

Methodological Choices for Identifying Determinants in Land Management: Why Delphi and Case Validation Work

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Abstract

Effective land governance requires more than well-designed policies—it demands understanding the underlying factors that enable or obstruct implementation. In complex domains like idle land management, traditional research methods struggle to identify these governance determinants due to institutional complexity and administrative opacity. This study proposes an integrated approach combining the Delphi technique with case validation to systematically identify and validate determinants of effective land management. A two-round Delphi process builds consensus among experts from Malaysia's multi-level governance system, using a 10-point scale to prioritize determinants. These findings are then validated through analysis of successful idle land redevelopment projects. The approach offers methodological advantages over surveys, interviews, and single-case studies by enabling comprehensive inquiry within complex institutional systems. It strengthens both validity and practical relevance, supporting theory development while generating actionable policy insights. The methodology provides land researchers and policymakers with a rigorous, adaptable framework for diagnosing governance problems and designing targeted interventions.

Keywords: Land Governance, Delphi Method, Case Validation, Idle Land, Land Administration

Introduction

Identifying the factors that determine success or failure in land governance represents one of the most challenging aspects of policy research. Unlike technical problems with measurable indicators, governance determinants are often hidden within institutional practices and administrative routines (Grindle, 2007). These factors—including policy clarity, institutional accountability, inter-agency coordination, and data systems—critically influence land governance effectiveness but resist detection through conventional research methods (Deininger & Feder, 2009).

This challenge is particularly acute in idle land governance. Idle land, defined as land that remains unused despite being designated for active use, typically results from multiple interconnected failures rather than single causes. Regulatory ambiguity, fragmented authority, poor data access, and procedural delays combine to prevent land activation (Rahmat & Zainudin, 2023). These conditions cannot be easily mapped using standard tools like surveys or land records alone.

The situation is especially complex in Malaysia, where land authority is divided between federal and state governments. This creates regulatory inconsistencies and implementation gaps that vary across regions. Traditional research approaches struggle to capture these multi-level dynamics and their interactions (Tan, 2019).

This study addresses these methodological limitations by combining the Delphi technique with case validation. The Delphi method enables systematic expert consultation to identify and prioritize governance determinants (Hsu & Sandford, 2007), while case validation tests whether these factors actually operate in successful projects (George & Bennett, 2005). This integrated approach bridges the gap between expert knowledge and empirical evidence, providing both theoretical insight and practical validation.

Literature Review

From Outcomes to Determinants in Governance Research

Governance studies have traditionally focused on measuring policy outcomes—counting land titles issued or laws enacted—rather than understanding what makes such outcomes possible (Pollitt & Bouckaert, 2017). However, this outcome-focused approach often misses the underlying conditions that drive institutional performance. Scholars increasingly argue that governance research must identify the structural and behavioural factors that enable or hinder results (Peters, 2015).

Other policy fields have successfully adopted determinant-based analysis. In health research, frameworks like "social determinants of health" demonstrate how governance conditions and institutional design shape outcomes more than direct interventions (Marmot, 2005). Environmental governance uses models like Ostrom's Institutional Analysis and Development framework, which examines how rules, incentives, and conditions affect governance effectiveness (Ostrom, 2009).

Despite its importance for development and equity, land governance has been slow to adopt this approach. Much literature remains focused on tenure processes, digital systems, or institutional reforms without systematically examining why such reforms succeed in some places and fail in others (Burns et al., 2007). This leaves the field with rich descriptions but limited explanatory power.

Methodological Challenges in Land Governance Research

Several factors explain the slow adoption of determinant-focused approaches in land governance. Many governance determinants—such as discretionary decision-making, informal institutional knowledge, or inter-agency negotiations—are not formally documented and resist quantification (Olagunju, 2016). Conventional tools like surveys or statistical models are poorly suited to detect these root causes.

Land administration structure complicates determinant discovery further. It typically involves multiple institutional levels with conflicting mandates, different accountability mechanisms, and varying information access. In Malaysia, land matters fall under state jurisdiction while policy direction and funding remain federal responsibilities. This creates fragmented implementation pathways that vary by region (Samsudin, 2014; Ismail, 2023).

