

The Innovation Paradox in Public Procurement: A Systematic Review and Conceptual Taxonomy

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Abstract— Public procurement is increasingly recognized as a strategic policy instrument for stimulating innovation, addressing societal challenges, and creating public value. Despite growing policy support and scholarly interest, the implementation of innovation-oriented procurement remains uneven, with public organizations frequently struggling to translate innovation ambitions into practice. This study systematically reviews the literature on Public Procurement Innovation (PPI) to identify the drivers and constraints influencing innovation-oriented procurement, examine the conditions shaping its implementation, and explain the persistence of the innovation paradox. Drawing on Institutional Theory and Innovation Systems Theory, the study employs a systematic literature review methodology to analyse 133 peer-reviewed articles published between 2006 and 2024 and indexed in the Scopus database. The findings reveal that innovation procurement outcomes are shaped by four interrelated dimensions: institutional conditions, regulatory frameworks, organizational capabilities, and market dynamics. Policy commitment, governance coordination, flexible procurement instruments, organizational competencies, supplier engagement, and supportive innovation ecosystems emerge as important enablers of innovation-oriented procurement. Conversely,

fragmented governance structures, procedural rigidity, capability deficits, risk aversion, information asymmetries, and weak market responsiveness frequently constrain implementation. The review demonstrates that innovation outcomes depend not on individual factors alone but on the alignment of conditions across these dimensions. The study contributes to the literature by advancing a multidimensional explanation of the innovation paradox in public procurement and developing a conceptual taxonomy that integrates institutional, regulatory, organizational, and market perspectives into a unified analytical framework. The findings offer theoretical insights into the governance of innovation-oriented procurement and practical implications for policymakers and procurement practitioners seeking to strengthen innovation outcomes through public procurement.

Keywords— Public Procurement Innovation, Innovation Paradox, Innovation-Oriented Procurement, Institutional Theory, Systematic Literature Review.

1. Introduction

Public procurement is increasingly recognized as a strategic policy instrument for achieving broader

societal and economic objectives beyond the acquisition of goods, works, and services. Governments worldwide are using procurement to promote sustainability, digital transformation, industrial development, and innovation, reflecting a shift from transactional purchasing toward strategic public procurement [1]. Within this broader agenda, Public Procurement Innovation (PPI) has emerged as a key mechanism through which governments can stimulate innovation by creating demand for new products, services, technologies, and solutions [2, 3].

The growing interest in innovation-oriented procurement reflects the recognition that governments are not merely regulators of innovation systems but also influential market actors capable of shaping demand, reducing uncertainty, and encouraging investment in innovation. Through strategic procurement practices, public organizations can stimulate technological development, support emerging industries, and accelerate the adoption of innovative solutions to address complex societal challenges [4,5]. Consequently, innovation procurement has become an important component of national innovation strategies and public sector modernization efforts across both developed and developing economies.

Despite increasing policy support and widespread recognition of procurement as a demand-side innovation instrument, the implementation of innovation-oriented procurement remains challenging. While governments increasingly expect procurement systems to stimulate innovation, procurement practice often continues to be dominated by compliance requirements, risk minimization, procedural accountability, and cost considerations. Public organizations frequently struggle to translate innovation ambitions embedded in policy frameworks into procurement outcomes capable of generating meaningful innovation [6, 7, 8]. This tension between policy aspirations and implementation realities reflects what may be described as the innovation paradox in public procurement.

The innovation paradox arises because the institutional and regulatory arrangements designed to ensure transparency, accountability, fairness, and value for money may simultaneously constrain

experimentation, collaboration, and risk-taking that are often necessary for innovation. Procurement professionals are frequently expected to pursue innovative solutions while operating within systems that reward compliance and discourage uncertainty. As a result, innovation-oriented procurement initiatives often encounter challenges associated with regulatory rigidity, organizational capability deficits, fragmented governance arrangements, limited supplier engagement, and risk-averse organizational cultures [9, 10, 11].

Although a growing body of research has examined the drivers, barriers, and outcomes of Public Procurement Innovation, the literature remains fragmented across institutional, regulatory, organizational, and market perspectives. Existing studies have generated valuable insights into individual determinants of innovation procurement, specific policy instruments, and sectoral experiences. However, relatively limited attention has been devoted to understanding how these factors interact to shape innovation outcomes and why implementation challenges persist despite strong policy commitment and increasing recognition of procurement's strategic role. As a result, the mechanisms through which enabling and constraining factors collectively influence innovation-oriented procurement remain insufficiently understood.

This gap is particularly important in the context of developing economies, where governments increasingly seek to leverage procurement as a tool for economic transformation, industrial development, and improved public service delivery. In such settings, institutional capacity constraints, governance challenges, resource limitations, and evolving procurement systems may amplify barriers to innovation-oriented procurement. Understanding how these contextual conditions interact with broader institutional, organizational, regulatory, and market factors is therefore critical for designing effective procurement reforms and innovation policies.

To address this gap, this study undertakes a systematic literature review of 133 peer-reviewed articles published between 2006 and 2025. Drawing on Institutional Theory and Innovation Systems Theory, the review examines the factors that shape innovation-oriented public procurement

and develops an integrated understanding of the innovation paradox. Specifically, the study seeks to:

1. Identify the principal drivers and constraints influencing Public Procurement Innovation;
2. Examine how institutional, regulatory, organizational, and market conditions shape the implementation of innovation-oriented public procurement; and
3. Develop a conceptual explanation of the innovation paradox by analysing how interactions among these conditions influence innovation procurement outcomes.

The study makes three contributions to the literature. First, it provides a comprehensive synthesis of the key drivers and constraints shaping innovation-oriented procurement. Second, it advances theoretical understanding of the innovation paradox by integrating fragmented insights from institutional, regulatory, organizational, and market perspectives into a coherent explanatory framework. Third, it develops a conceptual taxonomy that illustrates how interactions among these dimensions influence Public Procurement Innovation outcomes. By doing so, the study contributes to ongoing debates on strategic public procurement and offers practical insights for policymakers and practitioners seeking to strengthen procurement systems and enhance innovation outcomes.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical and conceptual foundations of Public Procurement Innovation and develops the conceptual basis for understanding the innovation paradox. Section 3 outlines the methodology adopted for the systematic literature review. Section 4 presents a descriptive overview of the literature. Sections 5, 6, and 7 synthesize the institutional, regulatory, organizational, and market factors influencing innovation-oriented procurement. Section 8 discusses the findings and develops a conceptual taxonomy of the innovation paradox. Finally, Section 9 concludes the paper by outlining theoretical contributions, practical implications, and directions for future research.

2. Theoretical Foundation of Public Procurement Innovation

2.1 Public Procurement Innovation as a Strategic Governance Instrument

Public Procurement Innovation (PPI) refers to the use of public purchasing activities to stimulate the development, adoption, and diffusion of innovative products, services, technologies, and processes. Unlike conventional procurement, which primarily focuses on obtaining goods and services at the lowest cost while ensuring compliance with legal requirements, innovation-oriented procurement seeks to leverage public demand to influence market behaviour and generate broader economic and societal value [12, 13].

The growing importance of PPI reflects a broader shift in public management from transactional procurement toward strategic procurement. In this perspective, public procurement is not merely an administrative function but a governance mechanism through which governments pursue policy objectives such as economic development, sustainability, digital transformation, and innovation [6]. Public agencies therefore play a dual role: they act as purchasers seeking value for money while simultaneously serving as market shapers capable of stimulating innovation through demand.

