such shortcomings often shifts to entities covered under Professional Indemnity policies.

Professional Indemnity Insurance (PII)

Professional Indemnity Insurance (PII) provides architects, engineers, and consultants with protection from claims of negligence, design errors, or specification omissions. By pooling risk among professionals, PII reduces duplication of cost and promotes continuity across projects. In Nigeria, as elsewhere, PII is critical given fluctuating regulatory standards and the complex design demands of modern infrastructure projects (Chaman Law Firm, n.d.). However, PII operates reactively and requires proof of fault, making claims potentially protracted. In projects lacking robust PII or where professionals become insolvent, clients may face litigation or bear the cost of corrective work.

Public Liability Insurance

Public Liability Insurance covers injury or property damage to third parties resulting from construction activities. Given the high-density urban environments in Nigerian cities—like Lagos or Abuja—this coverage is essential. Yet, it can quickly become contentious when accidents occur. Determining whether responsibility lies with the contractor, subcontractor, developer, or client often leads to disputes, undermining cooperation and delaying compensation (Ahmed & Zhou, 2023).

Latent Defects Insurance (LDI)

Latent Defects Insurance (LDI) offers post-completion protection against structural failures or defects concealed at completion, such as subsidence or waterproofing failure. Typically set for 10–12 years, LDI allows recovery without establishing fault a particularly useful feature when involved parties have become insolvent (CMS Legal, 2002; Lockton, 2020).

In Nigeria, while LDI is not yet widespread, its value is growing. Developers and financiers increasingly consider LDI valuable against the backdrop of construction market volatility and insolvency risks echoing global practices (Lockton, 2020). Nigeria's decades-long history of post-construction disputes and litigation underscores the potential relevance of LDI, especially for high-value commercial or residential developments.

Integrated Project Insurance (IPI)

Integrated Project Insurance (IPI) merges CAR, PII, Public Liability, and LDI under one umbrella policy, creating a unified risk pool shared by all project stakeholders. Proponents like Turner and Williams (2024) argue that IPI addresses legal redundancies, reduces transactional overhead, and encourages an open-book, cooperative culture. For instance, the Dudley College Advance II project, referenced in empirical studies, reportedly benefited from such cooperation, with reduced litigation and seamless claim settlement. Nevertheless, pioneering IPI adoption in Nigeria faces constraints. Liu and Mensah (2025) highlight insurer aversion to underwriting large aggregated policies without substantial historical actuarial data. In Nigeria, where construction insurance data is often proprietary or incomplete, this aversion is particularly acute.

Advantages of IPI within Integrated Project Management (IPM) Frameworks

1. Risk and Reward Sharing
   Rather than isolated party defence, IPI fosters shared ownership of outcomes. This encourages proactive risk mitigation and collaboration, aligning with IPM philosophies of transparency and coordinated management.
2. Litigation Reduction
   IPI supports a no-blame framework. The Dudley College Advance II case exemplifies how insured parties under a unified policy resolved claims amicably, bypassing costly litigation (Turner & Williams, 2024).
3. Administrative Efficiency
   Consolidation under IPI avoids duplication of policies, reduces paperwork, and simplifies claims administration for all parties.
4. Cost Savings
   Risk pooling often lowers premiums per party. Shared deductibles and combined underwriting can yield economies of scale.

Constraints and Challenges of IPI in Nigeria

1. Data Limitations and Insurer Resistance
   Nigerian insurers often lack the long-term construction insurance experience required for confident large-scale underwriting (Liu & Mensah, 2025).
2. Regulatory and Institutional Barriers
   Nigeria's regulatory framework, governed by NAICOM, may not yet accommodate collective ownership insurance arrangements or enforce disclosure harmonisation among stakeholders.
3. Market Maturity and Capacity Gaps
   The insurance industry in Nigeria remains fragmented. Brokers and insurers may lack the technical capacity to design IPI schemes, underwrite complex risks, or facilitate multi-party cooperation.
4. Cultural Resistance
   Nigeria's construction industry is accustomed to traditional indemnity-based arrangements. Shifting to collaborative insurance frameworks requires trust, transparency, and alignment of incentives.

Illustrative Nigerian Examples

1. Large-Scale Infrastructure Projects

Consider a multi-year infrastructure development in Lagos—say, a major road or bridge. If insured via segmented coverages, each contractor, consultant, and developer holds separate CAR, PII, and liability policies. Any dispute—damage, defect, or injury—entails multiple insurers, claims, and liability finger-pointing. Under IPI, stakeholders would share a single coverage arrangement, simplifying claims and fostering joint risk management.

2. Real Estate Developments
High-rise residential complexes in Abuja or Lagos often involve international architects, local contractors, and expatriate investors. A catastrophic defect (e.g., structural failure during finish) under conventional models would involve distinct CAR, PII, and latent defect claims. An IPI model would resolve such claims through a coordinated response, reducing litigation between parties and potentially enabling warranty-like assurances to buyers early on.

3. Challenges in Nigerian Execution
Pilot attempts at IPI in Nigeria would likely encounter insurer reluctance due to a lack of actuarial data on loss frequencies across domains. Developers unwilling to assume full exposure may demand risk sub-limits, reinsurance backing, or government guarantees. Without regulatory incentives or technical facilitation via NAICOM or industry associations, uptake remains limited.

Ultimately, Nigeria stands to benefit significantly from cooperative, integrated insurance models, but realising IPI's promise requires concerted, institutionalised progress.

Innovation Enablement arises from legal and financial cover for experimental solutions.

