

FROM PILOT TO PROCUREMENT: INSTITUTIONAL CONDITIONS FOR SCALING PUBLIC-SECTOR AI IN KAZAKHSTAN WITH COMPARISONS TO AZERBAIJAN AND SOUTH KOREA

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ABSTRACT. Governments increasingly test artificial intelligence (AI) through pilots, but technical success does not establish a purchaser, a lawful contract route, or operating capacity. This article examines the institutional arrangements through which public-sector AI pilots may progress to regular procurement, deployment, and capability building. It develops a five-condition framework covering problem ownership, public-data access, a post-pilot procurement pathway, evaluation and accountability, and capability transfer. A structured, focused comparison of Kazakhstan, Azerbaijan, and South Korea maps selected official instruments issued by August 2, 2026. The analysis is typological and does not estimate actual conversion rates or causal effects. It is organized around a Kazakhstan-specific puzzle: why has one of post-Soviet Eurasia's most advanced digital states built strong infrastructure for AI experimentation without an equally specified route from trial results to procurement? Kazakhstan combines a national AI platform, data-governance rules, and an AI law with an incompletely specified route from trial evidence to budgeted acquisition in the consulted record. Azerbaijan's 2026–2028 action plan connects sandbox integration with measures supporting innovative firms' access to procurement, although these provisions remain prospective. South Korea provides a codified contrast through designation, pilot purchasing, and public-user evaluation; its program adjustments also recognize that initial participation does not assure later demand. The clearest difference across the selected architectures concerns the procurement pathway, the usefulness of which depends on agency ownership, reliable evidence, and accountable operation. Interpreting these arrangements in light of Kazakhstan's administrative development and procurement political economy, the article proposes an AI Innovation Procurement Track with competition safeguards, public evaluation, and capability-transfer requirements. These proposals follow from institutional design reasoning and require legal review and subsequent empirical testing.

KEYWORDS: public procurement for innovation, artificial intelligence, pilot scaling, Kazakhstan, Azerbaijan, South Korea.

1. INTRODUCTION

Artificial intelligence often enters government through a pilot: a time-limited, small-scale trial intended to generate evidence before commitment to full deployment. Such trials offer visible and reversible opportunities to explore a service improvement. The difficulty begins when the demonstration ends. An experimentation budget may not cover operations, sponsoring officials may not control procurement, and a promising

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prototype may lack a lawful route to a follow-on contract. The resulting “pilot trap” concerns institutional conversion: how evidence from a temporary experiment becomes a defensible, budgeted, operational public commitment. The OECD’s Digital Government Outlook 2026 reports that, in its 2025 survey, 21 of 36 OECD countries provided central support for AI procurement, while 10 of 36 had conducted studies of the financial or non-financial impact of government AI use cases (OECD, 2026). These indicators concern different institutional activities; neither measures the proportion of pilots that became operational services.

If experimentation does not influence acquisition, startups may focus on competitions without obtaining durable public demand, and agencies repeatedly incur the cost of discovery without obtaining a production system. Conversely, an acquisition system that moves too quickly can lock in a weak product or convert pilot discretion into favoritism, so scaling requires a route that is open to innovation but remains auditable. The article asks which institutional arrangements can connect public-sector AI pilots to regular procurement, deployment, and domestic capability. Kazakhstan provides the central puzzle. A highly ranked e-government state has developed a national AI platform, government-wide data-management requirements, a dedicated AI ministry, and an AI law. In the selected documentary record, however, the link from trial evidence to a budgeted acquisition is less explicit. This asymmetry directs attention to Kazakhstan’s administrative development, state-led modernization, and procurement political economy (Cummings & Nørgaard, 2004; Knox & Orazgaliyev, 2025). A structured comparison examines Azerbaijan’s emerging strategic connection between experimentation, integration, and procurement support, alongside South Korea’s codified sequence of designation, pilot purchase, user evaluation, and market signaling.

The comparison proceeds from Kazakhstan’s institutional characteristics and uses the other cases to identify potentially relevant mechanisms. South Korea supplies a diagnostic contrast rather than a prescribed development trajectory. Its arrangements are examined together with their limits, including the possibility that designation precedes a committed user and the absence of guaranteed follow-on demand (Section 5.3). Kazakhstan remains the empirical and policy focus. The argument is that five institutional conditions are proposed to shape the transition from pilot to procurement: (C1) an operational agency owns the problem, budget, and adoption decision; (C2) the pilot and eventual operator have lawful, usable public-data access; (C3) rules specify a post-pilot procurement pathway; (C4) evaluation and accountability turn trial evidence into an auditable decision; and (C5) implementation transfers capability to domestic firms and personnel. C3 occupies the gate position in this chain because it turns trial evidence into a possible transaction; yet it is not sufficient: a pathway without a committed owner can support a purchase with no sustained user, and a contract without capability transfer may scale dependence rather than public capacity.

The article makes three contributions. First, it shifts the unit of analysis from the quality of an individual AI pilot to the institutional chain connecting experimentation, certification, acquisition, and operation. Second, it connects public procurement for innovation to Central Asian studies debates on state capacity, bureaucratic reform, and technological modernization, adding evidence from Kazakhstan and Azerbaijan to a literature disproportionately based on OECD and European settings. Third, it develops a concrete design: an AI Innovation Procurement Track that builds on Kazakhstan’s existing platform and public-administration strengths rather than assuming an institutional deficit.

Sections 2–4 set out the literature, the framework, and the design; Sections 5 and 6 present and compare the cases; Section 7 proposes policy implications; Section 8 concludes.

2. LITERATURE REVIEW

2.1. *Piloting and public procurement for innovation*

Pilots are designed to reduce uncertainty, but the organizational form of a pilot can also preserve uncertainty: a temporary team, exceptional data access, and a demonstration budget create conditions that disappear at the moment of scale; more users inside one agency do not transfer to agencies whose data definitions, risk tolerances, and workflows differ. Policy-piloting research explains why evidence from a bounded experiment may not transfer readily into ordinary administration. Pilots can serve testing, persuasion, and mobilization, so assessments of success encompass program, process, and political considerations (Checkland et al., 2023; Nair, 2021). Bailey et al. (2017) show how exceptional arrangements and contested objectives shape piloting in the English NHS; their findings motivate attention to the rules that apply when an experiment ends. Nair (2021) similarly examines the design and subsequent use of policy pilots. Regulatory guidance reinforces the need to plan this transition. Article 57 of the EU Artificial Intelligence Act provides for AI regulatory sandboxes and exit documentation (European Parliament & Council of the European Union, 2024), while OECD (2023) guidance addresses eligibility and assessment. Australia's Digital Transformation Agency (2026) organizes movement from proof of concept to scale through staged decisions. These sources inform the framework without establishing that its five conditions are universally sufficient.

Evidence from digital health provides a useful sectoral analogy. Sustainability depends on governance, financing, interoperability, and workforce capacity as well as technical performance (Kaboré et al., 2022). The review does not directly measure public-sector AI procurement, but it supports examining the organizational conditions under which a tested intervention continues beyond its initial project. AI makes this transition a continuing governance problem. Performance can change with data drift, vendor updates, and workflow changes, limiting what a one-time acceptance test establishes. System behavior also depends on data whose quality and availability the supplier may not control. Explanation and human-oversight arrangements must be appropriate to the system's risk and use. Acquisition therefore needs to cover monitoring, revalidation, and incident handling throughout operation (Hickok, 2024). Public bodies retain accountability for how algorithmic systems are used; responsibility cannot simply be assigned to the vendor (Kuziemski & Misuraca, 2020). Scaling frequently requires a second decision by actors with different legal responsibilities. A digital unit may sponsor the experiment, a sectoral agency own the service, a procurement unit conduct the tender, and a finance authority control expenditure. The analytical object is consequently a connected set of authorizations rather than a single adoption decision.

Public procurement for innovation (PPI) treats the state as a demanding customer whose demand can shape markets by articulating problems, creating a reference customer, and rewarding public-value solutions (Edler & Georghiou, 2007). Edquist and Zabala-Iturriagagoitia (2012) distinguish procurement of available innovation from pre-commercial development processes; the distinction matters for AI programs that

blur hackathons, grants, regulatory-sandbox trials (a term defined below), prototype procurement, and production contracting. Direct demand-pull occurs when public purchasing creates revenue; an indirect certification effect occurs when government selection signals quality to other purchasers or investors (Dai et al., 2021). Without credible, portable certification, participation may yield little more than publicity. Institutional design determines whether these effects appear: risk aversion, rigid specifications, fragmented demand, short contract horizons, and price-centered selection can favor established solutions over novel ones (Uyarra et al., 2020). Choi et al.'s (2015) account of Korea shows that innovation-oriented instruments emerged partly in response to price-centered procurement. The central design tension is whether rules make experimentation and evidence legible enough for public buyers to act without abandoning competition, value for money, or accountability.