Even qualitative methods face limitations in this context. Interviews may reveal rich insights but often produce inconsistent findings influenced by social desirability bias. Focus groups struggle with hierarchical differences among participants (Papastavrou et al., 2014). Most importantly, these tools rarely provide mechanisms for convergence or prioritization—critical steps for developing actionable frameworks (Brown, 2018).

Limitations of Existing Methods

Current approaches to identifying governance factors each have significant limitations: Surveys capture symptoms rather than causes. Respondents may report dissatisfaction with delays, but such data rarely illuminate the institutional logic behind those delays (Rothstein & Teorell, 2008). Survey design also struggles with multi-dimensional variables operating simultaneously across policy, operational, and technical levels.

Document analysis provides valuable insight into legal frameworks but suffers from the gap between policy and practice. Many countries, including Malaysia, have sound land policies that are poorly implemented due to misaligned mandates or weak enforcement (Zevenbergen et al., 2013). These gaps are invisible in legal texts but manifest in administrative routines.

Case studies offer rich contextual insights but limited generalizability when used alone. While useful for demonstrating governance mechanisms, single cases are susceptible to confirmation bias and often show "how" things happen without explaining "why" they succeed or fail across settings (Flyvbjerg, 2006).

These limitations call for methodology that is both structured and iterative, capable of capturing expert knowledge and validating it empirically. The Delphi technique, integrated with case validation, addresses these requirements.

Methodology

This study employed a four-phase mixed-method approach combining Delphi technique with case validation. The design bridges expert knowledge and empirical evidence, providing theoretical grounding and practical validation for governance determinants.

The methodology was designed to bridge the gap between expert knowledge and empirical evidence, providing both theoretical grounding and practical validation for governance determinants. As shown in Table 1, the research design comprised four distinct phases, progressing from initial determinant identification through consensus building to empirical validation and final integration.

Table 1
Research Design Overview

Phase	Method	Purpose	Participants/Sources	Output
Phase 1	Delphi Round 1	Initial determinant identification and rating	Federal policymakers, state administrators, local planners	Ranked determinant list with qualitative insights
Phase 2	Delphi Round 2	Consensus building and refinement	Same expert panel	Validated determinant matrix with convergence metrics
Phase 3	Case Validation	Empirical testing of determinants	Selected successful land reactivation projects	Determinant-case matrix with causal patterns
Phase 4	Integration	Synthesis of expert consensus and empirical evidence	Combined analysis	Typology of determinants and policy recommendations

The Delphi technique was selected for its effectiveness in eliciting expert consensus within Malaysia's fragmented land governance system. Originally developed for technological forecasting, Delphi has proven valuable for structured expert judgment in complex, multi-stakeholder environments where information asymmetries and hierarchical tensions exist (Ismail et al., 2025; Kashyap & Lakhanpal, 2022).

Expert selection prioritized institutional experience over formal credentials, ensuring participants had direct operational experience within Malaysia's multi-level governance system. The 26-member expert panel included representatives from federal, state, and local levels, reflecting the characteristic fragmentation of Malaysian land governance. Figure 1 illustrates the distribution of participants across different administrative levels and sectors, demonstrating the comprehensive representation achieved in the study.