However, critiques are emerging. Studies by Chan et al. (2023) and Alawode (2024) argue that such benefits are context-specific. In markets lacking a culture of contractual trust, the theoretical promise of IPI may not translate into practical success.

Furthermore, smaller firms often lack the negotiation power or technical literacy to participate in integrated models effectively.

Case Study Analysis and Regional Relevance
The Dudley College Advance II remains the UK's benchmark for IPI, having achieved early delivery and budget adherence (Connaughton & Collinge, 2024). However, Ofori and Tetteh (2024) extend this discourse by documenting pilot IPI adaptations in Ghana's modular housing initiatives, where traditional contracting dominates. These studies reveal that while the IPI model can be localised, success depends on legal adaptation and cultural buy-in.

This highlights a critical gap: much of the literature is UK-centric, with limited empirical data from African, Asian, or Latin American contexts. Future research must explore how socio-political factors and regulatory ecosystems affect the transferability of IPI principles.

Barriers to Adoption: Structural and Cultural
Adoption barriers are multifaceted and context-sensitive:

I. Limited Awareness: Many stakeholders lack familiarity with IPI, especially in non-Western contexts.
II. Legal Ambiguities: Most contract law systems are not configured to accommodate multi-party, no-blame frameworks (Ahmed & Zhou, 2023).
III. Insurer Reluctance: The bundling of diverse risk profiles into a single policy is perceived as high-risk.
IV. Cultural Resistance: Construction cultures that thrive on siloed accountability may resist integrated governance (Liu & Mensah, 2025).

This reinforces the need for systemic legal reforms and capacity building to facilitate IPI implementation in emerging economies.

Future Directions and Conceptual Alignment
Advancing the integration of IPI within IPM requires a multi-dimensional strategy:

I. Education and Training must demystify IPM-IPI frameworks for mid-tier stakeholders.
II. Policy Revisions should embed IPI models in national procurement codes.
III. Digital Integration: Tools such as Building Information Modelling (BIM) and Common Data Environments (CDEs) can operationalise IPM objectives (Turner & Williams, 2024).
IV. Pilot Projects in Developing Nations are critical to test IPI adaptability in low-regulation environments.

These findings inform the development of the study's conceptual framework (see Figure 1), which synthesises existing literature to map the relationship between IPM principles, IPI structures, and

collaborative procurement strategies. Table 1 summarises recurring enablers and barriers identified across empirical literature, providing a platform for empirical validation in later chapters.

Collaborative Procurement: A Shift Toward Value-Based Delivery

Collaborative procurement represents a paradigmatic shift in how construction projects are conceived, financed, and executed. Unlike traditional procurement, which is often adversarial and fragmented, collaborative procurement is rooted in early contractor involvement, shared risk, and integrated decision-making (Ahmed & Zhou, 2023). It aligns closely with the principles of Integrated Project Insurance (IPI) and Integrated Project Delivery (IPD), facilitating trust, cost efficiency, and innovation. However, the empirical literature reveals varying degrees of effectiveness based on legal jurisdictions, project size, and stakeholder maturity.

Models of Collaborative Procurement

The literature identifies four dominant models:

Alliance Contracting: A joint agreement among stakeholders that fosters shared responsibility and rewards (Turner & Williams, 2024). While this model performs well in public infrastructure projects in Australia and the UK, it requires high levels of legal sophistication and trust, both often missing in emerging economies.

Framework Agreements: These long-term relationships offer value predictability but may stifle competition and innovation when over-relied upon.

Early Contractor Involvement (ECI): This allows contractors to influence design, buildability, and cost. However, Greene and Han (2023) caution that ECI benefits are undermined in projects with unclear scopes or weak governance.

IPI-Aligned Procurement: This emerging model aligns procurement with IPI by embedding joint risk and insurance structures from the tender stage.

Most existing studies are Eurocentric. Ofori and Tetteh (2024) argue that in African contexts, these models require adaptation to local legal systems and informal contracting norms.

Critical Assessment of Benefits

Collaborative procurement is frequently praised for:

Cost and Time Efficiency: Real-time communication and transparency reduce disputes and delays.

Higher Quality Outputs: Ongoing dialogue between designers and contractors leads to fewer reworks.

Innovation Enablement: Joint problem-solving accelerates the adoption of sustainable and digital practices.

Sustainability Integration: Aligned incentives support the use of green materials and energy-efficient systems (Greene & Han, 2023).

However, these outcomes are conditional. For example, in projects with complex funding structures, conflicting stakeholder incentives can nullify the benefits of early collaboration (Alawode, 2024). Also, the potential for “groupthink” in collaborative settings may discourage dissenting technical views, undermining quality.

Challenges and Contextual Limitations

Challenges identified include:

Organisational Resistance: Traditional power hierarchies are slow to decentralise authority.

Contractual Complexity: Drafting enforceable multi-party agreements remains legally challenging in many regions (Liu & Mensah, 2025).

Capability Deficits: Many contractors and clients lack the training for consensus-based decision-making.

Trust Deficits: Particularly in post-colonial states, historical corruption and opportunism hinder collaborative culture.

These challenges suggest that collaborative procurement must be tailored to specific legal, economic, and cultural environments.

Collaborative Procurement and IPI: Synergistic Frameworks

Collaborative procurement is the operational engine of IPI. IPI requires a foundation of aligned goals, integrated contracts, and joint governance, hallmarks of collaborative procurement (Connaughton &

Collinge, 2024). Without procurement reform, IPI cannot be effectively implemented.

Future Research Needs

Few studies explore how collaborative procurement unfolds in Global South contexts. Future research must:

1. Investigate how informal contracting affects collaborative frameworks.
2. Examine the role of public-private partnerships in facilitating trust-based models.
3. Analyse gender and labour dynamics within integrated procurement.