Despite this strategic potential, innovation-oriented procurement remains difficult to implement. Public organizations are expected to encourage experimentation and innovative solutions while simultaneously maintaining accountability, transparency, fairness, and prudent management of public resources. This creates tensions that often undermine innovation initiatives and contribute to what has been described as the innovation paradox in public procurement.

2.2 Institutional Theory and the Innovation Paradox

Institutional Theory provides a useful lens for understanding why innovation-oriented procurement often encounters implementation difficulties despite strong policy support. According to institutional theory, organizational behaviour is shaped not only by efficiency considerations but also by formal rules, norms,

expectations, and pressures that influence decision-making processes [14].

Within public procurement systems, institutions establish legal frameworks, accountability requirements, professional standards, and governance arrangements that guide procurement practice. These institutional arrangements are designed to protect public interests by promoting transparency, competition, integrity, and value for money. However, the same institutional structures may simultaneously constrain innovation by encouraging risk aversion, procedural compliance, and reliance on established procurement routines.

Institutional theory suggests that procurement officials operate under multiple forms of pressure. Coercive pressures emerge from procurement laws, regulations, audit requirements, and oversight mechanisms that prioritize compliance and accountability. Normative pressures arise from professional standards and procurement practices that favour predictability and procedural correctness. Mimetic pressures encourage organizations to replicate familiar procurement approaches in situations characterized by uncertainty. Together, these pressures can create organizational environments in which innovation is viewed as risky, uncertain, and potentially incompatible with prevailing procurement norms.

From this perspective, the innovation paradox arises because procurement systems are expected to stimulate innovation while operating within institutional arrangements that often discourage experimentation. Consequently, innovation outcomes are shaped not only by procurement policies but also by the broader institutional environment within which procurement decisions are made.

2.3 Innovation Systems Perspective

While Institutional Theory explains the constraints affecting innovation procurement, Innovation Systems Theory helps explain how innovation emerges through interactions among multiple actors. The innovation systems perspective views innovation as a collective process involving governments, firms, research institutions, intermediaries, and users operating within interconnected networks [15].

Applied to public procurement, innovation outcomes depend on the quality of interactions among procuring entities, suppliers, regulators, policymakers, and supporting institutions. Effective innovation procurement requires collaboration, information exchange, learning mechanisms, and coordinated action among these actors. Weak linkages between public demand and supplier capabilities can reduce the effectiveness of procurement as a driver of innovation.

The innovation systems perspective therefore complements Institutional Theory by highlighting the relational and ecosystem dimensions of procurement innovation. While institutions influence behaviour through rules and norms, innovation systems determine the capacity of actors to collaborate and generate innovative solutions.

2.4 A Conceptual Framework for Understanding the Innovation Paradox

Drawing on Institutional Theory and Innovation Systems Theory, this study conceptualizes Public Procurement Innovation as an outcome of interactions among four interrelated dimensions of the procurement environment: institutional conditions, regulatory frameworks, organizational capabilities, and market dynamics.

Institutional conditions shape the broader governance environment within which procurement decisions occur. Regulatory frameworks determine the degree of flexibility available for innovation-oriented procurement. Organizational capabilities influence the ability of public agencies to identify needs, manage risks, and engage suppliers effectively. Market dynamics determine the availability of innovative suppliers and the capacity of markets to respond to public demand.

The innovation paradox emerges when these dimensions become misaligned. For example, governments may introduce innovation-supportive policies while procurement regulations remain highly prescriptive. Similarly, organizations may face expectations to pursue innovation without possessing the skills, resources, or leadership necessary to manage innovative procurement processes. Market actors may possess innovative capabilities but encounter barriers to participation due to complex procurement requirements.

Accordingly, innovation outcomes are not determined by any single factor but by the interaction among institutional, regulatory, organizational, and market conditions. Understanding these interactions is essential for explaining why innovation procurement succeeds in some contexts while failing in others. This perspective provides the foundation for the systematic review and the taxonomy developed in this study.

3. Methodology

3.1 Research Design

This study adopts a Systematic Literature Review (SLR) approach to synthesize and critically evaluate existing knowledge on Public Procurement Innovation (PPI). Systematic reviews provide a rigorous and transparent method for identifying, evaluating, and synthesizing evidence from a defined body of literature, thereby reducing selection bias and enhancing the reliability of findings [16, 17]. Given the fragmented nature of research on Public Procurement Innovation, an SLR is particularly appropriate for consolidating diverse theoretical and empirical insights and for developing a more integrated understanding of the innovation paradox in public procurement.

The review was guided by the Scientific Procedures and Rationales for Systematic Literature Reviews (SPAR-4-SLR) framework proposed by [18], which provides a structured process for conducting and reporting literature reviews. In addition, the review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency in study identification, screening, eligibility assessment, and inclusion decisions [20].

The review was designed to address the following research question:

How do institutional, regulatory, organizational, and market conditions interact to enable or constrain Public Procurement Innovation?

To answer the question, this study systematically reviews the literature on Public Procurement Innovation (PPI) to examine the antecedents (drivers), barriers, and implementation dynamics that shape innovation-oriented procurement.

Through thematic synthesis, the review identifies four interrelated dimensions—institutional, regulatory, organizational, and market factors—that influence innovation outcomes and contribute to the persistence of the innovation paradox.

3.2 Search Strategy

The literature search was conducted using the Scopus database, which was selected because of its extensive coverage of peer-reviewed journals in public administration, public policy, innovation studies, and procurement research. Scopus has been widely used in systematic reviews due to its comprehensive indexing of high-quality academic publications and multidisciplinary coverage [20].

To capture the breadth of literature on Public Procurement Innovation, combinations of keywords related to public procurement and innovation were employed. The search terms included: ("public procurement" OR "public purchasing" OR "government procurement") AND ("innovation" OR "innovative procurement" OR "procurement innovation" OR "innovation-oriented procurement").

The search was applied to article titles, abstracts, and keywords. The review covered publications from 2006 to 2025, a period corresponding to the growing recognition of public procurement as a demand-side innovation policy instrument. Only peer-reviewed journal articles published in English were included. Conference papers, book chapters, editorials, reports, dissertations, and non-English publications were excluded to ensure consistency and quality of the evidence base.

3.3 Study Selection Process

The study selection process followed the PRISMA framework. The initial search yielded 750 records. Following the removal of duplicate records and preliminary screening of titles and abstracts, articles that did not focus on innovation-related public procurement were excluded.

The remaining studies were subjected to full-text assessment against predefined eligibility criteria. Articles were retained if they explicitly examined innovation-oriented procurement, procurement as a demand-side innovation policy instrument, or

factors influencing innovation outcomes within public procurement systems. After the screening and eligibility assessment process, 133 articles were included in the final review. Figure 1 presents the PRISMA flow diagram illustrating the identification, screening, eligibility, and inclusion stages.

3.4 Data Extraction and Analysis

Data were extracted using a structured coding framework developed from the study's theoretical foundations and refined through iterative review of the selected articles. Information extracted included publication characteristics, theoretical perspectives, methodological approaches, research contexts, and key findings relating to drivers, barriers, and outcomes of Public Procurement Innovation.

The analysis combined deductive and inductive coding approaches. Deductive coding was informed by Institutional Theory and Innovation Systems Theory, particularly the dimensions relating to institutional conditions, regulatory frameworks, organizational capabilities, and market dynamics. Inductive coding allowed additional themes and relationships emerging from the literature to be identified and incorporated into the analysis.

Through multiple rounds of coding and thematic synthesis, recurring patterns were identified and grouped into broader categories representing innovation-enabling and innovation-constraining conditions. These categories subsequently informed the development of the conceptual taxonomy proposed in this study.