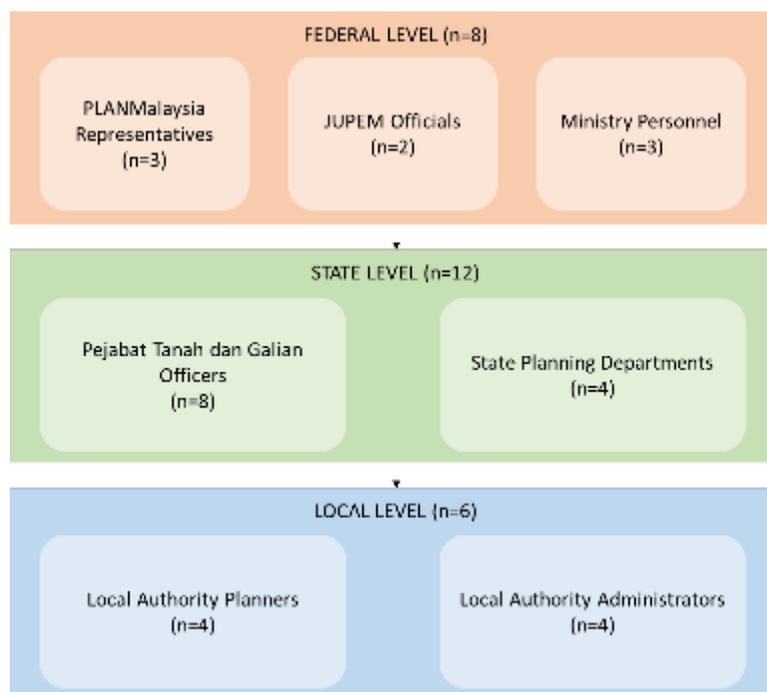


Figure 1. Expert Panel Composition

This diversity in expert composition was essential for capturing the multi-dimensional nature of land governance challenges, where authority and responsibility span different administrative tiers and sectors.

Delphi Process

The two-round Delphi process began with a literature-based determinant inventory spanning four governance domains: policy frameworks, institutional arrangements, administrative functions, and land information infrastructure.

Round 1 involved expert rating determinants using a 10-point scale while providing narrative explanations and suggesting additional factors. This structure combined academic rigor with practical inclusivity, ensuring both theoretical comprehensiveness and practitioner relevance.

Round 2 focused on convergence, presenting experts with anonymized feedback, statistical summaries, and patterns from the initial round. Participants reconsidered their ratings based on collective insights while maintaining individual autonomy. Items with persistent disagreement were retained for analysis, revealing institutional tensions shaped by local context or role-specific perspectives.

Case Validation Strategy

While Delphi enables structured consensus-building, it cannot confirm whether identified determinants have causal power in actual governance outcomes (Palin et al., 2022; Metwaly et al., 2025). Case validation served as the empirical test, examining whether expert-derived determinants are observable in functioning land systems (Walters et al., 2021).

The validation strategy followed "positive deviance" logic, selecting projects where idle land was successfully reactivated through governance interventions. Cases included federal-led urban revitalization and state-initiated agricultural reuse projects, enabling comparison across jurisdictional levels. Selection emphasized learning from success pathways rather than achieving statistical representation.

Each case was systematically assessed for the presence, absence, or modification of Delphi-identified determinants through analysis of planning documents, land use records, implementation reports, and consultations with project implementers. This revealed both explicit determinants and latent factors inferred through institutional performance patterns.

Findings

Anticipated Outputs and Analytical Implications

The dual-method strategy yields multi-layered outputs that clarify, contextualize, and operationalize determinants of effective land governance. These outputs can be categorized into three tiers: a ranked determinant set, an empirical mapping matrix, and a determinant typology for framework construction.

Output 1: Ranked and Refined Determinant Set

The first output is a consolidated and prioritized list of governance determinants derived from Delphi consensus. Each determinant is statistically profiled using measures of central tendency (median) and consensus (interquartile range), with classification based on

functional domain—land policy, institutional arrangements, administrative functions, and land information infrastructure.

The 10-point scale enables granular distinctions between universally critical determinants and those subject to contextual interpretation. Determinants with high importance and strong agreement are flagged as core enablers, providing immediate targets for policy intervention. Those with lower consensus may indicate institutional divergence, offering insight into region-specific constraints or reform bottlenecks.

This ranked output offers a replicable template for policymakers, enabling comparative benchmarking between jurisdictions and integration into diagnostic tools such as governance audits or capacity assessments (Dalkey & Helmer, 1963).

Output 2: Empirical Mapping Across Case Studies

The second output is a determinant-case matrix developed during validation. This mapping tool cross-references each Delphi-derived determinant with real-world land redevelopment projects, coding their operational presence, partial fulfilment, or absence. It also accounts for latent determinants inferred from outcomes even when not explicitly observed.