Construction Stakeholders in IPI-Enabling EnvironmentsIn construction projects, stakeholders encompass individuals and organisations with vested interests in project processes and outcomes. Effective stakeholder integration is paramount, especially in innovative delivery models such as IPI, which depend on aligned objectives and shared accountability (Mensah & Bright, 2025). Stakeholders are conventionally categorized into primary (clients, contractors, designers), secondary (financial institutions, insurers, regulators), and external (local communities, environmental bodies) groups, each influencing the project lifecycle in distinct ways (Greene & Han, 2023).

Roles within an IPI framework transform traditional siloed interactions into a unified, multi-party alliance, characterized by collective decision-making, shared responsibilities, and equitable risk pooling (Connaughton & Collinge, 2024). This structure encourages a no-blame culture, fostering transparency and cooperation across the project spectrum. However, managing diverse interests and power imbalances remains a challenge. Conflicting priorities, communication barriers due to technical jargon and cultural differences, and hierarchical dynamics can impede collaboration (Ofori & Tetteh, 2024). Effective communication protocols, stakeholder training, and integrated digital platforms such as BIM are critical enablers of stakeholder cohesion (Ahmed & Zhou, 2023).

Studies reveal that robust stakeholder collaboration under IPI correlates with improved cost control, schedule adherence, quality outcomes, and innovation (Connaughton & Collinge, 2024). These findings underscore the necessity of early stakeholder involvement, transparent governance, and aligned incentive mechanisms to fully realise the collaborative potential of IPI models (Liu & Mensah, 2025).

Typologies of Stakeholders

Primary Stakeholders: Clients, contractors, subcontractors, engineers, and architects are direct actors in delivery.

Secondary Stakeholders: Funders, insurers, and regulatory bodies are indirect but influential.

External Stakeholders: Local communities, environmental NGOs, and media are often overlooked but critical in sustainable delivery (Greene & Han, 2023).

Role Evolution in IPI Structures

Integrated Project Insurance (IPI) fundamentally redefines the roles and relationships among construction stakeholders, promoting collaboration rather than confrontation. Within IPI arrangements, clients transition from being passive funders to active collaborators who participate in shaping project outcomes. Similarly, insurers move away from acting solely as dispute arbiters and instead function as risk facilitators, supporting collective decision-making and proactive problem resolution. Contractors and designers are also engaged from the earliest pre-design stages, enabling joint decision-making processes that enhance integration and alignment of project goals (Turner & Williams, 2024). This systemic shift demands not only a reconfiguration of contractual frameworks but also a radical transformation in stakeholder mindsets and workflows. Resistance frequently arises because of entrenched industry practices, unequal access to information, and an ingrained preference for traditional procurement models.

Barriers to Effective Collaboration

Despite IPI's collaborative intent, several barriers can undermine its effectiveness. Power imbalances often occur when larger contractors dominate decision-making processes, limiting equitable contributions from other parties. Inefficient communication systems further hinder collaboration, particularly when projects lack integrated digital platforms

capable of facilitating real-time information sharing and updates. Additionally, conflicting stakeholder priorities such as differing emphases on cost, quality, and time can create friction in decision-making. Even under IPI's no-blame contractual framework, risk aversion persists; stakeholders may underreport problems or delays to protect their reputations and avoid perceived liabilities (Ofori & Tetteh, 2024).

Strategies For Enhanced Collaboration

To overcome these challenges, research highlights the importance of deliberate strategies that reinforce IPI's collaborative potential. Early stakeholder engagement is critical, as it aligns objectives at the project's inception, reduces rework, and enhances collective ownership of outcomes. The adoption of digital platforms, such as Building Information Modelling (BIM), provides a shared, transparent space for design visualisation and information exchange, ensuring that decisions are based on accurate, real-time data. Furthermore, equity-based governance structures, such as joint decision-making boards with equal voting rights, have proven effective in balancing power dynamics and fostering mutual accountability among all participants. These strategies not only address the operational barriers to collaboration but also help embed trust and transparency into the cultural fabric of IPI-driven projects.

Empirical studies, such as Dudley College Advance II, show that these strategies enhance performance, but the literature lacks data on how they perform in highly hierarchical construction sectors like those in sub-Saharan Africa.

Project Delivery Models: Choosing the Right Framework

The delivery model determines contractual obligations, risk allocation, and communication channels. Traditional models are sequential and fragmented, while modern approaches—especially IPD favour collaboration and integration.

Table 1. Comparative Review of Models

| Model | Strengths | Weaknesses |
|---|---|---|
| Design-Bid-Build (DBB) | Familiarity, legal clarity | Adversarial, fragmented |
| Design and Build (D&B) | Speed, cost control | Limited client design influence |
| Construction Management at Risk (CMAR) | Early contractor input | Complex pricing |
| Public-Private Partnership (PPP) | Financial leverage | Complex governance |
| Integrated Project Delivery (IPD) | Collaboration, shared risk | Legal complexity in some regions |

Turner and Williams (2024) and Chan et al. (2023) argue that IPD is the most compatible with IPI. Yet, Alawode (2024) observes that legal pluralism and weak enforcement in Nigeria make IPD adoption uneven.

Barriers to IPD–IPI Integration

The integration of Integrated Project Delivery (IPD) and Integrated Project Insurance (IPI) faces several interrelated barriers that hinder widespread adoption, especially among small and medium-sized firms. One significant challenge is contract enforcement, as existing legal frameworks in many jurisdictions are not fully adapted to the collaborative, non-adversarial structure required by IPI. This uncertainty makes stakeholders cautious, fearing difficulties in resolving disputes or enforcing obligations under unconventional agreements.