3.5 Quality Assessment

To enhance the robustness of the review, the included studies were subjected to a quality assessment process adapted from established systematic review procedures. The assessment considered factors such as clarity of research objectives, methodological rigor, theoretical grounding, transparency of data collection and analysis procedures, and relevance to the study's research question. The quality assessment was not used to exclude studies but rather to evaluate the strength and reliability of the evidence informing the synthesis. This approach enabled the review to

incorporate a broad range of perspectives while maintaining analytical rigor.

3.6 Synthesis Strategy

The synthesis followed a thematic approach aimed at identifying patterns, relationships, and underlying mechanisms explaining Public Procurement Innovation. Rather than merely cataloguing barriers and enablers, the analysis sought to understand how institutional, regulatory, organizational, and market factors interact to influence innovation outcomes. The resulting synthesis provides the basis for explaining the innovation paradox in public procurement and for developing a conceptual taxonomy that integrates previously fragmented insights from the literature.

3.7 Thematic Coding and Analytical Categorization

Following the screening and selection process, the included articles were subjected to thematic analysis. Initially, coding focused on identifying antecedents, barriers, and implementation dynamics associated with innovation-oriented public procurement. Through iterative coding, comparison, and synthesis, recurring themes were grouped into four higher-order analytical categories: institutional factors, regulatory factors, organizational factors, and market factors. These categories emerged as the dominant dimensions through which the literature explains both the enabling and constraining conditions of Public Procurement Innovation. They subsequently provided the analytical structure for the synthesis presented in Sections 5–7 and informed the development of the conceptual taxonomy of the innovation paradox.

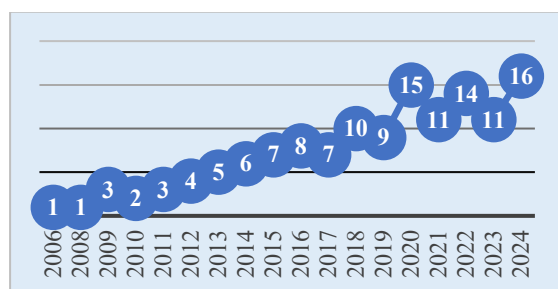
4. Descriptive overview of the Literature

4.1 Publication Trends in Public Procurement Innovation Research

The final dataset comprised 133 peer-reviewed articles published between 2006 and 2024. As shown in Figure 1, scholarly interest in Public Procurement Innovation (PPI) increased substantially over the review period. While relatively few studies were published between

2006 and 2014, publication activity accelerated markedly after 2015, reflecting growing recognition of public procurement as a strategic instrument for stimulating innovation and creating public value. Early contributions primarily focused on conceptualizing procurement as a demand-side innovation policy instrument and exploring its potential role in supporting technological development and market creation. More recent studies have expanded this focus to examine implementation challenges, organizational capabilities, supplier engagement, sustainability transitions, strategic procurement management, and innovation ecosystems. This evolution indicates a shift from conceptual discussions toward a more nuanced understanding of the institutional, regulatory, organizational, and market factors influencing innovation-oriented procurement.

The increase in publication output corresponds with growing policy interest in strategic public procurement at both national and international levels. Policy initiatives advanced by the European Union, the OECD, and national governments have encouraged the use of procurement as a policy instrument for addressing societal challenges, stimulating innovation, and advancing sustainable development. As a result, Public Procurement Innovation has progressed from a relatively specialised area of inquiry to a well-established field within public administration, innovation studies, and procurement scholarship. The publication trend illustrating this progression is presented in Figure 1.



Source: Scopus Data, February 2025

Figure 1. Publication Trends in Public Procurement Innovation Research (2006–2024).

4.2 Geographic Distribution of Research

Table 1 presents the geographical distribution of Public Procurement Innovation research among the leading contributing countries. The results reveal a strong concentration of scholarly activity within Europe, with Sweden and the United Kingdom each contributing 16 publications (15.1%), followed by Italy (13.2%), the Netherlands (10.4%), Spain (9.4%), Finland (8.5%), Norway (7.5%), and Germany (7.5%). Outside Europe, the United States and China each contributed seven publications (6.6%).

Table 2. Leading Countries Contributing to Public Procurement Innovation Research (2006–2024)

S/N	Country/ Territory	Frequency	Percentage
1.	Sweden	16	15.1
2.	United Kingdom	16	15.1
3.	Italy	14	13.2
4.	Netherlands	11	10.4
5.	Spain	10	9.4
6.	Finland	9	8.5
7.	Norway	8	7.5
8.	Germany	8	7.5
9.	United States	7	6.6
10.	China	7	6.6
Total		106	100.0

Source: Scopus Data, February 2025

The dominance of European countries reflects the region's longstanding commitment to using public procurement as a strategic policy instrument for stimulating innovation, sustainability, and industrial development. European Union initiatives, including innovation procurement policies, Horizon 2020 programmes, and public sector modernization strategies, have created fertile ground for both policy experimentation and academic inquiry. Consequently, much of the existing evidence base originates from contexts characterized by relatively mature procurement systems and innovation ecosystems.

The geographical concentration of research highlights an important limitation in the current literature. Although studies from developing and emerging economies are gradually increasing, these contexts remain underrepresented. Future research should therefore examine how institutional capacities, governance arrangements, and market conditions influence innovation-oriented procurement in diverse socio-economic settings.

4.3 Leading Journals Publishing Public Procurement Innovation Research

The multidisciplinary nature of Public Procurement Innovation is reflected in the diversity of journals contributing to the field. Table 3 presents the leading journal outlets publishing PPI research during the review period. The results show that *Innovation: The European Journal of Social Science Research*, *Sustainability*, and the *Journal of Public Procurement* are among the most prolific publication venues.

Table 2. Leading Journals Publishing Public Procurement Innovation Research (2006–2024)

s/no	Source	Documents	Citations
1	Innovation: The European Journal of Social Science Research	17	402
2	Sustainability (Switzerland)	16	285
3	Journal of Public Procurement	16	191
4	Journal of Cleaner Production	13	751
5	Science and Public Policy	13	310
6	Research Policy	10	1394
7	European Planning Studies	4	403
8	Technovation	4	369
9	Journal of Purchasing and Supply Management	4	168
10	Construction	4	162

	Management and Economics		
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Source: Scopus Data, February 2026

While publication frequency provides an indication of scholarly engagement, citation performance reveals the influence of particular journals on the development of the field. Notably, *Research Policy* recorded the highest citation impact despite publishing fewer articles than several other outlets. This finding reflects the journal's central role in shaping theoretical discussions surrounding innovation policy, demand-side innovation instruments, and public procurement as a catalyst for technological change.

The distribution of publications across journals demonstrates that PPI research draws on multiple disciplinary traditions, including public administration, innovation studies, sustainability research, supply chain management, and public policy. This multidisciplinary character has enriched the field but has also contributed to theoretical fragmentation and the emergence of diverse analytical perspectives.

4.4 Methodological Characteristics of the Literature

The reviewed studies employ a variety of methodological approaches, reflecting the complexity and contextual nature of Public Procurement Innovation. Qualitative research dominates the field, with case studies, interviews, and document analyses representing the most commonly used methods. These approaches have been particularly valuable for examining institutional dynamics, procurement processes, organizational behaviour, and stakeholder interactions.

Quantitative studies constitute a smaller proportion of the literature and typically employ survey methods, econometric analyses, or secondary data analysis to investigate relationships between procurement practices and innovation outcomes. Mixed-methods approaches have also gained prominence in recent years as researchers seek to combine contextual insights with broader empirical generalizability.