For AI specifically, procurement is itself a primary site of administrative policymaking: specification, evaluation criteria, and contract terms allocate discretion and accountability over machine-learning systems before any sectoral regulator acts (Mulligan & Bamberger, 2019). This supports treating the acquisition route as constitutive of AI governance rather than as downstream logistics. This article develops the notion of an institutionalized certification chain. A pilot becomes procurement-relevant when (1) a public problem and accountable user are specified; (2) the test's data and operating environment resemble eventual deployment; (3) evaluation applies preannounced criteria; (4) the result is recorded in a form recognized by purchasing rules; and (5) a lawful acquisition option follows. Certification does not guarantee purchase; it converts evidence from an event into an administrative object a buyer may rely on. Three instruments must be distinguished. An accelerator supports firms through mentoring, training, and networks. A regulatory sandbox permits supervised testing for a limited period within an authorized legal framework; the scope for regulatory clarification, adaptation, or exemptions depends on that framework (OECD, 2023; Zetzsche et al., 2017). Okonjo (2026) examines how sandbox arrangements might support public-sector AI experimentation. Innovative procurement creates a purchase or an eligible purchasing status. Participation in one instrument does not establish access to the next. A firm can complete an accelerator without an agency owner, finish a sandbox without an acquisition budget, or obtain a prototype contract without an operations plan.

2.2. State capacity and procurement in Central Asia

Central Asian governments have expanded digital services rapidly. Kazakhstan ranked twenty-fourth in the 2024 United Nations E-Government Development Index with a score of 0.9009 (United Nations Department of Economic and Social Affairs [UN DESA], 2024). That position evidences institutional strength; it does not establish that AI procurement is solved: digital-service maturity and innovation procurement are distinct capabilities. Research on post-Soviet state capacity distinguishes ideational, political, technical, and implementational dimensions, providing a basis for examining uneven institutional development in Kazakhstan (Cummings & Nørgaard, 2004). Recent scholarship describes a hybrid administrative system in which service modernization coexists with centralized political control (Knox & Orazgaliyev, 2025). Studies of bureaucratic performance and politico-administrative culture also draw attention to political influence, hierarchy, and the conditions for public-service reform (Knox & Janenova, 2023; Karini, 2024). These findings suggest, without directly proving, that building central digital infrastructure and distributing acquisition authority may present different reform problems. Knox and Janenova (2019) describe an e-government paradox

in which visible service improvements need not transform underlying administrative relationships. Newer research examines legal responsibility and governance risks in Kazakhstan's AI transition (Amirova, 2025; Buribayeva et al., 2026), while Keegan (2024) cautions against assuming that e-government adoption necessarily increases public contestation.

Public procurement itself must be treated as a political-economic process. In Kazakhstan, it is a documented site of corruption risk: survey evidence finds officials and suppliers complicit in corrupt practices that monitoring reforms have not resolved, and links procurement-related inequality to the grievances behind the January 2022 unrest (Khamitov et al., 2023). OECD monitoring quantifies the pattern: grounds for single-source procurement remain overly broad, and direct contracts exceeded 30 percent of purchasing in 2023 in each procurement sector monitored (OECD, 2024a). A large share of purchasing also runs through the quasi-state sector, including national holdings and state-owned enterprises under separate rules and variable accountability (OECD, 2024b), so "public procurement" in Kazakhstan denotes several regimes, not one. Preference schemes in Kazakhstan's resource sectors have likewise facilitated relationship-building and rent-seeking alongside their developmental aims (Kalyuzhnova & Belitski, 2019). These findings caution that a special route with weak safeguards could create a new channel of preferential access in an environment where such channels have been exploited. The design problem examined in Sections 5–7 is therefore not only how to build a bridge but how to build one that does not become a bypass. JCAS scholarship has begun to situate AI within international-relations and international-law debates (Kukeyeva et al., 2024); this study complements that agenda by examining how government becomes a buyer and operator of AI.

Azerbaijan offers a different configuration: the ASAN Service one-stop shop provides a reference point for public-service reform, associated with service integration, standardized delivery, and institutional redesign (Alguliyev et al., 2018; Garayev, 2025; Sadigov et al., 2025). The question addressed here is whether recent strategy converts that service-delivery base into a route from AI testing to acquisition and nationwide use. Policy-transfer research warns against treating a visible foreign institution as a portable object: ideas move through translation and adaptation (Stone et al., 2020), and transfer depends on fit with the receiving administrative context (Ugyel & Daugbjerg, 2020). South Korea is therefore used to expose a mechanism, not to recommend transplantation of an entire procurement regime.

The reviewed literature converges on four points: pilot quality alone cannot explain scale; government demand creates revenue and certification only when procurement recognizes the generated evidence; agency ownership, data, evaluation, and accountability are complements; and institutional instruments travel imperfectly, requiring local adaptation. For the post-Soviet settings discussed in Section 2.2, procurement discretion also raises questions of preferential access. Evaluation and audit are therefore part of the proposed pathway's design. Three propositions organize the comparison as analytical expectations: P1, more explicitly specified procurement pathways should distinguish architectures that connect experimentation to acquisition; P2, such pathways should be more usable when combined with agency ownership, governed data, and accountable evaluation; and P3, capability-transfer obligations should matter for the capability retained after deployment. The study maps the first two expectations at the institutional level. It does not test causal effects, and the limited variation in C5 prevents assessment of P3.

3. ANALYTICAL FRAMEWORK

3.1. Outcome and institutional conditions

The outcome is the institutionalization of the pilot-to-procurement transition. It is not the number of pilots or an unobserved conversion rate. Institutionalization refers to the extent to which public rules and recurring practices define who may initiate a pilot, how the system may use public data, how performance is judged, how the result enters an acquisition decision, and how operational responsibility is retained. The unit of analysis is the national conversion architecture for public-sector AI. Within each case, the analysis traces links among four instrument families: AI and digital-government policy; data-governance rules; public-procurement law and innovation-procurement programs; and implementation or reporting arrangements. Individual projects are illustrations only.

The framework groups the relevant arrangements into five conditions. C1 identifies the operational owner, C2 governs data, C3 specifies acquisition options, C4 establishes evaluation and accountability, and C5 addresses capability retained after deployment. Their order of discussion is not a mandatory chronology: procurement rules should inform trial design, while evaluation informs the later acquisition decision. Section 4 explains coding and Section 5 applies the framework.

C1: Problem ownership. A sectoral public organization must own the operational problem, nominate an accountable service lead, and indicate a plausible budget route; central innovation bodies can broker demand but cannot substitute indefinitely for a user agency. Ownership is the entry condition for everything that follows.

C2: Public-data access. Data access must be lawful, technically feasible, proportionate, and extensible to operations; a data platform is relevant when it specifies authority, quality, security, access roles, and continuity. Even a well-governed test, however, only produces evidence; whether that evidence can change an acquisition decision is a separate institutional fact, addressed by C3.

C3: Post-pilot procurement pathway. The legal and administrative route after a positive evaluation must be specified; mechanisms range from innovation-product designation and central pilot purchase to negotiated-contract eligibility, staged contracts, and competitively awarded frameworks. High institutionalization does not require automatic purchase; it requires a lawful decision gate with known eligibility, budget authority, competition safeguards, and a possible next contract. A gate, in turn, is only as good as the evidence it admits, which is why C3 presupposes C4.

C4: Evaluation and accountability. Evaluation should combine technical performance with criteria appropriate to the use case, including service outcomes, user experience, cost, safety, error distribution, cybersecurity, explainability, and human oversight or appeal. The public owner must take responsibility for accepting the evaluation, with results recorded for audit. For AI, a credible arrangement also addresses post-deployment monitoring and material changes. These requirements help make a special purchasing route accountable and contestable (Section 2.2).

