

Article

Improving Strategic Public Procurement Planning by Public Contracting Authorities

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Abstract: This study examines the theoretical, institutional, and economic foundations of strategic public procurement planning by public contracting authorities and the mechanisms for aligning procurement with budgetary and investment planning, sectoral programmes, production plans, and public policy priorities. The annual and quarterly planning mechanisms established under Uzbekistan's current regulatory framework are compared with the integration of public procurement and public financial management in OECD countries, the World Bank's Project Procurement Strategy for Development (PPSD), and acquisition planning and multi-year contracting practices in the United States. Based on the findings, the article proposes a set of mutually reinforcing mechanisms: ex ante identification of medium- and long-term procurement needs; the introduction of rolling plans for major procurements covering at least three years; a dedicated Investment Project Procurement Plan; framework agreements and category-based procurement for recurring needs; a digital linkage between expenditure estimates/business plans and procurement plans; market-price- and inflation-linked price controls under framework agreements; and a requirement for at least three years of guaranteed operation, maintenance, and service support for technically complex goods.

Keywords: Public procurement, strategic planning, public contracting authority, multi-year procurement plan, budget planning, investment project, framework agreement, category management, life-cycle costing, total cost of ownership, market analysis, digital integration, econometric analysis.

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1. Introduction

Public procurement performance is frequently assessed in terms of the procurement method applied, the contract price, or the outcome of a tender. Yet a more fundamental stage precedes all of these indicators: the ability of a public contracting authority to forecast its needs accurately and translate them into a coherent strategic plan. Poorly planned procurement may generate excess inventories, repetitive purchases, year-end emergency procurement, the immobilisation of budgetary resources, higher maintenance costs, or delays in investment projects even when the subsequent procurement procedure itself is transparent and competitive.

The Law of the Republic of Uzbekistan "On Public Procurement" stipulates that procurement planning is undertaken by the public contracting authority and encompasses the systematisation of procurement needs as well as the alignment of procurement planning with budgetary, investment, and operational planning [1]. The legislation therefore establishes an institutional foundation for planning. Nevertheless, there remains

scope to further develop the planning horizon, links with sectoral programmes, category-level consolidation, and dedicated procurement strategies for major investment projects.

The Strategy for Improving and Developing the Public Procurement System for 2025-2027 envisages stronger controls at the planning stage, measures to prevent the purchase of products with specifications exceeding actual needs, and the integration of procurement planning, financial resources, supply chains, production, and other operational processes within a unified digital environment [2]. This policy direction underscores the need to move beyond a conventional annual procurement schedule towards a data-driven strategic management system.

The economic substance of strategic planning requires a contracting authority to answer a broader set of questions before asking simply "what should be purchased?": what outcome is the procurement intended to achieve, when and in what quantity is the need expected to arise, how will it be financed, from which market will it be sourced, and what costs will arise over the asset's entire operating life? Accordingly, this article conceptualises strategic procurement planning as an integrated mechanism encompassing demand forecasting, alignment with financial resources, advance signalling to the market, category consolidation, procurement strategies for investment projects, and contract life-cycle management.

The objective of the study is to assess the current state of strategic public procurement planning by contracting authorities from legal, institutional, and empirical perspectives, compare Uzbekistan's arrangements with international practice, and develop a multi-year, digitally integrated, and results-oriented model of strategic procurement planning adapted to the national context.

The scholarly literature on strategic public procurement planning has increasingly focused on the relationships among planning effectiveness, budget integration, market research, organisational capabilities, procurement governance, and value for money.

In the author's previous work on public procurement, needs identification, planning, selection of the procurement method, and contract implementation are treated as interdependent stages [3]. This perspective provides a basis for understanding planning not merely as the technical starting point of the procurement process, but as a managerial function that shapes the economic outcomes of subsequent procurement procedures.

V.V. Kikavets argues that public procurement planning enables resources to be concentrated on priority areas and public objectives to be achieved in a timely manner. In his view, a disconnect between financial provision and legal planning reduces overall effectiveness [4]. Kikavets and Tsaregradskaya further characterise procurement planning as an "immunity mechanism" of the budget process, emphasising the need to synchronise public needs with medium- and long-term resource availability [5].