The predominance of qualitative research has generated rich insights into the mechanisms and

contextual factors influencing innovation procurement. However, the limited number of large-scale comparative and longitudinal studies suggests opportunities for future research aimed at strengthening causal explanations and advancing theory development within the field.

4.5 Dominant Theoretical Perspectives

Public Procurement Innovation research is characterized by considerable theoretical diversity. The reviewed studies draw upon a range of perspectives, including Innovation Systems Theory, Institutional Theory, Resource-Based Theory, Network Governance Theory, Public Value Theory, and Strategic Management approaches.

Among these perspectives, Innovation Systems Theory and Institutional Theory appear most frequently. Innovation Systems Theory emphasizes the interactions among public organizations, suppliers, policymakers, intermediaries, and research institutions in generating and diffusing innovation. Institutional Theory, in contrast, highlights how formal rules, norms, and organizational practices shape procurement behaviour and influence innovation outcomes.

Despite the richness of these theoretical contributions, the literature remains fragmented. Many studies focus on isolated aspects of procurement innovation, such as supplier engagement, procurement capabilities, policy design, or innovation outcomes, without fully integrating insights across different levels of analysis. This fragmentation has limited understanding of how institutional, regulatory, organizational, and market conditions interact to shape innovation-oriented procurement.

4.5 Emerging Themes in Public Procurement Innovation Research

The thematic analysis identified four interrelated dimensions that dominate contemporary Public Procurement Innovation (PPI) research: institutional and governance conditions, regulatory and policy frameworks, organizational capabilities and leadership, and market engagement and supplier dynamics. These dimensions collectively shape the capacity of public organizations to design and implement innovation-oriented procurement

strategies and therefore constitute the principal determinants of innovation outcomes.

The findings indicate that innovation procurement is not driven by any single factor. Rather, successful implementation emerges from the interaction of institutional support, enabling regulatory frameworks, organizational readiness, and responsive market conditions. Conversely, weaknesses within any of these dimensions may constrain innovation outcomes, even where favourable conditions exist elsewhere. This observation highlights the systemic nature of Public Procurement Innovation and reinforces the argument that procurement should be understood as a governance mechanism operating within broader innovation ecosystems.

The prevalence of these themes across the reviewed literature further reveals an important paradox. Although governments increasingly promote public procurement as a strategic instrument for stimulating innovation, implementation challenges persist across institutional, regulatory, organizational, and market contexts. Understanding how these dimensions interact to enable or constrain innovation therefore remains a central challenge for both scholars and practitioners.

The following sections synthesize the evidence by examining the drivers and constraints associated with each of these dimensions and their contribution to the persistence of the innovation paradox in public procurement.

4.6 Taxonomy of Barriers Across the Procurement Environment

A structured taxonomy is developed to demonstrate the relationships between characteristics of the public procurement environment and the principal barriers influencing Public Procurement Innovation (PPI). Drawing on evidence from influential scholarly sources, it categorizes the institutional, legal, policy, professional, and resource related conditions that either constrain or facilitate innovation-oriented procurement. The taxonomy offers a systematic perspective on how demand side and supply side barriers emerge across different procurement environments, revealing the multidimensional nature of the innovation paradox. This integrated classification provides a conceptual

foundation for examining recurring relationships between procurement conditions and innovation

barriers, presented in Table 3.

Table 3: A taxonomy of relationships between the public procurements' environment and the barriers to PPI

Barriers	Literature sources	Public procurements' environment variables (52; 22).				
		Legal framework	Policy related factors	Institutional setup	Professionalism	Resources
[d][s] Limited engagement among suppliers and procurers	9, 12, 21	X	X		X	
[d] Overly prescriptive procurement processes	9, 22, 23	X	X	X		
[d] Risk aversion	9, 24, 25, 26				X	
[d] Low procurement capabilities	9, 22, 27, 28, 29				X	X
[d] Limited interest and demand for innovation	9, 30, 31, 32, 33, 34	X	X	X	X	
[d][s] The challenge of managing intellectual property rights	9, 22, 35, 36		X		X	X
[d] Inadequate warning and time planning	37, 38, 39,				X	X
[d] Inertia and cost reasons (tried and-tested solutions considered cheaper	39, 22, 40, 41		X	X	X	
[d][s] Limited knowledge about suppliers innovation potential	42, 43, 22				X	X
[d][s] Regulatory focus on more competitive procurement	43, 45, 46,	X	X			X
[d] Organizational complexity and structures	39, 47, 49, 50, 51, 52	X		X	X	X
[s] Supplier capacity and market capacity to provide innovative solutions	53, 54, 55, 56	X	X			
[d] The role of procurement in value creation not well understood (still at the periphery)	53, 57, 58				X	

[d]* Demand-side barrier: *a public sector inhibitor of requisite demand for innovative solutions (Edler & Yeow, 2016; Edler & Georghiou, 2007).*

[s]* Supply-side barrier: *a market-based inhibition to provide the demanded innovation solution (Uyarra et al., 2014)*

As shown in Table 3, the taxonomy reveals that barriers to Public Procurement Innovation rarely occur independently but develop through the interaction of several procurement environment variables identified by [59] and [12]. The mapped barriers extend beyond legal and regulatory requirements to include institutional arrangements, professional competence, resource availability, and policy conditions. Institutional structures, professionalism, and policy factors appear most frequently, highlighting the importance of organizational capacity and governance in shaping innovation outcomes. Legal frameworks remain closely associated with regulatory compliance, while resource constraints contribute to capability deficiencies and weak planning. The distinction between demand side and supply side barriers further shows that innovation challenges originate from both public sector institutions and market conditions, explaining the persistence of the innovation paradox.

4.7 Summary of the Literature and Transition to Findings

The descriptive analysis reveals that Public Procurement Innovation (PPI) has evolved into a mature and increasingly multidisciplinary field of research. The steady growth in scholarly output since the mid-2010s reflects growing recognition of public procurement as a strategic instrument for promoting innovation, sustainability, and public value creation. The literature is characterized by strong European influence, diverse methodological approaches, and increasing attention to the implementation challenges associated with innovation-oriented procurement.

The review further demonstrates that research on PPI has expanded beyond its initial focus on procurement as a demand-side innovation policy instrument. Contemporary studies increasingly examine the organizational, institutional, regulatory, and market conditions that shape procurement outcomes. This evolution reflects a

broadier understanding that innovation procurement is not solely determined by procurement procedures but is embedded within complex governance systems involving multiple actors, objectives, and environmental conditions.

Importantly, the analysis highlights the multidimensional nature of barriers to innovation-oriented procurement. As illustrated in Table 3, constraints emerge across legal, policy, institutional, professional, and resource dimensions of the procurement environment. The findings indicate that barriers rarely operate in isolation; rather, they interact and reinforce one another, creating challenges that limit the effective implementation of innovation-oriented procurement strategies. The prevalence of issues such as risk aversion, limited procurement capabilities, fragmented institutional arrangements, regulatory rigidity, and weak supplier engagement suggests that innovation procurement is shaped by a complex interplay of factors operating at multiple levels.

These observations point to an important gap in the existing literature. While previous studies have identified numerous drivers and barriers to Public Procurement Innovation, there remains limited understanding of how these factors collectively influence innovation outcomes and contribute to the persistence of implementation challenges. In particular, existing research has tended to examine institutional, regulatory, organizational, and market factors separately, resulting in a fragmented understanding of the conditions that enable or constrain innovation procurement.