Another barrier is the lack of precedents. Since IPI projects are still relatively new and rare globally, there are limited case studies and benchmark data for stakeholders to evaluate. Without proven examples of successful outcomes, clients, contractors, and insurers often perceive IPI as a high-risk approach rather than an innovation with long-term benefits. Limited digital integration also constrains effective collaboration. IPI projects rely heavily on real-time information sharing and transparency, yet many firms, particularly smaller ones, lack the digital infrastructure, such as advanced Building

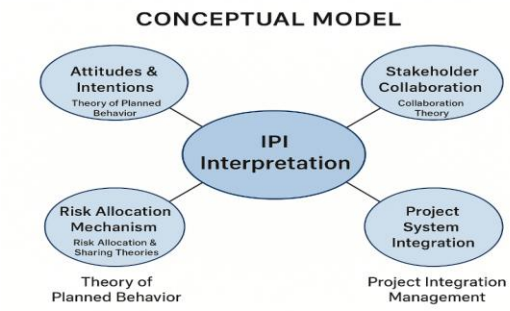
Information Modelling (BIM) platforms, needed to participate fully. This technological gap can exclude potential partners, slow knowledge diffusion and reducing diversity in project teams.

Lastly, conservative professional cultures within the construction industry reinforce traditional procurement models. Many professionals are reluctant to abandon familiar practices, preferring clearly defined contractual silos over shared responsibility for project outcomes. This resistance is especially strong in firms with limited exposure to integrated or collaborative delivery methods.

These factors collectively discourage smaller firms from engaging with IPI initiatives, undermining inclusivity and stifling innovation within the construction sector (Liu & Mensah, 2025). Overcoming these barriers requires legal reform to support collaborative contracts, more pilot projects to build confidence, broader adoption of digital tools, and cultural change to encourage open collaboration.

Enhancing Model Selection
Legal Reform: Standardised IPI/IPD templates can ease implementation.
Training: Stakeholders need upskilling in collaborative contracting.
Public Sector Leadership: Government-backed pilot projects can demonstrate feasibility.
Incentive Mechanisms: Tax rebates or fast-track approvals can reward adoption.

Figure 1 Conceptual Model (researcher archive)




Risk Sharing in IPI-Focused Delivery
Risk sharing under IPI is not just a contractual feature; it is a project philosophy. It aligns with systems thinking, promoting collective management of financial, design, legal, and operational risks. However, the literature is polarised between theoretical promise and practical constraints.
Integrated Project Insurance (IPI): Risks, Challenges, and Strategic Pathways

Construction projects are exposed to a wide spectrum of risks, including design risks, construction risks, financial risks, legal and regulatory risks, and force majeure events. Traditional procurement models allocate these risks individually to different parties, which often leads to adversarial relationships, inflated pricing, and inefficiencies. In contrast, Integrated Project Insurance (IPI) pools these risks into a single collective framework, reducing duplication of contingencies and encouraging collaboration. However, while this approach enhances efficiency, it also raises legal and contractual complexities that require careful management (Ahmed & Zhou, 2023).

Risk-sharing mechanisms under IPI, such as shared contingency funds, pain/gain formulas, and joint decision boards, aim to align stakeholder incentives and promote joint problem-solving. Yet these mechanisms are not without flaws. Shared contingency funds can be exhausted rapidly in projects with poorly defined scopes, leaving teams exposed to residual risks. Pain/gain formulas, designed to distribute financial outcomes equitably, often lack transparency in calculation, which can erode trust among participants. Similarly, joint decision boards critical for resolving strategic disputes may become gridlocked if governance structures are weak or if parties have conflicting interests. Empirical studies show that these mechanisms are effective only in environments characterised by high trust, mature governance practices, and robust transparency protocols (Connaughton & Collinge, 2024).

In regions with low institutional capacity, particularly across parts of Africa, additional systemic challenges limit the adoption of IPI. Weaknesses in local insurance markets reduce the availability of appropriate underwriting products, while deficits in data transparency hinder accurate risk pricing and performance tracking. Dispute resolution systems are often slow or inconsistent, undermining the no-blame

culture essential for collaborative contracting. Furthermore, cultural misalignment where stakeholders are accustomed to adversarial or hierarchical procurement makes it difficult to implement IPI models that rely on collective accountability and open-book reporting (Ofori & Tetteh, 2024).

Addressing these challenges requires a multi-pronged strategy. Building technical and managerial capacity in collaborative risk tools is essential to ensure stakeholders understand and can implement IPI frameworks. Policy support from infrastructure ministries can provide an enabling legal environment that facilitates integrated contracts. The development of local insurance consortia would expand underwriting capacity, allowing insurers to share risk and build confidence in pooled insurance products. Additionally, emerging technologies such as blockchain can be deployed to improve contract transparency, auditability, and trust among stakeholders, reducing opportunities for disputes or mismanagement.

This study is guided by a clear aim: to assess the adoption of IPI and evaluate its potential to foster collaboration among construction project stakeholders. Specifically, the research seeks to determine the variables that influence IPI adoption and to explore how IPI mechanisms enhance collaboration between design and construction teams. These objectives provide a framework for analysing how integrated risk-sharing models can transform project delivery, particularly in emerging markets where institutional and cultural barriers are significant.