This mapping reveals critical interaction effects. For instance, empirical data may show that policy clarity only yields results when paired with data integration or inter-agency coordination. These findings provide actionable intelligence for policymakers, enabling interventions that address systemic interdependencies rather than isolated bottlenecks (Sabatier & Weible, 2007).

The output supports causal inference through pattern recognition. Where determinant presence aligns with project success across multiple cases, the study gains explanatory power. Conversely, when high-ranking determinants are absent in successful projects, this prompts re-evaluation of theoretical assumptions (Mahoney, 2010).

Output 3: Determinant Typology for Framework Construction

The third output is a determinant typology—a classification schema based on level of influence (core, supporting, context-dependent) and domain of operation (policy, institutional, functional, or infrastructural). This typology provides the foundation for building an operational governance framework tailored to idle land management.

By embedding this typology within established theoretical frameworks like the Land Management Paradigm, the approach benefits from theoretical grounding while retaining flexibility for context-specific adaptation (Williamson et al., 2010). This layered classification facilitates appropriate responses—ensuring that policy interventions match the scale and nature of constraints, whether at national, state, or municipal levels.

In practice, this typology can be embedded into reform planning instruments, diagnostic tools, and institutional scorecards. It shifts policy focus from outcome metrics (e.g., hectares developed) to systemic enablers (e.g., presence of data integration or budgetary alignment).

Discussion

Methodological Coherence for Complex Systems

Land governance research has traditionally been fragmented across disciplinary lines, oscillating between technical spatial analysis and normative policy critique. The dual-method approach introduces methodological coherence by combining structured expert consultation with grounded empirical observation, addressing a longstanding gap in the field (Szulecki & Overland, 2020).

The challenge of studying land governance lies in its complexity: cadastral systems, legal regimes, planning institutions, and digital infrastructures interact across scales in non-linear ways (Paavola, 2007). Many existing studies approach these elements in isolation, producing fragmented diagnoses or technically sound but politically naive solutions. The approach advanced here allows for horizontal linkage between determinants and vertical calibration across authority levels.

This coherence is particularly important in contexts like Malaysia, where governance is decentralized but policy is often centralized, creating feedback loops that require both cross-jurisdictional insight and institutional understanding.

Strengthening Validity Through Integration

The integration of methods strengthens both internal and external validity. Internally, Delphi's iterative structure minimizes individual bias, encourages reflection, and allows for statistical convergence of expert knowledge (Nowack et al., 2011). Externally, case validation introduces real-world complexity, preventing over-reliance on theoretical assumptions.

This integration avoids two common pitfalls in governance research. First, it prevents theoretical abstraction—where elegant models bear little relation to bureaucratic or political constraints. Second, it averts contextual limitation—where single-case insights are over-generalized. The combined method allows findings to be general enough for comparison yet grounded enough for application (Brady, 2015; Cole et al., 2013).

Moreover, integrated findings are more likely to gain traction among practitioners. As policy uptake often depends on perceived credibility and empirical grounding, a method combining expert insight with field-tested evidence offers a persuasive platform for policy influence.

Contributing to Theory and Practice

The methodological architecture contributes to middle-range theory development in land governance. Unlike universal models that abstract away from context, or purely descriptive accounts that resist generalization, middle-range theory connects context-specific findings with broader conceptual frameworks. The combination of Delphi and case validation enables this linkage by identifying determinants that are both locally grounded and conceptually transferable.

The typology generated enables conditional generalization. Determinants can be classified not only by importance but also by situational relevance, aligning with evaluation approaches that prioritize understanding "what works, for whom, in what contexts." This refinement elevates governance research from description to diagnostic capability.

Policy and Reform Implications

Beyond academic contributions, this methodological strategy has immediate policy relevance. The ranked determinant set provides policymakers with an evidence-based menu of reform priorities, reducing reliance on ad hoc decision-making. The typology supports targeted interventions—policies can be tailored based on whether constraints lie in institutional capacity, data systems, legal clarity, or coordination mechanisms.

The framework enhances institutional learning by systematically surfacing areas of expert divergence and mismatches between theoretical importance and practical performance. This enables agencies to confront organizational blind spots and challenge established routines.