C5: Domestic capability transfer. Deployment should leave usable capability in public organizations and the domestic ecosystem. Relevant dimensions include government capacity to operate and monitor the system; local engineering expertise; workforce skills; maintenance and operational control; and rights over data, configuration, and infrastructure needed for continuity or switching suppliers. This study examines these

dimensions where they appear in public program rules and contractual requirements. It does not measure national human capital or technological sovereignty as a whole. Supplier nationality alone does not establish operational independence. The distinction between formal ownership and substantive control is informed by digital-sovereignty scholarship (Pohle & Thiel, 2020), while the emphasis on learning and retained competence draws on absorptive capacity (Cohen & Levinthal, 1990).

Table 1. Operationalization of the five conditions

Condition	Low	Medium	High
C1 Problem ownership	Pilot initiated without named operational owner or budget route	Agency participates, but authority or operational commitment is incomplete	Named service owner, responsible official, staff contribution, and credible budget/adoption authority
C2 Public-data access	Ad hoc or unclear access; no operational continuity	Lawful access or sharing arrangements exist, but governance or test-to-operation continuity is incomplete	Architecture: established legal authority and governance for data provision. Continuity: documented, secure access can continue from test to operation
C3 Procurement pathway	Pilot returns to undifferentiated general procurement	Policy promises integration or innovative purchasing, but procedure is incomplete	Law or recurring program links qualification, pilot purchase/evaluation, and a lawful next acquisition step
C4 Evaluation and accountability	Vendor-led demonstration or unspecified criteria	KPIs and oversight exist, but results are not consistently procurement-relevant	Preannounced multi-dimensional criteria, public-user sign-off, recorded feedback, monitoring, and liability allocation
C5 Capability transfer	Delivery can remain externally dependent	Local participation or training is encouraged	Contracted knowledge transfer, documentation, interoperability, local maintenance, and public workforce capability

Source: author's framework. C2 architecture and continuity are assessed separately when the evidence diverges (Section 3.1; Appendix A2).

Problem ownership, procurement pathways, and capability transfer are relevant to public digital innovation more broadly. Their AI-specific implications arise from continued dependence on governed data and the possibility of changing model performance. C2 therefore considers continuity from test to operation; C4 includes appropriate error assessment, oversight, and monitoring; and C5 considers the skills and rights needed to maintain and correct a deployed model (Hickok, 2024). Across all cases, C2 credits data provisions explicitly linked to the examined AI experimentation or procurement architecture; general digital-government maturity alone is not scored as evidence of

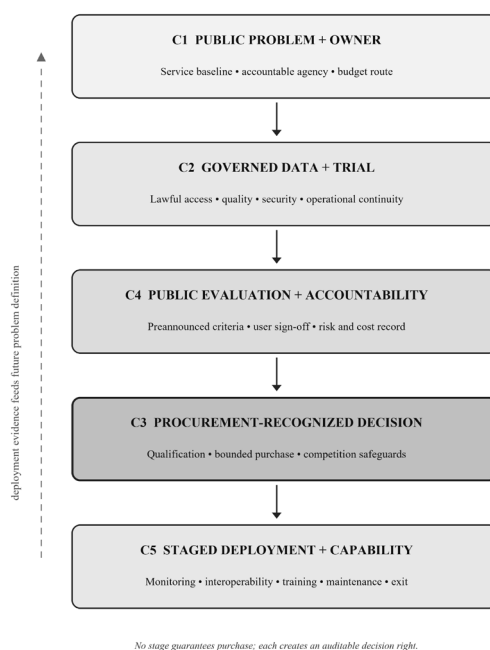
C2. C4 grades the procurement-recognized evaluation and accountability arrangements in Table 1, with limits of AI-specific assurance recorded for each case in Appendix C.

The ordinal labels summarize documented institutional arrangements, rather than project performance or interval measurements. A “high” score means the architecture makes the relevant arrangements regularly available. For C2, architecture-level evidence concerns established legal authority for data provision and associated governance obligations; operational evidence concerns documented, secure continuity from trial to use. Where these components diverge, each is judged separately and a split score (“high/medium”) is reported. The first label refers to architecture and the second to continuity; the split does not mean that both meet the high threshold. Where recurring routes differ on the coded dimension, the score reports the range across routes (“medium–high”). The coding remains provisional where historical versions or implementation evidence could not be fully established; Appendix C records these limitations.

3.2. The proposed conversion mechanism

Figure 1 presents the proposed mechanism: C1 begins the chain because a public problem has to enter with an owner; C2 and C4 shape the evidentiary quality of the test; C3 is the conversion gate that determines whether a qualifying result is recognized in a purchasing process; C5 is embedded across contracting and operation; and feedback from deployment returns to evaluation.

Figure 1. The institutionalized certification chain from pilot to procurement



Source: author's framework

The logic is configurational rather than causal, and three levels should be kept apart: institutional dimensions (C1–C5), institutional configurations (how a country's

conditions combine; Table 2), and procurement or deployment outcomes (whether pilots in fact become contracts and operating services). This study provides evidence on the first two levels only, so no claim should be read as an estimate of a condition's effect on realized outcomes. The framework does not treat any single condition as sufficient; the configuration of interest is the joint presence of C1–C4, with C5 shaping whether scale produces domestic and public capability rather than only installed software.

4. RESEARCH METHODS

4.1. *Comparative design and documentary evidence*

The study uses structured, focused comparison (George & Bennett, 2005), asking each case the same questions: who owns the public problem; what authority and infrastructure govern data access; what happens administratively after a favorable evaluation; who evaluates performance and bears responsibility; and what capabilities remain with domestic firms and public organizations. Cases were selected for comparative relevance rather than statistical representativeness. Kazakhstan and Azerbaijan share a post-Soviet administrative background, presidential centralization, hydrocarbon-based economies, and prominent one-stop public-service reforms. These similarities provide context; they do not hold all competing explanations constant. Azerbaijan contributes a recently specified strategic link between experimentation, integration, and procurement support. South Korea supplies a more codified contrast within the selected cases, making designation, purchasing, and evaluation arrangements visible in law and program rules. The design combines a contextual comparison with a mechanism-oriented contrast.

Azerbaijan is outside Central Asia and is included because the 2026–2028 action plan specifies an intermediate institutional configuration relevant to C3. The selection does not establish that its plan is the region's most advanced or that comparable mechanisms are absent in other countries. Uzbekistan and Kyrgyzstan were not coded. The regional suggestions in Section 7.2 are therefore untested applications of the framework, rather than comparative findings. South Korea helps identify functions that might be adapted: deliberated designation, time-limited purchasing eligibility, central pilot purchase, recorded public-user evaluation, and statutory allocation of purchaser liability. Their relevance to Kazakhstan depends on local legal authority, fiscal arrangements, and accountability safeguards (Sections 2.2, 5.1, and 6.4).

The corpus includes laws, presidential and government acts, strategies, action plans, procurement regulations, and official implementation reports issued by August 2, 2026. Appendix B summarizes 23 core documents in 21 entries: the PPS purchasing regulation and its implementation-timing announcement share one entry, as do two 2024 pilot-purchase announcements. Some historical consolidations could not be fully retrieved. The comparison accordingly maps the selected instruments and their documented commitments, rather than certifying an exhaustive inventory of all operative rules at the cutoff. Peer-reviewed studies and international reports provide context and triangulation but do not replace national legal sources. Documents were read against the rule-based codebook in Appendix A; for each condition, evidence was classified as low, medium, or high using Table 1. The coding gives priority to operative law and program rules over aspirational strategy language, and to recurring arrangements over one-off announcements. Where a strategy promises a mechanism but the consulted record does not establish an implementing procedure, the case cannot score high on that condition. Contradictory evidence is retained in the narrative rather than averaged away.

Appendix C provides a cell-by-cell audit trail recording the principal instruments relied on, supporting and counter-evidence, and the rationale for boundary judgments.

The analysis separates inputs and activity, including platform use, agents under development, designations, and aggregate purchases, from procurement and deployment outcomes. It infers no AI conversion rate from all-product totals. A procedure that was not located in the consulted record is reported as such; this is not proof that it is absent from all law, agency practice, or subsequent implementation.

4.2. Positionality and limitations

The author has participated professionally in government proof-of-concept and startup-support programs in several of the countries studied. This experience informed the research question but is not presented as undisclosed empirical evidence. The case analysis relies on the identified public documentary corpus. The recommendations could be relevant to the author's professional field, a potential interest disclosed in the conflict-of-interest statement. The proposal does not select a program operator or supplier. Author information and professional roles accompany the manuscript. The study analyzes public documents and reports no interviews, personal data, or human-subject experiments, and the author reports that institutional review board approval was not required; the corpus and codebook are disclosed to facilitate audit.