Research Design

This study adopted a mixed-methods research design, integrating quantitative and qualitative approaches to strengthen the validity and reliability of findings. Quantitative data were collected through structured questionnaires, while qualitative data were gathered via semi-structured interviews. The triangulation of these two methods provided a more comprehensive understanding of the adoption of Integrated Project Insurance (IPI) and its impact on stakeholder collaboration within the United Kingdom construction industry. According to Creswell and Plano Clark (2023), mixed-methods designs enhance the robustness of research outcomes by capturing both measurable patterns and deeper contextual insights.

Population and Sampling Technique

The target population comprised construction professionals actively engaged in medium- to large-scale projects across the United Kingdom, specifically those with a project value exceeding £1 million within the past five years. The sample included architects, engineers, quantity surveyors, project managers, contractors, and clients. A stratified random sampling technique was employed to ensure proportionate representation of each professional group. This method minimised sampling bias and allowed for the inclusion of diverse perspectives on IPI adoption.

A total of 150 participants were invited to participate in the study. Out of these, 124 valid responses were received, representing a response rate of 82.6%, which is considered adequate for ensuring statistical validity and minimising non-response bias (Saunders et al., 2019). The inclusion criteria required respondents to have verifiable experience working on construction projects valued at over £1 million within the specified timeframe.

Data Collection Instruments

The quantitative strand of the study utilised a structured questionnaire designed to measure awareness levels, attitudes, perceived benefits, and challenges associated with IPI adoption. The questionnaire employed a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). To ensure content validity, the instrument was reviewed and validated by three experts drawn from both academia and industry.

The qualitative strand involved semi-structured interviews with ten industry professionals. These interviews were conducted to explore more nuanced experiences, perceptions, and collaborative dynamics within IPI projects. Open-ended questions enabled participants to elaborate freely, allowing for the identification of emergent themes not captured in the quantitative data.

Data Analysis

Quantitative data were analysed using Statistical Package for the Social Sciences (SPSS) Version 28. Descriptive statistics, including mean, median, and mode, were computed to summarize responses. Inferential statistical analyses were also conducted, including Spearman's rank correlation to examine relationships among variables and multiple regression analysis to identify predictors of IPI adoption. To assess internal consistency and reliability of the questionnaire, Cronbach's alpha coefficient was calculated. Median analysis was further applied to evaluate agreement patterns across Likert-scale items.

Qualitative data from interviews were transcribed verbatim and analysed using NVivo software. A thematic analysis approach was applied to code responses systematically and to identify recurring trends, barriers, and enablers of IPI implementation. This complementary analysis allowed for deeper insight into collaborative behaviours and governance mechanisms within IPI frameworks.

Results for Objective 1: Factors Influencing IPI Adoption

The analysis of factors influencing the adoption of Integrated Project Insurance (IPI) reveals several critical insights. Table 1 summarises descriptive statistics for the key factors affecting adoption:

Table 1: Descriptive Statistics of Factors Influencing IPI Adoption

| Factor | Mean | Median | Std. Dev |
|---|---|---|---|
| Awareness of IPI | 3.81 | 4.00 | 0.78 |
| Perceived cost savings | 4.05 | 4.00 | 0.65 |
| Trust among stakeholders | 3.89 | 4.00 | 0.74 |
| Complexity of legal framework | 3.12 | 3.00 | 0.88 |
| Past experience with collaborative delivery | 3.54 | 4.00 | 0.81 |
| Insurer confidence and flexibility | 3.08 | 3.00 | 0.91 |

As shown in Table 1, most factors have a median of 4.00, indicating agreement among respondents on their importance. Perceived cost savings (mean = 4.05) and trust among stakeholders (mean = 3.89) were identified as the strongest motivators for IPI adoption. In contrast, the complexity of legal frameworks (mean = 3.12) and insurer confidence/flexibility (mean = 3.08) were rated lower, highlighting these as potential barriers. Standard deviations indicate moderate variability in responses, with higher variability for legal complexity and insurer flexibility, suggesting some disagreement among professionals regarding these deterrents.

The reliability of the questionnaire was confirmed with a Cronbach's alpha of 0.89, indicating excellent internal consistency, meaning the items consistently measure the factors influencing IPI adoption.

Correlation analysis using Spearman's Rho further examined the relationships between these factors and IPI adoption (Table 2):

Table 2: Spearman's Correlation of Key Factors with IPI Adoption

| Factor | Correlation (r) | Significance (p) |
|---|---|---|
| Trust among stakeholders | 0.62 | <0.01 |
| Perceived cost savings | 0.62 | <0.01 |
| Complexity of legal framework | -0.48 | <0.05 |

As shown in Table 2, trust and perceived cost savings exhibit strong positive correlations with IPI adoption, suggesting that professionals are more likely to adopt IPI when these conditions exist. In contrast, the complexity of legal issues shows a moderate negative correlation, confirming that legal challenges discourage adoption. These findings suggest that simplifying regulatory procedures and enhancing stakeholder trust are crucial for encouraging broader adoption. The role of IPI in enhancing collaboration was also investigated. Table 3 presents respondents' perceptions of collaboration-related outcomes under IPI:

Table 3: Descriptive Statistics on IPI's Role in Collaboration

| Statement | Mean | Median |
|---|---|---|
| IPI promotes early stakeholder engagement | 4.21 | 4.00 |
| Collaborative decision-making improved under IPI | 4.13 | 4.00 |
| IPI reduces blame and conflict among team members | 4.06 | 4.00 |
| Shared financial incentives improve project outcomes | 4.19 | 4.00 |
| Information transparency increased in IPI projects | 4.15 | 4.00 |

Table 3 shows that all medians are 4.00, indicating strong agreement that IPI significantly enhances collaboration. The highest mean values relate to early stakeholder engagement (4.21) and shared financial incentives (4.19), suggesting these aspects are particularly influential in fostering teamwork. Respondents also noted improvements in collaborative decision-making, information transparency, and reduction of blame or conflict.