Beyond identifying publication patterns and thematic concentrations, the review also reveals that the literature consistently examines Public Procurement Innovation through three interconnected concerns: the antecedents that enable innovation-oriented procurement, the barriers that constrain implementation, and the implementation dynamics through which procurement actors interact to achieve innovation outcomes. These elements are reflected across the institutional, regulatory, organizational, and market dimensions identified in the review and provide the foundation for the thematic synthesis that follows.

To address this gap, the following sections move

beyond descriptive analysis to provide a thematic synthesis of the literature. Specifically, Sections 5, 6, and 7 examine the institutional and regulatory environment, organizational capabilities, and market dynamics that shape Public Procurement Innovation. Together, these sections provide the empirical foundation for the conceptual taxonomy and discussion of the innovation paradox developed later in the paper.

5. Institutional and Regulatory Drivers and Constraints of Public Procurement Innovation

If Public Procurement Innovation (PPI) is shaped by the institutional and regulatory environments within which public organizations operate. The literature consistently shows that procurement systems do not function in isolation; rather, their capacity to stimulate innovation depends on governance structures, policy priorities, and regulatory frameworks that influence procurement decisions and behaviours [12, 3, 6]. Across the reviewed studies, institutional and regulatory conditions emerge as both enablers and constraints, helping to explain why innovation ambitions are often difficult to translate into practice.

5.1 Institutional Drivers of Public Procurement Innovation

The review identifies strategic policy commitment as a critical institutional driver of innovation-oriented procurement. Governments that embed innovation objectives within procurement strategies create a supportive environment that legitimizes experimentation and encourages public organizations to pursue innovative solutions [12, 60]. Such policy commitment aligns procurement activities with broader economic, technological, and societal objectives, strengthening the strategic role of procurement beyond its traditional purchasing function [6, 61].

The literature also highlights the importance of governance coordination. Innovation procurement frequently requires collaboration among policymakers, procuring entities, regulators, suppliers, and intermediary organizations. Effective coordination enhances policy coherence, facilitates knowledge exchange, and improves the implementation of innovation-oriented initiatives

[62, 63]. Where governance arrangements support collaboration across organizational boundaries, public procurement is more likely to function as an effective demand-side innovation instrument.

5.2 Institutional Constraints on Public Procurement Innovation

Despite increasing policy attention to innovation procurement, institutional barriers remain widespread. A recurring challenge identified in the literature is fragmented governance, where multiple actors operate under overlapping mandates and competing objectives [64, 65]. Such fragmentation often weakens strategic alignment and complicates the implementation of innovation-oriented procurement initiatives.

Another constraint arises from the coexistence of competing public sector priorities. Procurement systems are expected to promote innovation while simultaneously ensuring transparency, accountability, competition, and value for money. Although these objectives are individually important, they can create tensions that discourage experimentation and reinforce conservative decision-making [66, 67]. Consequently, procurement actors may favour established solutions that minimize uncertainty rather than pursuing innovative alternatives.

Institutional path dependency further reinforces these challenges. Established routines, norms, and organizational practices often favour conventional procurement approaches, limiting the willingness of public organizations to adopt new methods or engage with unfamiliar suppliers [52, 68]. As a result, innovation ambitions frequently encounter resistance during implementation.

5.3 Regulatory Drivers of Public Procurement Innovation

Regulatory frameworks play a crucial role in determining the degree of flexibility available for innovation-oriented procurement. The literature identifies several procurement instruments that support innovation by encouraging interaction between buyers and suppliers and by focusing on desired outcomes rather than predefined solutions [22,5].

Mechanisms such as competitive dialogue, innovation partnerships, pre-commercial procurement, and outcome-based specifications enable public organizations to articulate needs while allowing suppliers to propose innovative responses [39]. These instruments facilitate collaborative problem-solving and reduce the limitations associated with traditional procurement approaches that rely heavily on detailed technical specifications.

The review further indicates that regulatory provisions supporting early market engagement can enhance innovation outcomes. By enabling communication between procuring entities and suppliers before formal tendering processes begin, such mechanisms improve market intelligence, reduce information asymmetries, and increase awareness of emerging technological opportunities [69, 70].

5.4 Regulatory Constraints on Public Procurement Innovation

While regulatory frameworks can support innovation, they can also create significant barriers. The literature frequently identifies highly prescriptive procurement rules, extensive documentation requirements, and lengthy approval procedures as obstacles to innovation-oriented procurement [22, 71]. These requirements increase administrative burdens and reduce the flexibility needed to explore novel solutions.

A related challenge concerns the interpretation of procurement regulations. Public officials often operate within accountability systems that emphasize legal compliance and procedural correctness. Consequently, procurement decisions may prioritize risk avoidance over innovation outcomes, even where regulations formally permit innovative approaches [72,68]. This compliance-oriented culture can discourage experimentation and reinforce conservative procurement practices.

The complexity of procurement procedures may also discourage supplier participation, particularly among small and medium-sized enterprises (SMEs), which are frequently recognised as important sources of innovation [9, 73]. Excessive procedural requirements can therefore limit both buyer flexibility and supplier responsiveness,

reducing the overall effectiveness of innovation-oriented procurement initiatives.

5.5 Synthesis of Institutional and Regulatory Conditions

The review demonstrates that institutional and regulatory conditions jointly shape the effectiveness of Public Procurement Innovation. Strategic policy commitment, coordinated governance structures, flexible procurement instruments, and opportunities for market engagement create favourable conditions for innovation-oriented procurement. Conversely, fragmented governance arrangements, competing policy objectives, procedural rigidity, and compliance-oriented interpretations of procurement rules can undermine innovation efforts.

Importantly, these drivers and constraints are closely interconnected. Innovation procurement is most likely to succeed when institutional ambitions are supported by regulatory frameworks that provide sufficient flexibility for experimentation and collaboration. Where such alignment is absent, innovation objectives may remain largely aspirational despite strong policy commitment. This tension represents a central dimension of the innovation paradox and provides a foundation for examining the organizational and market factors discussed in the following sections. Even when supportive institutions and regulations exist, do public organizations possess the capabilities, leadership, and culture necessary to implement innovation-oriented procurement?

6. Organizational Drivers and Constraints of Public Procurement Innovation

The literature consistently highlights organizational capacity as a critical determinant of Public Procurement Innovation (PPI). While institutional support and regulatory flexibility create enabling conditions, innovation-oriented procurement ultimately depends on the ability of public organizations to translate strategic objectives into operational practices. Across the reviewed studies, organizational factors emerge as both significant drivers and persistent constraints, influencing how procurement professionals identify opportunities,

engage suppliers, manage risks, and implement innovative solutions.

6.1 Organizational Drivers of Public Procurement Innovation

A recurring finding in the literature is the importance of leadership commitment in promoting innovation-oriented procurement. Leaders play a crucial role in establishing strategic priorities, allocating resources, and legitimizing experimentation within public organizations. Supportive leadership can encourage procurement professionals to pursue innovative approaches and foster organizational environments that value learning and continuous improvement [3,70]. Where senior management actively supports innovation, procurement initiatives are more likely to receive the resources and organizational backing required for successful implementation.

The review also identifies procurement professionalism and organizational competencies as important enablers of innovation. Innovation-oriented procurement requires capabilities that extend beyond traditional purchasing functions, including strategic planning, market intelligence, stakeholder engagement, and innovation management [74, 68]. Organizations possessing these capabilities are better positioned to identify emerging opportunities, manage uncertainty, and engage effectively with suppliers throughout the procurement process.