Five limitations bound the analysis. First, the study lacks a comparable project-level dataset connecting pilot admission, evaluation, contract award, deployment, and later performance. It therefore examines institutional arrangements rather than realized conversion rates. Second, the propositions in Section 2.2 are typological. C3 partly constitutes the architectural descriptions, so their correspondence with C3 is not an independent causal test. P3 cannot be assessed because all three cases receive a medium C5 score. Third, the coding was performed by a single researcher; Appendix C exposes the evidentiary basis of every score, but independent re-coding remains for subsequent work. Fourth, documentary analysis may understate informal coordination and overstate the implementation of written rules. National summaries also conceal agency variation, and incomplete retrieval of some historical versions limits negative legal findings. Fifth, the comparison does not isolate fiscal capacity, market size, bureaucratic professionalism, industrial policy, political structure, or implementation age. Section 6 discusses these competing explanations without ruling them out.

5. FINDINGS

5.1. Kazakhstan

Kazakhstan enters the AI transition with a strong asset base: the Concept for the Development of Artificial Intelligence for 2024–2029 makes infrastructure, data, human capital, and AI products one state agenda and treats the platform as shared public infrastructure for experimentation (Government of Kazakhstan, 2024a). Kazakhstan's Law on Artificial Intelligence establishes responsibilities and the National Artificial Intelligence Platform (Republic of Kazakhstan, 2025). In the enacted text, Article 13 addresses state-body provision of data and creation of data libraries, subject to stated exceptions; Article 25 provides for a controlled, time-limited development and trial environment; and Article 27 governs data libraries. These provisions support experimentation but do not themselves specify a recurring post-trial purchasing

procedure. The separate 2024 data-management requirements provide a further governance basis (Government of Kazakhstan, 2024b). This is a finding about the cited provisions, not an exhaustive conclusion about every implementing instrument. Reporting on 2025, the ministry stated that the National AI Platform was operating in pilot mode, AI assistants had been used more than two million times, and more than 50 AI agents were under development (Ministry of Artificial Intelligence and Digital Development of Kazakhstan, 2026b). These are reported activity measures. They do not establish the number of unique users, operational deployments, or procurement conversions.

The 2025 restructuring of the Ministry of Artificial Intelligence and Digital Development strengthened the formal basis for central coordination (Government of Kazakhstan, 2025). The Digital Qazaqstan strategy, approved by Presidential Decree No. 1311 on June 9, 2026, provides a subsequent government-wide direction (President of the Republic of Kazakhstan, 2026). For problem ownership (C1), these central arrangements and the AI Governance Cup identify public-sector uses, but the consulted descriptions do not establish a universal requirement for a named service owner, an acquisition decision, and an operating budget at pilot admission (Ministry of Artificial Intelligence and Digital Development of Kazakhstan, 2026a). Central coordination does not by itself commit a ministry or akimat, a regional executive administration, to continuing expenditure. C1 is medium because participation arrangements are visible while standing ownership and budget commitments remain insufficiently evidenced. For public-data access (C2), the AI law, platform, and data-management rules are the strongest part of Kazakhstan's chain. The limitation is continuity: a platform-based test still needs project-level access agreements, security controls, and an operational interface after the trial, and neither the platform nor the data libraries guarantee sustained live data flows. The statutory data-provision authority and associated governance rules meet the architecture component of C2, while project-specific continuity remains medium. The two components are reported as "high/medium" under Section 3.1 and Table 1.

The post-pilot procurement pathway (C3) is the least specified part of the selected record. The 2024 Law on Public Procurement and Ministry of Finance Order No. 687 provide the general framework (Republic of Kazakhstan, 2024; Ministry of Finance of Kazakhstan, 2024). The consulted AI-platform provisions do not identify a recurring status or procedure that connects a favorable trial evaluation to a subsequent acquisition. As some historical implementing texts were not fully retrievable, this is a provisional assessment of the reviewed architecture. A possible consequence is a procedural discontinuity: an agency may need to translate trial learning into a later procurement without a standard process for recognizing that evidence. The documents do not establish that specifications are legally barred from using such learning, nor do they demonstrate how often a procedural reset occurs. C3 is coded low because a recurring AI trial-to-acquisition bridge was not located, while general procurement remains available. This proposed bridge must be considered alongside documented procurement risks and the separate rules governing parts of the quasi-state sector (Kalyuzhnova & Belitski, 2019; Khamitov et al., 2023; OECD, 2024a, 2024b). Those findings justify competition, conflict-of-interest, and audit safeguards. They do not directly establish the motives of officials handling AI pilots. The policy task is to define a lawful and reviewable acquisition route without creating preferential access for pilot participants.

For evaluation and accountability (C4), Kazakhstan's legal framework articulates AI responsibilities, and transformation maps and indicator systems can support monitoring, yet program descriptions emphasize development activity more than a standardized,

procurement-relevant evaluation record. High C4 would require preannounced criteria, user-agency sign-off, cost and risk assessment, recorded results, post-deployment monitoring, and clear responsibility for harmful outputs. The ingredients are emerging, but the chain is not fully integrated; C4 is medium. For domestic capability transfer (C5), the national strategy's attention to talent, platform access, datasets, and local products supports capability building, but participation does not automatically produce control of integration, maintenance, monitoring, or intellectual assets, and the contracting documents examined impose no standard AI-specific capability-transfer package. C5 is medium. Kazakhstan's selected instruments consequently show a formal foundation for experimentation alongside a less explicit acquisition connection. The coding identifies a documentary discontinuity and a question for further implementation research; it does not measure the size of investment or demonstrate that every pilot encounters the same problem.

5.2. Azerbaijan

Azerbaijan's starting point is different. ASAN Service established a highly visible one-stop model whose standards, user orientation, and institutional form are well documented (Alguliyev et al., 2018; Garayev, 2025; Sadigov et al., 2025), and INNOLAND added incubation and acceleration functions (ASAN Service, 2018). Neither defines how an AI prototype becomes a public contract. The AI strategy approved in 2025 sets a national agenda (President of the Republic of Azerbaijan, 2025). The 2026–2028 Action Plan for Accelerating Digital Development provides more specific prospective actions (President of the Republic of Azerbaijan, 2026a). It addresses data governance, AI use in public services, sandbox testing, and local capability. Action 8.3.7 calls for a framework for integrating successful sandbox models nationally. Separately, action 8.2.6 envisages preference mechanisms for startup participation in state-enterprise procurement. Reading the measures together suggests a strategic connection between testing and demand, but does not establish a single integrated purchasing procedure.

For problem ownership (C1), the Digital Development Council and institutional roadmaps provide coordination structures (President of the Republic of Azerbaijan, 2026c). The first council meeting reported 58 initiatives in the action plan and roadmaps prepared with 40 state institutions; 13 roadmaps were approved or at the approval stage (President of the Republic of Azerbaijan, 2026b). These are separate counts. They do not demonstrate that each AI pilot has a committed operating owner and acquisition budget, so C1 is medium. For public-data access (C2), the strategy and action plan address data-pool development, interoperability, and the once-only principle, under which information already held by the state can be reused subject to applicable rules. These commitments do not establish a standard test-to-operation access protocol for every AI use case. C2 is medium because the governance direction is explicit while operational continuity remains incompletely evidenced.

For the post-pilot procurement pathway (C3), the action plan specifies relevant destinations more clearly than a general pledge to support startups. However, national integration under action 8.3.7 and state-enterprise procurement support under action 8.2.6 are distinct prospective measures. Neither is an automatic purchase entitlement for a successful sandbox participant. The sandbox framework has a December 2026 deadline, after the study's cutoff date. In the selected corpus, the documents do not set out a complete, recurring procedure equivalent to a designation-and-pilot-purchase scheme; the 2023 Law on Public Procurement supplies only the general acquisition framework (Republic of Azerbaijan, 2023). The remaining task is to define eligibility,

decision rights, competition safeguards, pricing, evaluation reuse, and budget authority. C3 is therefore medium: relevant integration and procurement measures are specified in outline, but not yet fully operationalized.