Finally, the outputs offer a foundation for performance measurement. Validated determinants can be translated into indicators, incorporated into diagnostic tools, or used in reform monitoring systems. These tools support not only evaluation but also continuous learning—essential for adaptive governance in dynamic land systems.

Conclusion

Effective land governance in complex contexts like idle land management requires systematic, scalable, and evidence-based frameworks capable of uncovering the underlying determinants that drive success or failure. This study offers such a framework by integrating Delphi expert consensus with empirical case validation, enabling both conceptual clarity and practical application.

The Delphi method surfaces institutional knowledge often inaccessible through standard surveys or document reviews. It transforms practitioner insight into a structured typology of governance determinants, capturing both technical and political dimensions of system performance. Case validation tests these determinants against real-world scenarios, ensuring that consensus translates into observable patterns. Together, the methods form a cycle of hypothesis generation and empirical testing.

This approach provides a pathway toward theory building, diagnostic tool creation, and adaptive reform. Its utility extends beyond idle land governance to any domain where institutional complexity, fragmented authority, and informal practices define governance challenges. Whether applied to spatial planning, tenure reform, or infrastructure coordination, the framework provides a systematic lens for understanding, comparing, and improving land governance systems.

The capacity to identify, validate, and act upon critical determinants represents more than an academic exercise—it is a strategic imperative for effective land governance. This methodological framework equips both researchers and reformers with tools to move from symptoms to systems, from theory to transformation.

Theoretical Contributions

This research makes several significant theoretical contributions to land governance literature. First, it advances methodological innovation by demonstrating how structured expert consensus can be systematically validated through empirical case analysis, addressing a critical gap in governance research methodology. Unlike traditional approaches that rely on

either expert opinion or case studies in isolation, this integrated framework provides a robust mechanism for connecting tacit institutional knowledge with observable governance outcomes.

Second, the study contributes to middle-range theory development in land governance by establishing a replicable framework for determinant identification that bridges universal governance principles with context-specific implementation realities. The determinant typology developed through this methodology offers a structured approach to understanding governance complexity that can inform both theoretical frameworks and practical interventions across different institutional contexts.

Third, this work extends determinant-based analysis from health and environmental governance into land administration, demonstrating how focusing on underlying enabling conditions rather than policy outcomes can provide more actionable insights for institutional reform. This theoretical shift from outcome measurement to determinant identification represents a significant advancement in how scholars conceptualize and study land governance effectiveness.

Contextual Contributions

In the Malaysian context, this research provides the first systematic mapping of governance determinants across the country's complex multi-level land administration system. The findings offer practical diagnostic tools for policymakers navigating the federal-state jurisdictional complexities that characterize Malaysian land governance, providing evidence-based priorities for institutional reform rather than ad hoc policy adjustments.

For developing countries with similar institutional arrangements, this methodology offers a transferable approach to understanding governance bottlenecks in decentralized systems where formal policies often fail to translate into effective implementation. The framework's emphasis on expert knowledge validation through successful case analysis provides a cost-effective alternative to large-scale surveys or extensive field studies, making it particularly valuable for resource-constrained contexts.

The research also contributes to idle land governance specifically by demonstrating how seemingly technical land management challenges are fundamentally institutional problems requiring systemic rather than technical solutions. This insight has immediate relevance for countries struggling with land underutilization, offering a structured approach to identifying and addressing the root causes of implementation failures.

Significance to Existing Knowledge

This study addresses a fundamental limitation in land governance research: the disconnect between policy prescription and implementation reality. By providing a systematic method for identifying and validating the institutional conditions that enable effective land governance, it fills a critical knowledge gap that has limited both theoretical development and practical reform efforts. The integrated methodology offers researchers a replicable framework for studying complex governance systems, while the substantive findings provide policymakers with evidence-based guidance for institutional reform priorities.

The significance extends beyond land governance to broader public administration research, demonstrating how expert knowledge can be systematically captured and empirically validated in complex multi-stakeholder environments. This methodological contribution has potential applications across various governance domains where institutional complexity and implementation gaps persist.

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