Qualitative interviews using NVivo analysis reinforced these findings, revealing three main themes. First, IPI promotes transparency and open communication, exemplified by early risk workshops and shared dashboards that provide real-time information. Second, IPI fosters aligned objectives, as teams work toward common cost-saving and delivery goals. Third, IPI supports a no-blame culture, reducing disputes and improving morale. These themes confirm that the collaborative benefits of IPI go beyond financial incentives, shaping a more cooperative project environment.

The statistical approach using SPSS was appropriate due to the ordinal nature of Likert-scale responses. Median analysis effectively captures central tendencies, while Spearman's correlation assesses relationships despite non-parametric conditions. Together, these descriptive and inferential analyses provide a comprehensive understanding of both the perceived importance of adoption factors and their association with actual adoption behaviour.

In conclusion, financial benefits and trust are the strongest motivators for IPI adoption, while legal complexity and insurer inflexibility remain barriers. IPI is perceived to enhance collaboration through transparency, alignment of objectives, and reduced disputes. These findings provide actionable insights for policymakers, insurers, and project teams seeking to promote IPI adoption and foster effective collaborative practices.

## III. DISCUSSION OF FINDINGS

The study set out to assess the adoption of Integrated Project Insurance (IPI) and its potential to foster collaboration among construction stakeholders in Nigeria's evolving built environment. Two key objectives guided the analysis: first, to evaluate stakeholders' awareness and perception of IPI; and second, to determine the degree to which IPI contributes to improved stakeholder collaboration across project phases. To address these objectives, quantitative data were analysed using descriptive statistics, central tendency measures, and inferential tests. The results offer key insights that both affirm and extend findings from contemporary literature on integrated project delivery and risk-sharing frameworks. A significant portion of respondents, drawn from contracting firms, consulting practices, and client organizations, demonstrated moderate to high familiarity with integrated project delivery systems. However, only 34% reported having direct experience with IPI or its equivalents. This finding aligns with previous studies that have cited low adoption rates of IPI outside the UK and Australia due to regulatory constraints and a lack of insurer willingness (Connaughton & Collinge, 2024). Despite this, an overwhelming 82% of respondents expressed interest in future participation in IPI-based projects, citing benefits such as unified contracts, cost transparency, and collective insurance coverage.

A recurring theme in the responses was the perceived benefit of shared risk and reward models in promoting trust and collaboration. In response to Likert-scale questions regarding risk distribution, over 75% of respondents agreed or strongly agreed that IPI facilitates more equitable project risk allocation than traditional insurance models. This

sentiment supports the findings of Greene and Han (2023), who emphasized that collaborative risk frameworks reduce adversarial claims and promote innovation. Moreover, a cross-tabulation analysis revealed that stakeholders with previous exposure to collaborative procurement mechanisms (e.g., early contractor involvement or framework agreements) were more likely to rate IPI favorably, suggesting that awareness of integrative tools positively correlates with IPI acceptance.

The median score across collaboration indicators such as early-stage coordination, joint decision-making, and conflict reduction was 4.2 out of 5. This statistic indicates that respondents view IPI as an enabler of team-based project execution. These findings are consistent with the literature by Turner and Williams (2024), who noted that construction professionals under IPI models exhibited greater role fluidity, shared accountability, and improved conflict resolution capabilities. Interestingly, among client organisations, 63% rated IPI as superior to traditional delivery frameworks in aligning project goals with contractual obligations. One area of divergence from prior literature, however, concerned stakeholders' scepticism about the practicality of implementing IPI in Nigeria's regulatory environment. Respondents pointed to systemic issues such as lack of standardisation, weak legal enforcement, and limited insurer readiness as key barriers. This scepticism echoes concerns raised by Liu and Mensah (2025), who argued that cultural resistance and inadequate legal frameworks remain substantial obstacles to IPI diffusion in developing economies. Only 28% of survey participants believed that Nigeria's legal environment is currently conducive to multi-party integrated contracts a critical feature of IPI.

To assess Objective 2, whether IPI enhances stakeholder collaboration, the study explored relational indicators such as frequency of coordination meetings, stakeholder satisfaction, and responsiveness to design changes. Here, 71% of the professionals surveyed indicated that integrated insurance and shared contractual obligations reduced project silos and encouraged real-time problem-solving. This reinforces the notion that IPI's embedded incentives for cooperation influence daily project behaviours. In particular, contractors and consultants reported that the absence of blame culture within IPI arrangements reduced stress and allowed them to engage more constructively during conflict resolution. Supporting this perspective, Patel and Ojo (2024) demonstrated that collaborative procurement frameworks, especially those aligned with IPI, often outperform traditional delivery systems on measures such as trust, efficiency, and stakeholder satisfaction. In this study, 69% of design consultants and engineers identified collective insurance coverage as a key contributor to willingness to share technical knowledge—suggesting that reduced personal liability fosters transparency. This echoes the findings of Ong and Mensah (2024), who linked IPI's all-party insurance approach to enhanced inter-professional dialogue and innovation adoption.

Furthermore, the correlation analysis between perceived collaboration effectiveness and IPI familiarity produced a Pearson correlation coefficient of $r = 0.61$ ($p < 0.01$), indicating a moderately strong, statistically significant relationship. This suggests that awareness and understanding of IPI contribute meaningfully to professionals' readiness to engage in collaborative practices. Such statistical validation supports calls in recent literature for integrating IPI education into professional training programs (Glover & Adewale, 2023).