For evaluation and accountability (C4), Azerbaijan has an established emphasis on service standards, and the 2026 plan adds responsible institutions, milestones, quarterly KPIs, and user-satisfaction measurement; AI-specific evaluation still requires criteria for error, human oversight, security, and continuing model performance, recognized by procurement decision-makers. C4 is medium. For domestic capability transfer (C5), the action plan's explicit local-product and knowledge-transfer provisions are stronger than nationality-based symbolism, and accelerator and staff-development programs may contribute to capability building (ASAN Service, 2019). The strength of transfer will nevertheless depend on future contracts. C5 is medium. Azerbaijan is therefore characterized as emerging integration. The action plan makes testing, national adoption, and procurement support relevant to the same policy agenda, while an explicit and recurring connection among those processes remains to be demonstrated.

5.3. *South Korea*

South Korea provides a codified contrast for examining procurement functions. PPS describes an innovative-procurement program initiated in 2019 and reports designated-product counts rising from 345 in 2020 to 2,280 in 2024 (Public Procurement Service, n.d.). These are program-wide figures, not AI-specific counts or a pilot-conversion rate. The 2026 basic plan also expands support for pilot purchasing (Public Procurement Service, 2025). Articles 5 and 27 of the Procurement Business Act establish the committee and public-purchase support for innovative products. Article 27(4) limits the purchasing official's liability for losses arising from an innovative-product purchase unless intent or gross negligence is present (Republic of Korea, 2020). Article 26(1)(5)(g) of the Enforcement Decree of the Act on Contracts to Which the State Is a Party provides a legal basis for negotiated (single-source) contracts for the manufacture, purchase, or lease of innovative products designated under Article 27(1) of the Procurement Business Act (Republic of Korea, n.d.). Paragraphs 2 and 3 of Article 33 of the Procurement Business Act's Enforcement Decree set an ordinary designation period of three years, permit extensions of up to three years following committee deliberation, and allow a separately determined period under the stated exception (Republic of Korea, 2025). Eligibility does not guarantee a contract award. The identified administrative rules add operational detail (Ministry of Finance and Economy of the Republic of Korea, 2026; Public Procurement Service, 2026a). The cited versions and limits of historical retrieval are identified in Appendix B.

Two funding routes coexist. A demand institution may buy a designated product with its own budget through the innovation marketplace; separately, PPS may purchase it with central funds and place it with a user institution for evaluated trial use (Public Procurement Service, n.d.). The second route is a way to allocate the financial risk of initial use centrally; the first depends on each agency's budget authority and requires attention to the receiving system's fiscal arrangements. Problem ownership (C1) varies across recurring program routes. Demand-led arrangements begin with a public institution's problem, whereas supplier-led designation can precede a committed public user (Public Procurement Service, n.d.). C1 is therefore represented as medium-high across routes, with the stronger assessment confined to arrangements that establish the owner and adoption authority required by Table 1. Route design alone does not prove that all participating agencies make a sustained budget commitment. For public-data

access (C2), Korea's digital-government capacity provides extensive infrastructure, but innovative procurement rules do not settle data access for every AI product: public users can test products in their own environments, yet sectoral privacy, interoperability, and security rules remain decisive. C2 is assessed as medium in this specific conversion architecture.

For the post-pilot procurement pathway (C3), designation makes a product visible and purchase-eligible; negotiated-contract eligibility gives that status transactional force; pilot purchase allows a public institution to use the product; and recorded results may inform later demand. The arrangement promises no supplier a contract; it creates a legible route through which the state can purchase uncertainty in stages. PPS reported innovative-product purchases rising from KRW 467.8 billion in 2021 to KRW 815.7 billion in 2023 (Public Procurement Service, 2024a). The figures show that the pathway is used; they do not identify the AI share. The bridge is not frictionless, and PPS's own program design records the friction: the 2026 basic plan prefers demand institutions that purchase designated products with their own budgets or present follow-on purchase plans, and provides a re-challenge route for products whose pilot performance was insufficient (Public Procurement Service, 2025). These design responses recognize the possibility that designation and a first purchase may not lead to repeat buying. C3 is high for its recurring legal procedure; this score does not establish a conversion rate or imply that follow-on demand is assured.

For evaluation and accountability (C4), public institutions evaluate pilot use and report results, Article 33 of the Procurement Business Act's Enforcement Decree provides for publication subject to exceptions, and Article 27(4) of the Act addresses buyer risk (Republic of Korea, 2020, 2025). The purchasing regulation requires a pre-use implementation plan and provides for mid-trial checks, completion reports, evaluation, publication, and use-and-management inspections (Public Procurement Service, 2026a, Arts. 29, 33, 36–39, and 40-3). These provisions support C4's high score for an accountable procurement record. Discretionary inspection powers do not by themselves establish continuous AI monitoring or effective implementation.

The January 2026 amendment introduced a dedicated evaluation track for AI software and AI-converged products, with evaluation forms whose criteria are adapted to AI characteristics (Public Procurement Service, 2026a, Art. 14(3), Annexes 4-4 and 4-5). The supplementary provisions defer their application to the fourth supplier-proposed designation round of 2026, which PPS announced for around September (Public Procurement Service, 2026b). At the August 2 cutoff, the AI criteria were therefore codified but awaiting application; they are not evidence of implemented assurance or operational effectiveness. Earlier announcements already show AI products entering the procurement architecture: the second matching round of 2024 placed 74 products with 188 institutions, including an AI call-bot service and a cancer-detection assistance program; the third round included an AI social robot (Public Procurement Service, 2024b, 2024c). These examples establish program participation, not effectiveness.

For domestic capability transfer (C5), the system can provide a public reference customer and a certification signal. Yim et al. (2024) situate such support within Korea's wider startup policy ecosystem. Yet designation and purchase do not ensure that public employees can maintain a model or that knowledge transfers across organizations. C5 is medium: a procurement bridge creates a market signal, while capability-transfer clauses must be designed separately. South Korea illustrates a recurring certification and purchasing architecture with defined limits. Designation, purchasing authority,

public-user testing, and liability allocation are connected, while follow-on demand and AI-specific assurance remain separate implementation questions that the program itself continues to address.

5.4. Cross-case pattern

Table 2. Comparative institutionalization of the pilot-to-procurement chain

Condition	Kazakhstan	Azerbaijan	South Korea
C1 Problem ownership	Medium: central coordination and sectoral structures; a named owner and budget are not established as universal pilot entry conditions	Medium: council and institutional roadmaps; a committed owner and acquisition budget for each pilot are not demonstrated	Medium–high: high in the demand-proposed route and pilot purchase; medium in the supplier-proposed route, where designation can precede a named user
C2 Public-data access	High/medium: AI platform, data libraries, and data-management rules at the architecture level; operational continuity remains project-specific	Medium: data-pool and interoperability commitments; operational access remains incompletely evidenced	Medium in the procurement mechanism: strong national capacity, but access remains sector-specific
C3 Procurement pathway	Low: general procurement exists; no recurring AI trial-to-purchase bridge located	Medium: prospective sandbox integration and state-enterprise procurement support; a unified recurring procedure not established	High: designation, time-limited negotiated-contract eligibility, pilot purchase, supply, and later signaling are law-backed; follow-on demand is not guaranteed
C4 Evaluation and accountability	Medium: legal responsibilities and monitoring tools exist; standard procurement-relevant pilot record is incomplete	Medium: responsible officials, KPIs, and satisfaction feedback; AI-specific criteria emerging	High: public-user evaluation, recorded feedback, inspection provisions, and bounded liability protection; dedicated AI criteria codified for application after the cutoff
C5 Capability transfer	Medium: talent and domestic products prioritized; standard contract obligations incomplete	Medium: local-product support and knowledge transfer explicit; contract implementation pending	Medium: strong market-reference effect; public/internal technical transfer not automatic

Overall conversion architecture	Partial in the selected record: formal experimentation foundations, less explicit acquisition connection	Emerging: related integration and procurement measures specified prospectively	Routinized with caveats: recurring designation and purchase arrangements; follow-on demand and AI assurance not guaranteed
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Source: Author's coding and revision of the documentary assessment (Appendices B–C). The table maps selected instruments issued by August 2, 2026; historical version and implementation limitations are recorded in Appendix C. Scores are not performance measures, and the overall row is a qualitative description rather than an aggregate.

The table describes institutional configurations rather than a development ranking or procurement outcomes. The clearest cross-case distinction is C3, which also informs the overall descriptions; this correspondence therefore cannot independently test P1. The variation between Korean demand-led and supplier-led arrangements illustrates why P2 warrants project-level investigation, but it does not establish route-specific conversion effects. P3 cannot be assessed with identical C5 scores. Split and range scores follow the reporting conventions of Section 3.1 and Appendix A.