Another important driver is the presence of learning-oriented organizational cultures. Studies indicate that organizations that encourage knowledge sharing, experimentation, and reflective learning are more likely to adopt innovative procurement practices [75, 70]. Such cultures facilitate adaptation to changing technological and market conditions and support continuous improvement in procurement performance.

Cross-functional collaboration further strengthens organizational capacity for innovation. Effective coordination among procurement units, technical experts, end-users, and management teams enhances problem definition, improves procurement design, and increases the likelihood of identifying innovative solutions that address complex public needs [6, 76].

6.2 Organizational Constraints on Public Procurement Innovation

Despite the importance of organizational capabilities, the literature reveals substantial barriers that continue to limit innovation-oriented procurement. One of the most frequently cited constraints is limited procurement capacity. Many public organizations lack personnel with the specialized knowledge and skills required to manage innovation procurement processes, particularly those involving emerging technologies, collaborative procurement approaches, or complex supplier interactions [72,74].

Risk aversion represents another significant organizational challenge. Public sector organizations often operate in environments characterized by high levels of scrutiny and accountability, which can discourage experimentation and promote conservative decision-making. Procurement professionals may therefore favour familiar solutions and established suppliers rather than pursuing innovative alternatives that involve uncertainty or potential failure [68,77].

Resource constraints also limit the implementation of innovation-oriented procurement. Several studies highlight shortages of financial resources, time, and personnel as barriers to conducting market consultations, evaluating innovative proposals, and managing collaborative procurement processes [78, 73]. These limitations are particularly pronounced in smaller public organizations with limited administrative capacity.

The review further identifies organizational resistance to change as a recurring obstacle. Established routines, hierarchical structures, and bureaucratic cultures can inhibit the adoption of new procurement practices and reduce organizational responsiveness to innovation opportunities [75, 68]. Such resistance often reinforces traditional procurement approaches and slows the implementation of innovation-oriented initiatives.

6.3 Synthesis of Organizational Conditions

The findings demonstrate that organizational conditions are central to the successful

implementation of Public Procurement Innovation. Leadership support, professional competencies, learning-oriented cultures, and cross-functional collaboration enhance the capacity of public organizations to pursue innovation-oriented procurement. In contrast, capability deficits, risk aversion, resource limitations, and organizational resistance to change can significantly constrain innovation efforts.

Importantly, organizational factors mediate the relationship between institutional ambitions and procurement outcomes. Even where supportive policies and flexible regulatory frameworks exist, innovation procurement is unlikely to succeed without organizations possessing the capabilities and cultures necessary to implement innovative approaches. The evidence therefore suggests that strengthening organizational readiness is a critical prerequisite for translating policy aspirations into innovation outcomes. The next section extends this analysis by examining how market conditions and supplier dynamics influence the effectiveness of innovation-oriented procurement.

Table 4. Organizational Drivers and Constraints of Public Procurement Innovation

Organizational Drivers	Organizational Constraints
Leadership commitment	Capability deficits
Procurement professionalism	Risk aversion
Innovation management skills	Resource limitations
Learning-oriented culture	Resistance to change
Cross-functional collaboration	Bureaucratic inertia
Strategic procurement capabilities	Limited innovation literacy

7. Market Drivers and Constraints of Public Procurement Innovation

Public Procurement Innovation (PPI) is inherently dependent on market conditions because innovation emerges through interactions between public buyers and suppliers. While institutional support, regulatory flexibility, and organizational capabilities create enabling conditions, innovation

outcomes ultimately depend on the responsiveness of suppliers and the broader innovation ecosystem. The reviewed literature demonstrates that market dynamics can either facilitate or constrain innovation-oriented procurement, influencing the availability of innovative solutions, supplier participation, and knowledge exchange throughout the procurement process.

7.1 Market Drivers of Public Procurement Innovation

A key driver identified in the literature is early supplier engagement. Innovation-oriented procurement often involves addressing needs for which no ready-made solutions exist, requiring public buyers to interact with suppliers before formal tendering processes begin. Early market engagement enables procuring entities to gain insights into technological possibilities, understand supplier capabilities, and refine procurement requirements [79,39]. Such interactions reduce information asymmetries and improve the likelihood of identifying innovative solutions that meet public needs.

The literature further highlights the importance of collaborative buyer–supplier relationships. Unlike traditional procurement approaches that emphasize transactional exchanges, innovation procurement frequently relies on sustained collaboration between public organizations and suppliers. These collaborative arrangements facilitate knowledge sharing, joint problem-solving, and co-creation processes that support innovation development and diffusion [80, 81]. Through collaboration, suppliers gain a better understanding of public sector needs while public organizations benefit from access to external expertise and technological knowledge.

Another important market driver is the participation of innovative suppliers, particularly small and medium-sized enterprises (SMEs). SMEs are frequently recognized as important sources of innovation due to their flexibility, entrepreneurial orientation, and capacity to develop novel solutions [9,73]. Procurement systems that facilitate SME participation can expand the pool of innovative suppliers and enhance competition, thereby increasing opportunities for innovation.

The review also underscores the role of innovation ecosystems and intermediary organizations in strengthening market responsiveness. Intermediaries can support market intelligence, facilitate networking among stakeholders, and connect public buyers with potential suppliers [82]. Such ecosystem actors help reduce coordination challenges and contribute to the development of innovation-friendly procurement environments.

7.2 Market Constraints on Public Procurement Innovation

Despite the potential benefits of market engagement, several constraints continue to limit innovation-oriented procurement. One of the most frequently cited challenges is information asymmetry between public buyers and suppliers. Public organizations often possess limited knowledge of emerging technologies and supplier capabilities, while suppliers may lack a clear understanding of public sector needs and procurement processes [83,70]. These information gaps can reduce opportunities for effective collaboration and inhibit innovation.

Limited supplier capacity also emerges as a significant barrier. In some sectors and regions, suppliers may lack the technological expertise, financial resources, or organizational capabilities required to respond to innovation-oriented procurement opportunities [78]. Such limitations reduce the availability of innovative solutions and weaken the effectiveness of procurement as a demand-side innovation instrument.

The literature further identifies barriers to SME participation as a recurring challenge. Although SMEs are often recognized as important sources of innovation, complex procurement procedures, high compliance costs, and extensive documentation requirements can discourage their participation in public tenders [73, 9]. As a result, procurement opportunities may become concentrated among larger and more established firms, potentially reducing innovation diversity.

Market fragmentation constitutes another important constraint. Weak linkages among public buyers, suppliers, research institutions, and intermediary organizations can hinder knowledge exchange and limit opportunities for collaborative innovation

[84]. In fragmented ecosystems, innovation actors often operate independently rather than collectively, reducing the capacity of procurement systems to stimulate innovation effectively.

7.3 Synthesis of Market Conditions

The review demonstrates that market conditions play a central role in shaping Public Procurement Innovation outcomes. Early supplier engagement, collaborative buyer–supplier relationships, SME participation, and supportive innovation ecosystems enhance the responsiveness of markets to public sector innovation demands. Conversely, information asymmetries, supplier capability limitations, barriers to SME participation, and fragmented innovation ecosystems can constrain innovation-oriented procurement.

Importantly, market conditions interact closely with institutional, regulatory, and organizational factors. Even where supportive policies, flexible regulations, and capable procurement organizations exist, innovation outcomes may remain limited if suppliers lack the capacity or incentives to respond effectively. Similarly, dynamic and innovative markets may be unable to realize their full potential when procurement systems fail to facilitate meaningful engagement. These findings reinforce the systemic nature of Public Procurement Innovation and provide further insight into the persistence of the innovation paradox explored in the following discussion section.