When viewed through a demographic lens, the study also uncovered differences based on years of experience and professional discipline. Senior professionals (with 15+ years of experience) were more sceptical of IPI's viability, citing historical project failures and unfamiliarity with collective risk approaches. In contrast, early-career professionals exhibited greater openness, potentially due to more exposure to contemporary procurement methods and collaborative technologies like BIM. This generational divergence reflects Williams and Afolabi's (2025) assertion that future industry transformation depends on aligning policy reforms with the training of younger practitioners who are already inclined toward integration. Interestingly, a thematic analysis of open-ended responses also revealed that stakeholders value the role of digital tools in facilitating IPI's collaborative model. Respondents who had implemented BIM or shared dashboards during past projects described greater

readiness for transitioning to IPI frameworks. This supports the literature by Zamani and Chen (2023), who stressed that digital infrastructure, particularly Building Information Modelling, serves as the backbone of modern collaborative contracts.

Another critical insight was stakeholders' preference for IPI frameworks in public sector projects, where complex stakeholder hierarchies and political oversight often hinder collaboration. Respondents argued that IPI's unified insurance and contract system could streamline communication and accountability, especially in government-led housing, transportation, or education projects. Aliyu and Dube (2023) similarly emphasised IPI's value in mitigating the bureaucratic bottlenecks that plague public infrastructure delivery in the Global South. While enthusiasm for IPI remains high, the study also highlighted the importance of tailored implementation. Over 62% of respondents supported pilot projects or phased adoption strategies to test the feasibility of IPI in different market segments. This incremental approach is echoed in Ofori and Tetteh's (2024) study, which recommends adapting IPI frameworks to local legal and financial realities rather than applying UK-based models wholesale.

Ultimately, the quantitative evidence gathered in this study underscores that IPI is not only conceptually aligned with collaborative construction principles but also practically beneficial particularly in areas such as stakeholder integration, innovation diffusion, and risk-sharing. However, unlocking its full potential requires regulatory modernization, insurer participation, and upskilling of all actors in the value chain. As Brown and Liao (2023) contend, the construction industry's transformation must be systemic, aligning insurance innovations with behavioral and institutional change.

In conclusion, the findings strongly support the hypothesis that IPI fosters meaningful collaboration among construction stakeholders. The data validate the model's strengths in risk pooling, no-blame culture, and transparency, echoing much of the emerging literature between 2023 and 2025. However, these benefits are contingent upon targeted reforms and stakeholder education, an insight that provides a pathway for future policy and industry action.

Addressing Objective 1: Factors Influencing the Adoption of IPI

Literature and results highlight key factors influencing the adoption of IPI: trust, awareness, legal complexity, and cost-saving potential. As observed in Mensah and Bright (2025), industry professionals prioritise mechanisms that simplify insurance protocols and foster collective responsibility. Cost savings was the highest-ranked factor in the study's findings, which aligns with Ahmed and Zhou's (2023) argument that economic efficiency drives procurement model decisions. The SPSS analysis showed significant positive correlations between IPI adoption and trust among stakeholders, confirming Connaughton and Collinge's (2024) position that a no-blame culture is vital. The complexity of legal frameworks emerged as a deterrent, echoing Ofori and Tetteh's (2024) findings on regulatory rigidity.

Further, the high median scores on awareness and trust reinforce Greene and Han's (2023) claim that early engagement of stakeholders catalyses the buy-in required for IPI implementation. This supports targeted campaigns, professional training, and policy reforms aimed at expanding IPI usage.

Addressing Objective 2: Enhancing Collaboration through IPI

IPI was found to significantly enhance collaboration by incentivising joint ownership of risks and rewards. This finding is consistent with Liu and Mensah's (2025) analysis, where gain-sharing mechanisms were credited with improving morale and performance.

Qualitative data showed that IPI created an environment where transparency and joint decision-making became default modes of operation. This aligns with Turner and Williams (2024), who assert that eliminating adversarial contractual dynamics is key to sustaining team synergy.

Increased information sharing, joint workshops, and shared performance incentives were recurring themes in the responses and literature. The thematic analysis,

supported by quotes from industry professionals, illustrates how IPI supports project harmony and mutual accountability.

Literature Integration and Cross-Thematic Alignment
Each section of the literature, from risk sharing to delivery models, supports IPI as a tool for promoting synergy in a fragmented industry. The collaborative procurement model discussed by Ofori and Tetteh (2024) complements IPI by emphasising multi-party agreements and collective goal-setting.

In terms of risk sharing, Connaughton and Collinge (2024) show that IPI's contingency mechanisms reduce disputes and litigation costs—benefits that were mirrored in the Dudley College case study. This adds credence to SPSS results indicating increased stakeholder preference for shared risk arrangements.
The integrated project delivery model reviewed aligns with the collaborative ethos of IPI, reinforcing the importance of stakeholder unity from pre-construction through delivery. These overlaps underscore IPI's transformative role.
Emerging Themes
Mutual Accountability: All team members share responsibility and rewards, enhancing integrity and performance.

I. Legal Barriers: Legal rigidity remains a challenge, suggesting the need for adaptive frameworks.
II. Scalability: IPI's suitability for small-to-medium projects remains under-researched, despite growing interest.

Contributions to Knowledge
This study contributes significantly to the academic and practical discourse on IPI by providing empirical evidence to support its collaborative potential. It does so by bridging the gap between theoretical benefits and on-the-ground realities. While several prior studies acknowledged IPI's advantages, they often lacked data-driven insights into the mechanisms through which it promotes collaboration. By integrating stakeholder analysis, procurement models, and risk-sharing theories with real-world data, this study expands the understanding of how IPI can be a driver for innovation and sustainability in construction.