6. DISCUSSION

6.1. Procurement and institutional complementarity

The framework locates a possible source of the pilot trap in a break between two governance logics: experimentation asks whether a solution can work, while procurement asks whether the state may buy a specified object, from whom, at what price, with what liabilities, under what competition rule. Sequenced without a bridge, technical learning may not inform the acquisition decision. C3 occupies the gate position in the framework because it concerns recognition of trial evidence in an acquisition process. South Korea specifies designation and purchasing options, Azerbaijan links related prospective measures within one action plan, and the selected Kazakhstani AI-platform provisions define experimentation more explicitly than subsequent acquisition. This comparison concerns the organization of decision rights. It cannot estimate whether additional pilot funding would improve or worsen conversion. A special route can be captured, waste public funds, or privilege a weak incumbent. The relevant mechanism is a bounded certification gate: ex ante eligibility and evaluation, a limited and auditable purchasing authority, competition or contestability safeguards, and post-use evidence. Procurement then acts as both transaction and certification.

The Korean route also exposes the central design tension inside such a gate: time-limited negotiated-contract eligibility makes designation valuable to a supplier and usable to a buyer, yet it is, by construction, a bounded suspension of open competition, whose justification requires deliberation, time limits, liability rules, and recorded public use. A transplant that copied the single-source privilege without the deliberation, recording, and expiry would reproduce exactly the capture risk this article warns against; the relevant design lesson is to evaluate purchasing authority together with its safeguards. The framework also explains why procurement reform should be assessed together with the other conditions. C1 concerns who will use and fund the solution after an innovation team leaves. Korean supplier-led designation illustrates that eligibility can precede a committed user. The 2026 plan gives preference to institutions with own-

budget purchases or follow-on plans, but the announcement does not establish that a measured follow-on gap is concentrated in the supplier-led route.

C2 concerns whether pilot performance is relevant to operation: a model trained on a temporary extract may still fail on live administrative data, so a transition decision should assess data continuity, not only model accuracy. C4 makes performance evidence usable for accountable purchasing. Korea's public-user evaluation produces an accountable record, and its liability rule may reduce officials' perceived personal risk when the required process has been followed. The dedicated AI criteria were codified for later application, while their implementation and assurance during operation remain to be established. C5 concerns the capabilities retained after deployment: a domestic vendor contract is not domestic capability if the state lacks documentation, monitoring skills, and portable interfaces, while a foreign-origin component can contribute when the contract requires local engineering, training, and operational transfer. Capability should be specified as deliverables and rights.

6.2. *Alternative explanations*

Several factors could contribute to Korea's more codified procurement architecture: fiscal resources, technology-market size, industrial-policy experience, administrative capability, and implementation age. The three-case design does not isolate their contributions or show that institutional rules operate independently of them. Resources and administrative capability may help create and sustain the very rules compared here. The distinction between resources and legal authorization remains useful for policy design, but it is not a causal finding. OECD (2026) data show variation in central procurement support and impact studies even among OECD countries. They do not establish that Kazakhstan or Azerbaijan could reproduce a Korean mechanism at a particular cost or achieve the same results. Central coordination also has different institutional meanings across these cases. Presidential centralization in Kazakhstan and Azerbaijan should not be equated with South Korea's central procurement capacity. Published criteria and review procedures remain relevant to concentrated decision-making, but the comparison cannot attribute the observed differences to political structure alone. Implementation age also matters: Azerbaijan's action plan and Kazakhstan's AI law are recent, so medium or low scores may reflect sequencing rather than stable failure. This supports describing Azerbaijan's route as emerging and Kazakhstan's architecture as partial, without treating these descriptions as permanent rankings.

6.3. *The Kazakhstan puzzle in post-Soviet perspective*

The alternative explanations leave the central puzzle standing: why a state with demonstrated capacity for rapid digital construction has not specified the pilot-to-procurement bridge. The literature reviewed in Section 2.2 suggests an institutional hypothesis with three strands. First, the two tasks may draw on different components of state capacity. Platforms, strategies, ministries, and laws exercise technical and ideational capacity at the center, whereas a procurement bridge exercises implementational capacity, distributing decision rights to line agencies and akimats and disciplining them through recorded evaluation, the dimension that post-Soviet reform has found hardest to build (Cummings & Nørgaard, 2004; Knox & Orazgaliyev, 2025). Second, state-led modernization may reward visible, announceable construction more readily than a decision gate inside procurement whose benefits are less visible and more diffuse. Third, the political economy of procurement may make caution individually rational: where procurement is a documented risk area (Khamitov et al., 2023), an official considering

a novel, imperfect AI system may perceive a return to open tender as less risky where adequate institutional protection is unclear. On this reading, Kazakhstan's incomplete bridge would be an equilibrium of its administrative political economy rather than an oversight awaiting technical correction, and reform would have to change incentives as well as rules. The present documentary analysis does not observe officials' incentives or establish any of these mechanisms; the reading rests on the secondary literature and is offered as a hypothesis for interview-based and process-tracing research inside procuring institutions.

The same perspective clarifies what accountability must mean here. The policy question is not only how governments can move AI systems from pilots to procurement, but which systems should be scaled and under what safeguards. In administrative settings where avenues for public contestation are limited (Keegan, 2024), the citizen-facing elements of C4, including published evaluation criteria, appeal and human-override arrangements, complaint and incident records, and appropriate public reporting of error distributions, are not accessories to procurement but substantive conditions of legitimate scaling: these arrangements can give affected people a role in challenging and correcting deployed systems. A conversion architecture that accelerated purchasing without these elements would scale administrative power more reliably than public value; the framework therefore treats strengthening C3 as acceptable only jointly with the C4 provisions that make scaled systems contestable, and Section 7 carries this requirement into the design.

6.4. Implications for policy-transfer research

The comparison supports a mechanism-based approach to policy transfer. The visible Korean object is "innovative procurement," but its operative components are smaller: deliberated designation, time-limited negotiated-contract eligibility, central pilot purchasing, public-institution use, recorded feedback, a defined validity period, and protection for good-faith purchasers. Kazakhstan could examine adapting those functions to its National AI Platform and procurement law; Azerbaijan may route them through the Digital Development Council, sandbox governance, and its 2023 procurement framework. Institutional fit lies in the allocation of functions, not a copied program name, and their interdependence requires attention (Section 6.1).

7. POLICY IMPLICATIONS FOR KAZAKHSTAN AND CENTRAL ASIA

The recommendations follow from Sections 5 and 6; operational detail and statutory authority require domestic legal review. Because the study provides evidence on institutional configurations rather than realized outcomes (Section 3.2), they follow from design logic, not from an estimate of measured gains. Given Section 6.3, each element pairs an enabling provision with a safeguard: an unsafeguarded fast route would create the preferential-access channel this article warns against.

7.1. An AI Innovation Procurement Track

Kazakhstan could establish a bounded AI Innovation Procurement Track connecting the National AI Platform to ordinary public-purchasing institutions. Its legal feasibility requires review of the applicable procurement and budget statutes, implementing powers, and competition safeguards. A government program and regulations may address some components; legislative amendments may be necessary where existing

authority is insufficient. The following six stages are proposed design options, not a statement of current legal authorization.

1. Problem admission. An authorized public body submits a service problem with a baseline, responsible owner, data custodian, and plausible two-year operating budget; vendor-led ideas are admitted only after an agency adopts the problem statement, addressing a limitation of supplier-led designation, where certification can precede ownership.

2. Competitive solution selection. An open, functional-requirements-based competition grants access to a staged test and defines the maximum pilot-purchase value; it promises no production award.

3. Governed trial. A project-specific data agreement records purpose, fields, access roles, retention, security, quality, and conditions for operational continuity; higher-risk systems carry additional human-oversight and impact-assessment requirements.

4. Public evaluation. Technical, service, financial, and governance thresholds are registered before testing; the public owner signs the result and an independent technical or audit function verifies critical claims. Failure is a legitimate outcome that produces reusable learning.

5. Qualification and bounded purchase. A passing solution would become eligible for a limited purchase or staged deployment under an expressly authorized procedure, funded centrally or by the user agency. An initial two- or three-year qualification period is a design option requiring justification, not a duration established by this study. Rules should specify renewal, expiry, reevaluation after material change, competition safeguards, and the conditions under which another buyer may reuse the evidence. Qualification would confer no guaranteed production contract.