Table 5. Market Drivers and Constraints of Public Procurement Innovation

Market Drivers	Market Constraints
Early supplier engagement	Information asymmetries
Collaborative buyer–supplier relationships	Limited supplier capabilities
SME participation	Barriers to SME participation
Innovation ecosystems	Fragmented ecosystems
Innovation intermediaries	Weak market coordination
Knowledge sharing and co-creation	Limited innovation diffusion

8. Discussion: Explaining the Innovation Paradox in Public Procurement

The review reveals a persistent paradox at the heart of Public Procurement Innovation (PPI). Across the literature, governments increasingly promote public procurement as a strategic instrument for stimulating innovation, addressing societal challenges, and supporting sustainable development. Numerous policy initiatives, regulatory reforms, and organizational interventions have been introduced to encourage innovation-oriented procurement. Yet despite these efforts, innovation outcomes remain inconsistent and often fall short of policy expectations [3, 85, 86].

The findings presented in Sections 5–7 suggest that this innovation paradox arises because innovation procurement is shaped by multiple interdependent conditions operating across institutional, regulatory, organizational, and market domains. While each dimension may individually support innovation, their combined effects frequently generate tensions and contradictions that constrain implementation. Consequently, innovation procurement is not merely a technical procurement activity but a complex governance challenge requiring alignment across multiple actors, systems, and objectives.

8.1 Institutional Explanations of the Innovation Paradox

From an institutional perspective, the review demonstrates that public organizations operate under competing pressures that shape procurement behaviour. Governments encourage procurement actors to pursue innovation, yet procurement systems simultaneously emphasize accountability, transparency, competition, and compliance. These competing institutional expectations often create uncertainty regarding organizational priorities and acceptable levels of risk [66, 87].

Institutional Theory provides a useful lens for understanding this phenomenon. Public organizations are subject to coercive pressures arising from laws and regulations, normative pressures associated with professional standards, and mimetic pressures encouraging conformity with established practices. Collectively, these

pressures tend to reinforce risk-averse behaviour and favour procedural compliance over experimentation [64, 68]. As a result, procurement actors may formally embrace innovation objectives while continuing to rely on conventional procurement approaches.

The findings therefore suggest that innovation procurement is frequently constrained not by a lack of policy ambition but by institutional arrangements that reward compliance more strongly than innovation. This tension represents one of the core dimensions of the innovation paradox.

8.2 Innovation Systems Perspective

The review also highlights the relevance of Innovation Systems Theory for understanding PPI outcomes. Innovation procurement does not occur within individual organizations alone but emerges through interactions among public buyers, suppliers, policymakers, intermediaries, and other stakeholders [12, 89].

From this perspective, innovation outcomes depend on the quality of relationships and knowledge flows within procurement ecosystems. The review demonstrates that successful innovation procurement is more likely when public organizations engage suppliers early, collaborate across organizational boundaries, and leverage intermediary support mechanisms. Conversely, fragmented governance arrangements, weak supplier engagement, and poor coordination among stakeholders reduce the effectiveness of procurement as a demand-side innovation instrument.

Importantly, the findings indicate that failures in innovation procurement often reflect system-level weaknesses rather than deficiencies within individual organizations. Even capable procurement organizations may struggle to achieve innovation objectives when broader ecosystem conditions are not supportive. This observation reinforces the need to view procurement innovation as a collective process involving multiple actors rather than as a responsibility of procurement units alone.

8.3 Towards an Integrated Understanding of Public Procurement Innovation

A central contribution of this review is the identification of four interrelated dimensions that shape innovation procurement outcomes: institutional conditions, regulatory frameworks, organizational capabilities, and market dynamics. The findings suggest that innovation is most likely to emerge when these dimensions are aligned and mutually reinforcing.

For example, supportive procurement policies may create incentives for innovation, but their effectiveness depends on regulatory frameworks that permit flexibility, organizations that possess appropriate capabilities, and markets capable of supplying innovative solutions. Conversely, weaknesses within any one dimension can undermine innovation outcomes despite favourable conditions elsewhere. Strong policy support cannot compensate for limited organizational capabilities; similarly, capable procurement organizations may struggle when procurement regulations are overly restrictive or supplier markets lack innovative capacity.

The review therefore suggests that the innovation paradox is fundamentally an alignment problem. Innovation procurement succeeds when institutional ambitions, regulatory mechanisms, organizational capabilities, and market conditions operate in harmony. When these dimensions become misaligned, innovation objectives remain difficult to achieve despite widespread recognition of procurement's strategic importance.

8.4 A Conceptual Framework for Explaining the Innovation Paradox

The evidence synthesized in this review supports the development of a conceptual framework that explains how institutional, regulatory, organizational, and market conditions jointly shape innovation procurement outcomes. Rather than viewing drivers and barriers as isolated factors, the framework conceptualizes them as interacting dimensions that collectively determine the effectiveness of innovation-oriented procurement.

This perspective advances existing research by moving beyond fragmented explanations of

procurement success and failure. It suggests that innovation outcomes should be understood as products of systemic alignment across governance structures, procurement rules, organizational capacities, and market ecosystems. The framework therefore provides a foundation for integrating previously disconnected strands of PPI research and offers a basis for future empirical investigation.

Table 5. Conceptual Taxonomy of the Innovation Paradox in Public Procurement Innovation

Dimension	Drivers	Constraints	Implications for Innovation
Institutional	Policy commitment; governance coordination; innovation intermediaries	Fragmentation; competing objectives; path dependency	Shapes strategic direction and legitimacy
Regulatory	Innovation partnerships; competitive dialogue; early market engagement	Procedural rigidity; compliance orientation; regulatory complexity	Determines procurement flexibility
Organizational	Leadership support; procurement capabilities; learning culture; collaboration	Risk aversion; capability gaps; resource constraints; resistance to change	Influences implementation capacity
Market	Supplier engagement; SME participation; innovation ecosystems; knowledge sharing	Information asymmetries; weak supplier capacity; fragmented ecosystems	Affects innovation responsiveness

Table 5 synthesizes the principal drivers and constraints identified across the reviewed literature. The taxonomy demonstrates that innovation outcomes are influenced by interactions among institutional, regulatory, organizational, and market dimensions. The framework suggests that successful innovation procurement depends on alignment across these dimensions, whereas misalignment contributes to the persistence of the innovation paradox.

9. Conclusions, Implications, and Future Research

9.1 Conclusion

This study systematically reviewed the literature on Public Procurement Innovation (PPI) published between 2006 and 2024 to identify the drivers and constraints influencing innovation-oriented procurement, examine the conditions shaping its implementation, and explain the persistence of the innovation paradox in public procurement. Through a synthesis of 133 peer-reviewed articles, the review demonstrates that Public Procurement Innovation has evolved into a significant area of scholarly inquiry, reflecting the growing recognition of procurement as a strategic policy instrument for stimulating innovation, supporting sustainability transitions, and addressing complex societal challenges.

The findings reveal that innovation procurement outcomes are shaped by the interaction of four interrelated dimensions: institutional conditions, regulatory frameworks, organizational capabilities, and market dynamics. Across the reviewed literature, policy commitment, governance coordination, regulatory flexibility, procurement competencies, supplier engagement, and supportive innovation ecosystems emerge as important enablers of innovation-oriented procurement. Conversely, fragmented governance arrangements, procedural rigidity, capability deficits, risk aversion, information asymmetries, and weak market responsiveness consistently constrain implementation efforts.