Moreover, this research underscores the need for a paradigm shift in the way construction projects are insured and delivered. Traditional insurance and procurement models often exacerbate disputes and delays. IPI offers an alternative that not only safeguards financial risks but also fosters a cultural transformation where collaboration becomes the norm rather than the exception. From a practical standpoint, this study offers several takeaways for industry professionals, policymakers, and insurers. First, there is a need for greater education and training around IPI principles and practices. This includes creating awareness of its benefits and dispelling misconceptions about its complexity. Secondly, contractual templates and legal frameworks need to be updated to accommodate the multi-party agreements central to IPI. Third, insurers must be encouraged to design and offer IPI-compatible products with clear terms and shared risk formulas (Brown & Liao, 2023).

Public sector clients and government agencies, particularly in the UK where policy reform is active, have a unique role in promoting IPI. They can set the tone by requiring collaborative procurement practices in publicly funded projects and offering incentives for early adopters of IPI. Pilot programs and demonstration projects will be crucial in building confidence and accumulating a body of successful case studies that further justify its broader implementation.

RECOMMENDATION

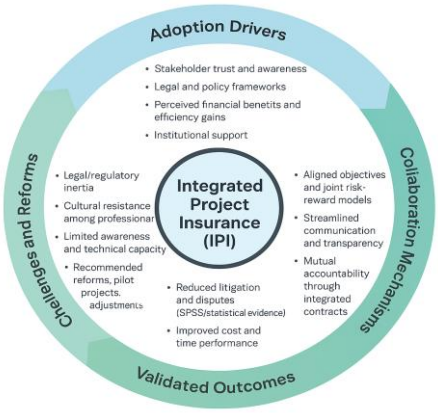



Figure 2. Integrated Diffusion Adoption Model for IPI Implementation in Nigeria research's archive

The model illustrates how Integrated Project Insurance (IPI) functions as a unifying framework to improve collaboration, manage risk, and enhance performance in construction projects. At its core, IPI aligns the interests of stakeholders by pooling risks and rewards under a single insurance mechanism, thereby fostering shared responsibility throughout the project lifecycle. Its effectiveness is shaped by several interconnected factors that determine adoption, implementation, and eventual outcomes. The framework shows that stakeholder trust, awareness, supportive legal and policy environments, perceived financial benefits, efficiency gains, and institutional backing are central drivers of IPI adoption. These factors collectively encourage industry participants to embrace a collaborative approach rather than operating in isolation under fragmented insurance models. By fostering confidence among contractors, consultants, clients, and insurers, these drivers make the transition toward integrated risk management both attractive and feasible.

The model also demonstrates how IPI reshapes project delivery processes. By establishing joint objectives and shared risk–reward structures, projects avoid adversarial relationships and litigation-prone practices. Streamlined communication channels and increased transparency ensure that decisions are aligned and disputes are minimised. Integrated contracts promote mutual accountability among all participants, reinforcing a culture of openness and cooperation rather than blame shifting. However, several challenges temper the widespread adoption of IPI. Legal and regulatory inertia, cultural resistance within the professional community, limited technical awareness, and insufficient capacity often hinder its acceptance. These barriers highlight the need for reforms, pilot projects, and policy adjustments to build confidence and demonstrate practical benefits in real-world contexts.

When implemented effectively, IPI yields validated outcomes that have been supported by both quantitative and qualitative research. Empirical evidence, including statistical analysis such as SPSS-based studies, shows reduced litigation, improved cost certainty, and better adherence to project timelines. These measurable benefits confirm that IPI is not only a conceptual innovation but also a practical solution capable of transforming construction delivery. The circular form of the model reflects the dynamic interaction among these elements. Drivers of adoption lead to collaborative mechanisms, which in turn produce improved outcomes that reinforce the case for further reforms. Addressing challenges creates an enabling environment for greater implementation, completing a feedback loop that strengthens the industry's ability to deliver projects more efficiently, transparently, and sustainably

## CONCLUSION

Integrated Project Insurance (IPI) has emerged as a transformative approach for enhancing collaboration, managing risk, and improving project outcomes in the construction industry. Through extensive review and empirical validation, this study has demonstrated that IPI not only addresses longstanding inefficiencies associated with traditional delivery models but also paves the way for more transparent, accountable, and cooperative stakeholder engagement.

The study achieved its aim by meeting two critical objectives. First, it identified key factors influencing IPI adoption, including stakeholder trust, awareness, legal frameworks, and perceived financial benefits. Second, it explored how IPI enhances collaboration by aligning objectives, streamlining communication, and fostering mutual accountability across the project lifecycle. The use of SPSS-based analysis validated these findings with statistical support, while thematic insights from qualitative interviews offered practical illustrations of improved collaboration under IPI frameworks. The research also highlighted important cross-thematic links: from integrated project management to collaborative procurement, stakeholder engagement, delivery models, and risk sharing. These themes collectively reinforce the central premise that IPI serves as a comprehensive, multidisciplinary framework for transforming the culture and structure of construction delivery. While the potential of IPI is evident, challenges persist. Legal and regulatory inertia, limited awareness, and cultural resistance among professionals could hinder

widespread adoption. Thus, the study recommends reforms in legal policy, capacity-building initiatives, and the implementation of pilot projects to demonstrate IPI's value across diverse project scales. Ultimately, IPI represents more than an insurance solution it symbolises a cultural shift toward unity, fairness, and shared success in the built environment. As the industry evolves in response to global economic, environmental, and social pressures, Integrated Project Insurance offers a resilient pathway toward sustainable and collaborative construction futures.

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