6. Operation and review. Deployment contracts include monitoring, incident reporting, exit and portability provisions, and a fixed-period review, with results feeding a registry accessible to authorized buyers and, where security permits, the public.

This design strengthens C3 using existing C2 assets, and makes C1 and C4 entry conditions rather than post-pilot repairs.

7.2. Accountability capability and regional applications

The track could include legally authorized protection for officials who act in good faith, disclose conflicts, apply the required evaluation, and remain within authorized expenditure. Any protection should exclude intentional wrongdoing, gross negligence, corruption, manipulated criteria, and ignored safety obligations. Korea's Article 27(4) provides a specific example of limited liability allocation for purchasing losses; it is not immunity from all responsibility. Whether an analogous provision is appropriate or legally available in Kazakhstan requires domestic legal review. Evaluation, audit, and responsibility allocation should be designed together. Kazakhstan already reports activity data; the next reporting layer should link stages. A public dashboard could report, by sector and risk class: admitted problems; trials started, completed, and failed; solutions qualified; pilot and repeat purchases; time to decision; cost; and service outcomes, with sensitive fields controlled. Publishing consistent stage definitions and denominators would let future research estimate conversion without conflating activity with impact. Evaluation should remain use-case specific and, for high-impact systems,

should include error distribution, human override, complaints, and incidents, consistent with the citizen-facing accountability requirement of Section 6.3.

The track should make capability transfer a scored and monitored component, specified along the C5 dimensions of Section 3.1: documentation, interfaces, training, local maintenance and incident-response roles, rights to configuration and logs, tested vendor exit, and subcontracting that gives domestic firms substantive technical work. Requirements should be proportionate and compatible with intellectual-property protection: the objective is not forced disclosure but avoidance of operational captivity, including captivity that persists when a local supplier depends on foreign platforms. Regional applications remain untested because Uzbekistan's and Kyrgyzstan's instruments were not coded. The framework could be examined in Uzbekistan and Kyrgyzstan by investigating agency ownership, recognition of evaluation evidence, and options for shared pilot-purchase resources. Because their instruments were not coded, the study cannot establish which arrangement each country needs or which would be more transferable. A common reporting schema for pilots and post-pilot decisions would support comparative research before any consideration of mutual designation recognition.

8. CONCLUSION

Progress from an AI pilot to an operating public service requires institutional decisions beyond technical validation. The five-condition framework connects ownership, data, acquisition, evaluation, and capability transfer. The selected documents indicate distinct configurations: Kazakhstan has a formal experimentation foundation with an incompletely specified acquisition connection; Azerbaijan proposes related integration and procurement measures; and South Korea provides a recurring designation and purchasing architecture with limits concerning follow-on demand and AI-specific assurance. The procurement pathway is the condition on which the cases differ most and the gate through which trial evidence must pass, but it is not sufficient. The framework proposes that its value depends on whether a service-owning agency is committed, the test resembles operational conditions, evaluation is auditable, and deployment builds lasting capability. A fast route without safeguards can scale poor products or discretionary favoritism as readily as innovation; Korea's bounded competition exception requires justification through deliberation, recording, expiry, and liability rules.

For Kazakhstan, the immediate opportunity is not to create another general AI program. It is to connect existing assets through an AI Innovation Procurement Track: admit agency-owned problems, run competitive trials on the National AI Platform, register evaluation criteria, qualify successful solutions for a limited purchase, define what follows expiry, protect good-faith officials, publish transition data, and contract for capability. Such a mechanism is intended to allow failure during experimentation while demanding responsibility at acquisition. For Central Asian studies, the comparison connects public-sector AI to questions of state capacity, administrative reform, and state-business relations. Kazakhstan's configuration is compatible with hypotheses about uneven capacity and the incentives surrounding procurement, but it does not establish those explanations. Further research should examine how central digital initiatives interact with the authority, budgets, and accountability of individual procuring organizations. A project-level registry linking admission, evaluation, award,

deployment, expenditure, incidents, and service outcomes would support more direct tests of institutional effects. Until such evidence is available, the defensible contribution is an explicit comparison of documented arrangements and a set of policy options whose feasibility and results remain to be assessed.

DATA AVAILABILITY

The study uses publicly available documents. The selected corpus, locators, cutoff and verification dates, coding rules, and cell-level audit trail appear in supplementary Appendices A–C. No confidential records or personal data are included.

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CONFLICT OF INTEREST

The author also serves as the Executive Director at IBEX (Antler Global), a global venture builder, and acts as an advisor for Gyeonggi Province, Incheon CCEI, and KISED in Korea. In these capacities, the author has participated professionally in the design and operation of government proof-of-concept and startup-support programs in the countries studied. This experience informed the research question but was not used as undisclosed empirical evidence; all case findings rest on the public documentary corpus described in the manuscript. No organization named in the manuscript had any role in the design, analysis, or reporting of this study.

AUTHORS' CONTRIBUTIONS

EA: conceptualization, methodology, investigation, formal analysis, writing, and visualization.

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Appendix A. Coding protocol

A1. Common case questions

1. What instrument admits a public problem into an AI pilot, and which public body owns the service outcome?
2. What rules authorize data access, ensure security and quality, and permit continuity into operation?
3. What legally recognized step follows a favorable evaluation? Is there a buyer, budget source, eligibility status, staged contract, or required new competition?
4. Which criteria are registered before testing, who signs the evaluation, where are results recorded, and how are liability and monitoring allocated?
5. What contract, program, or staffing provisions leave technical and operational capability in domestic firms and public organizations?

A2. Coding rules

1. Code the national architecture, not the best individual project.
2. Prioritize enacted law and implemented program rules over strategy language. Record provisions awaiting application separately from implemented arrangements.
3. Code a promised but procedurally incomplete mechanism no higher than medium.
4. Treat a one-off program as medium unless it has a recurring mandate, budget, and rule set.
5. Where a mechanism contains multiple recurring routes that differ on the coded dimension, report the range across routes (for example, “medium–high”) rather than the strongest route.
6. Where C2 architecture and continuity evidence diverge, assess the Table 1 components separately and report a split score, with architecture first. High architecture requires established legal authority and governance for data provision; high continuity requires documented, secure access from trial to operation. A split score is not an average or a claim that both components are high. Apply the same distinction across cases.
7. Do not use the quantity of pilots, platform users, or designated products as a conversion rate.
8. Record both enabling and constraining evidence; explain material contradictions in the case narrative.
9. Distinguish a selected historical instrument from a verified consolidation at the cutoff; qualify findings when retrieval is incomplete.
10. Treat “no public specification located” as a documentary limitation, not proof of nonexistence.
11. Reassess scores when implementing rules or project-level transition data become available.

A3. Replication fields for a future project-level dataset

Country; public problem; owner agency; service baseline; supplier; pilot start and end dates; data authority; risk class; evaluation thresholds; evaluation result; procurement procedure; award date and value; buyer; deployment status; repeat purchase; six- and twelve-month service outcomes; incidents; local staff trained; maintenance entity; and public source locator.