A central finding of the review is that innovation procurement outcomes cannot be adequately explained by individual drivers or barriers in isolation. Rather, they are shaped by the degree of alignment among institutional, regulatory, organizational, and market conditions. This insight provides a multidimensional explanation of the innovation paradox in public procurement. Although governments increasingly promote procurement as a demand-side innovation policy instrument, innovation objectives frequently remain difficult to achieve because enabling conditions in one dimension are often undermined by constraints in another. Consequently, innovation ambitions may remain aspirational despite strong policy

commitment and supportive regulatory frameworks.

The review therefore concludes that the success of Public Procurement Innovation depends not only on the existence of innovation-supportive policies or procurement instruments but also on the capacity of procurement systems to achieve alignment across institutional, regulatory, organizational, and market dimensions. Understanding and managing these interdependencies is essential for transforming procurement from a compliance-oriented administrative function into a strategic mechanism for innovation and public value creation.

9.2 Theoretical Contributions

This study makes several contributions to the Public Procurement Innovation literature.

First, it provides a comprehensive synthesis of a fragmented and multidisciplinary body of knowledge spanning public procurement, innovation studies, public administration, public policy, and supply management. By integrating evidence from diverse research traditions, the review offers a more holistic understanding of the factors that influence innovation-oriented procurement.

Second, the study advances existing knowledge by conceptualizing Public Procurement Innovation as a multidimensional and systemic phenomenon. Rather than treating drivers and barriers as independent variables, the review demonstrates how institutional, regulatory, organizational, and market conditions interact to shape innovation outcomes. This perspective extends previous research that has tended to examine these dimensions separately and provides a more integrated understanding of procurement innovation processes.

Third, the study contributes to theory development by advancing the concept of the innovation paradox in public procurement. Drawing on Institutional Theory and Innovation Systems Theory, the review explains why innovation-oriented procurement often struggles to achieve desired outcomes despite increasing policy support and growing recognition of procurement's strategic role. The findings

suggest that innovation failures frequently arise from misalignments among institutional, regulatory, organizational, and market conditions rather than from the absence of any single enabling factor.

Finally, the proposed conceptual taxonomy offers a unified analytical framework for understanding the relationships among the multiple dimensions influencing Public Procurement Innovation. The taxonomy provides a foundation for future empirical testing and theory development by identifying the mechanisms through which alignment and misalignment shape innovation procurement outcomes.

9.3 Practical and Policy Implications

The findings have important implications for policymakers, procurement authorities, and public managers seeking to strengthen innovation-oriented procurement.

For policymakers, the review highlights the importance of aligning innovation policy objectives with procurement regulations and governance arrangements. Innovation procurement is unlikely to succeed where procurement systems continue to prioritize procedural compliance and risk avoidance at the expense of experimentation and learning. Policymakers should therefore seek to create regulatory environments that balance accountability requirements with sufficient flexibility to support innovation.

For public organizations, the findings underscore the importance of developing organizational capabilities that support innovation-oriented procurement. Investments in procurement professionalism, innovation management skills, leadership development, and cross-functional collaboration can enhance the capacity of public organizations to identify, evaluate, and implement innovative solutions. Building learning-oriented organizational cultures may further strengthen innovation performance.

For procurement practitioners, the review emphasizes the importance of early supplier engagement, collaborative procurement approaches, and stronger relationships with innovation intermediaries and ecosystem actors.

These mechanisms can improve market intelligence, reduce uncertainty, and increase access to innovative solutions capable of addressing complex public sector challenges.

More broadly, the findings suggest that innovation procurement should be viewed as a systemic governance challenge rather than solely a procurement management issue. Isolated policy interventions are unlikely to generate sustained innovation outcomes unless institutional, regulatory, organizational, and market conditions are addressed in a coordinated manner.

9.4 Limitations of the Study

Several limitations should be acknowledged.

First, the review was restricted to peer-reviewed journal articles indexed in the Scopus database and published between 2006 and 2024. Although this approach enhances methodological rigor and ensures the inclusion of high-quality research, relevant evidence contained in books, conference proceedings, policy reports, and other forms of grey literature may not have been captured.

Second, the review reflects the geographical and thematic biases present within the existing literature. As demonstrated by the descriptive analysis, the evidence base remains heavily concentrated in European contexts, particularly Nordic and Western European countries. Consequently, the findings may not fully reflect the experiences of developing and emerging economies where institutional environments and procurement systems differ significantly.

Third, while the review identifies relationships among institutional, regulatory, organizational, and market dimensions, the proposed taxonomy remains conceptual in nature. The framework has not been empirically tested and should therefore be viewed as a synthesis of existing evidence requiring further validation across different procurement contexts.

9.5 Future Research Directions

To unlock the full potential of PPI, policy interventions must be context-sensitive and system-wide. Key recommendations include:

Regulatory reform: Introduce flexible procurement instruments (e.g., innovation partnerships, outcome-based contracts) while safeguarding accountability.

Capacity building: Develop public sector capabilities in innovation management, supplier engagement, and risk-based procurement.

Market development: Lower entry barriers for SMEs and foster collaborative relationships with suppliers through early engagement and co-creation.

Leadership and culture change: Foster a pro-innovation culture through leadership incentives, cross-sector learning, and tolerance for failure.

These insights are particularly relevant for developing countries, where institutional and resource limitations are more acute. By strategically aligning procurement systems with national innovation agendas and the Sustainable Development Goals (SDGs), governments can use procurement not just to buy better, but to govern smarter.

By providing a holistic lens on the procurement environment, this model offers a foundation for future empirical investigation and practical policy design aimed at overcoming the innovation paradox and enhancing the public value generated through procurement activities.

Furthermore, the review identifies several opportunities for future research.

First, greater attention should be devoted to Public Procurement Innovation in developing and emerging economies. Existing knowledge remains heavily influenced by European experiences, creating a need for context-sensitive studies that examine how institutional arrangements, governance structures, and market conditions influence innovation procurement in diverse settings.

Second, future studies should employ longitudinal and comparative research designs to better understand how innovation procurement capabilities evolve over time and across jurisdictions. Such approaches could provide

deeper insights into the processes through which organizations overcome implementation barriers and develop innovation-oriented procurement practices.

Third, researchers should investigate the mechanisms through which alignment among institutional, regulatory, organizational, and market conditions is achieved in practice. Comparative case studies and mixed-methods research may be particularly valuable for understanding how successful innovation procurement initiatives emerge and are sustained over time.

Fourth, future research should explore the growing influence of digital technologies on innovation-oriented procurement. Emerging technologies such as artificial intelligence, big data analytics, digital procurement platforms, and blockchain-based systems may significantly reshape procurement processes, supplier engagement, transparency, and innovation outcomes.

Finally, empirical research is needed to test and refine the conceptual taxonomy proposed in this study. Quantitative, qualitative, and mixed-methods investigations could examine the relationships among institutional, regulatory, organizational, and market dimensions and assess their relative influence on innovation outcomes across different sectors and governance contexts.

9.6 Final Reflection

Public Procurement Innovation is increasingly viewed as a critical mechanism for addressing contemporary societal challenges, supporting sustainable development, and stimulating technological advancement. Yet the evidence synthesized in this review demonstrates that realizing this potential requires more than policy ambition alone. Innovation procurement succeeds when institutional support, regulatory flexibility, organizational capability, and market readiness operate in alignment. Conversely, when these dimensions are disconnected, innovation objectives frequently remain difficult to achieve despite strong political commitment and supportive policy rhetoric.

Understanding and managing these interdependencies remains essential for overcoming

the innovation paradox and realizing the full potential of public procurement as a strategic instrument for innovation, public value creation, and societal transformation.

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