Appendix B. Core documentary corpus

Table B1. Core instruments coded in the comparison

Country	Instrument	Date/version	Primary relevance
Kazakhstan	Concept for the Development of AI for 2024–2029, Resolution No. 592	24 July 2024	C1, C2, C5; platform, datasets, product targets, talent
Kazakhstan	Requirements for Data Management, Resolution No. 925	7 November 2024	C2; government data governance
Kazakhstan	Law on Public Procurement, No. 106-VIII	1 July 2024	C3, C4; general procurement authority and safeguards
Kazakhstan	Public Procurement Rules, Order No. 687	9 October 2024	C3, C4; procedures and contract administration
Kazakhstan	Law on Artificial Intelligence, No. 230-VIII, Arts. 13, 25, 27	17 November 2025 enacted text	C2, C4; responsibilities, data provision, National AI Platform trial environment, data libraries
Kazakhstan	Measures implementing Presidential Decree No. 997; Government Resolution No. 846	9 October 2025	C1; central coordination mandate
Kazakhstan	Digital Qazaqstan Strategy through 2029	9 June 2026; Decree No. 1311	C1–C5; government-wide digital transformation direction
Azerbaijan	Law on Public Procurement, No. 988-VIQ	14 July 2023	C3, C4; general procurement framework
Azerbaijan	National Strategy on AI for 2025–2028	19 March 2025	C1, C2, C4, C5; national AI governance, pilots, data, talent
Azerbaijan	Digital Development Council instrument	27 February 2026	C1, C4; cross-government coordination and responsibility
Azerbaijan	Action Plan for Accelerating Digital Development, 2026–2028	27 February 2026	C1–C5; public-service pilots, sandbox-to-integration, procurement, data, KPIs, transfer
Azerbaijan	First Digital Development Council implementation report	29 June 2026	C1, C4; initiatives and institution roadmaps

South Korea	Procurement Business Act, Arts. 5(1)(2) and 27 (incl. 27(4))	31 March 2020 enacted text and amendment record	C1, C3, C4; designation deliberation, pilot purchase authority, liability allocation
South Korea	Enforcement Decree of Procurement Business Act, Art. 33	Decree No. 35947, 30 December 2025; effective 2 January 2026	C3, C4; categories, designation period, pilot use and results
South Korea	Enforcement Decree of the Act on Contracts to Which the State Is a Party, Art. 26	Identified provision; historical consolidation limited	C3; conditional negotiated-contract eligibility for designated innovative products
South Korea	MOFE Regulation on designation of innovative products and promotion of purchasing	2 January 2026; Directive No. 68	C1, C3, C4; designation operating procedures, incl. supplier- and demand-proposed routes
South Korea	Innovative-Product Purchasing Regulation, PPS Notice No. 2026-19; PPS implementation-timing announcement	30 January 2026; effective 3 February with specific application provisions; announcement 2 April 2026	C3, C4; purchasing and inspection rules; AI criteria codified for fourth-round application after the cutoff
South Korea	PPS About Innovative Procurement	Retrieved 11 September 2026; retrospective program description	C1, C3, C4; program design, designation figures, funding routes, purchase targets
South Korea	PPS announcement on entry, growth, and overseas expansion of innovative procurement firms	21 May 2024	C3, C4; aggregate program purchasing and designation data
South Korea	PPS 2026 Basic Plan for Pilot Purchase of Innovative Products	18 December 2025	C3, C4; budget expansion, follow-on purchase preference, re-challenge route
South Korea	PPS 2024 pilot-purchase announcements (second-round matching, June 10; third round, October 14)	10 June and 14 October 2024	C3; applicability to AI-related products (AI call-bot, AI cancer-reading program, AI social robot)

Source: Author's compilation. Locators appear in the References. Dates identify the selected instruments, not a claim that every historical consolidation was retrieved. Official implementation announcements supplement legal and policy documents; vendor marketing and independent news commentary are excluded from core coding.

Appendix C. Cell-level coding audit trail

Table C1 documents, for each condition–country cell in Table 2, the principal instruments relied on, the specific evidence supporting the score, material counter-evidence, and the rationale for boundary judgments. Instruments are identified as in Appendix B; full locators appear in the References.

Table C1. Evidentiary basis of the comparative coding

Case/ Condi- tion	Score	Principal instruments	Supporting evidence	Counter- evidence / caveat	Boundary rationale
KZ / C1	Medium	Res. No. 846 (2025); Digital Qazaqstan (2026); AI Governance Cup materials (2026)	Dedicated AI ministry, national digital strategy, and public-sector AI initiative descriptions	Universal ownership and budget conditions not established in consulted descriptions; some historical texts incompletely retrieved	Ownership mechanisms exist but are not a standing entry condition; fails the Table 1 “high” test of named ownership and budget/adoption authority at entry
KZ / C2	High/ medium	AI Law Arts. 13, 25, 27 (2025 enacted text); Res. No. 925 (2024)	Statutory authority for data provision, platform trial environment, data libraries; government-wide data-management rules	Trial period is limited; no located rule guarantees project-level continuity from trial to operation	High for statutory data-provision authority and governance; medium for project-specific continuity; components reported separately under Table 1 and A2
KZ / C3	Low	Procurement Law No. 106-VIII (2024); Order No. 687 (2024); AI Law (2025 enacted text)	General procurement law and procedural rules identified	Recurring AI trial-to-acquisition provision not located; historical implementing texts not exhaustively verified	Provisional low in the consulted architecture; incomplete retrieval limits any broader absence claim
KZ / C4	Medium	AI Law (2025 enacted text); transformation maps; ministry reporting on 2025 (2026)	Legal responsibility provisions; national indicator systems	No standardized, procurement-recognized pilot evaluation record located	KPIs and oversight exist but are not consistently procurement-relevant; matches Table 1 “medium”

KZ / C5	Medium	Concept 2024–2029; Digital Qazaqstan (2026)	Talent, dataset, and local-product priorities; shared platform lowers entry cost	No standard AI capability-transfer package in procurement or contract documents located	Encouragement without contracted obligations is Table 1 “medium”
AZ / C1	Medium	Council instrument (2026c); first implementation report (2026b)	Council; 58 action-plan initiatives; roadmaps prepared with 40 institutions, 13 approved or at approval stage	No demonstration that each AI pilot begins with named owner, team, and acquisition budget	Participation structures exist; standing ownership-at-entry not shown
AZ / C2	Medium	AI Strategy (2025); Action Plan (2026a)	Commitments to data-pool development, interoperability, and the once-only principle	Test-to-operation access protocol still being built	Lawful direction and infrastructure explicit; project-level continuity uneven
AZ / C3	Medium	Action Plan (2026a); Procurement Law (2023)	Action 8.3.7 proposes sandbox integration; action 8.2.6 addresses startups in state-enterprise procurement	Separate prospective actions; no automatic purchase entitlement or unified recurring route; sandbox deadline December 2026	Promised but procedurally incomplete mechanism; capped at “medium” per A2
AZ / C4	Medium	Action Plan (2026a); ASAN e-service evaluation research	Responsible officials, quarterly KPIs, user-satisfaction measurement	AI-specific criteria (error, oversight, model drift) and procurement recognition not yet specified	Oversight exists; procurement-relevant AI evaluation record incomplete
AZ / C5	Medium	Action Plan (2026a); INNOLAND programs	Explicit local-product and knowledge-transfer actions	Contract-level deliverables (Documentation, maintenance, monitoring) pending (documentation, maintenance, monitoring) pending	Encouraged, not yet contracted

KR / C1	medium-high	PBA Art. 5(1) (2); MOFE designation regulation (2026); PPS program pages (n.d.)	Demand-proposed route and pilot purchase embed a using institution that signs the evaluation	Supplier-proposed route permits designation before any institution owns a problem	Two recurring routes differ on the coded dimension; range reported per A2
KR / C2	Medium	PBA; Enforcement Decree Art. 33	Public users test in their own environments (ecological validity)	Sectoral privacy, interoperability, and security rules remain decisive per product; not settled by procurement rules	Trial access identified; governance for test-to-operation continuity incompletely evidenced under the common C2 rule
KR / C3	High	PBA Art. 27; Enf. Decree Art. 33; State Contracts Act Enf. Decree Art. 26; PPS Notice 2026-19; 2026 basic plan (2025)	Designation; conditional negotiated-contract eligibility; direct agency purchasing or central PPS pilot purchasing; result reporting	Ordinary three-year designation, extendable by up to three years; separately determined periods possible under the stated exception; demand not guaranteed; program totals not AI-specific	Law-backed recurring sequence meets Table 1 “high”; caveats retained in narrative rather than lowering the architectural score
KR / C4	High	PBA Art. 27(4); Enf. Decree Art. 33; PPS Notice 2026-19, Arts. 29, 33, 36–39, 40-3; PPS timing notice (2026b)	Approved pre-use plans; institution-head completion reports; user feedback; inspection provisions; publication; statutory liability protection	Dedicated AI criteria await application after the cutoff; discretionary checks do not establish continuous AI monitoring or effectiveness	Criteria, public-user sign-off, recorded feedback, inspection provisions, and liability allocation support Table 1 high at the institutional level
KR / C5	Medium	PPS program design; Yim et al. (2024)	Reference-customer and certification effects for startups and smaller firms	No standard requirement transferring maintenance, monitoring, or documentation capability to public organizations	Market-signal strength does not satisfy Table 1 “high,” which requires contracted transfer

Source: Author's coding. Abbreviations: PBA = Procurement Business Act; KZ = Kazakhstan; AZ = Azerbaijan; KR = South Korea.