Using data from 146 respondents in Tanzania and a binary logistic regression model, Chungalima, Mushi, and Mwaiseje find statistically significant associations between public procurement effectiveness and the implementation of prepared procurement plans ($p=0.039$), stakeholder and user involvement in planning ($p=0.033$), compliance with procurement legislation during planning ($p=0.016$), and budget adequacy ($p=0.042$) [6].

McCue and Gianakis argue that the public procurement function should evolve from operational purchasing towards strategic public management [7]. This implies that procurement professionals should not be confined to organising tenders; they should also forecast demand, analyse markets, and act as strategic managers responsible for generating greater value from public resources.

According to OECD data for 2025, procurement plans are aligned with the budget formulation process in 31 of 35 OECD countries (89%), yet only 19 countries (54%) report that their plans realistically and comprehensively reflect financial and human resource requirements. Full alignment with medium- and long-term budget plans is reported in 17

countries (49%), partial alignment in 10 (29%), while five countries have no such mechanism [8].

Under the World Bank's Project Procurement Strategy for Development (PPSD), procurement strategy is treated as a core planning instrument for achieving project development objectives and securing value for money. The PPCSD requires key contracts, market analysis, supply risks, contract packaging, market engagement, and the procurement approach to be considered at an early stage of project preparation [9].

Flores-Apaza et al. (2026), studying a public university in Peru, identify a positive association between strategic planning and procurement governance ($q=0.566$, $p<0.01$; $R^2=0.3295$). Their study identifies the preparatory phase as a major operational bottleneck, with an average delay of 71.6 days and selected economic losses reaching PEN 2.98 million [10].

Table 1. Synthesised findings from the literature on strategic procurement planning

Author/source	Principal approach	Relevance to the present study
Kikavets V.V. [4]	Concentration of resources on priority areas	Integration of financial planning and procurement planning
Kikavets, Tsaregradskaya [5]	Synchronisation of medium-/long-term needs and budgets	Theoretical basis for multi-year procurement planning
Changalima et al. [6]	Logit evidence: plan implementation, stakeholder involvement, compliance, and budget adequacy are significant	Empirical evidence on the effectiveness of strategic planning
OECD [8]	Budget-procurement integration and medium-term alignment	Benchmark for a three-year rolling plan and PFM integration
World Bank PPCSD [9]	Market analysis, risk, packaging, and market engagement	Prototype for an Investment Project Procurement Plan
Flores-Apaza et al. [10]	$q=0.566$; $R^2=0.3295$; preparatory-stage bottleneck	Econometric evidence of the planning-governance relationship
O'roqov U.Yu. [3]	Interdependence of planning, procurement method, and contract performance	Viewing the procurement cycle as an integrated management chain

Source: Author's compilation.

2. Research Methodology

The study employs legal and regulatory analysis, institutional comparative analysis, content analysis, dynamic and structural analysis, concentration measures, and ordinary least squares (OLS) regression with heteroskedasticity-robust standard errors for a small sample.

The regulatory and institutional framework examined includes the Law of the Republic of Uzbekistan "On Public Procurement", Resolutions No. 276 [11] and No. 865 of the Cabinet of Ministers, Presidential Decree No. PF-17 [12], as well as relevant OECD approaches [13], the World Bank PPCSD, the U.S. Federal Acquisition Regulation (FAR) [14], [15], and European Union public procurement practices [16].

The empirical analysis uses quarterly public procurement data for 2022-2025 disclosed by JSC National Electric Grid of Uzbekistan through its official website and the

national Open Data Portal [17]. Quarterly procurement flows were derived from differences between cumulative 3-, 6-, 9-, and 12-month values.

Year-end procurement concentration was assessed using the following indicator:

$$YEC_y = V_{y,Q4} / V_{y,annual} \times 100$$

where YEC_y denotes the share of fourth-quarter procurement in total annual procurement in year y ; $V_{y,Q4}$ is the value of procurement in the fourth quarter; and $V_{y,annual}$ is total annual procurement.

To measure the overall degree of temporal concentration, the following Quarterly Concentration Index (QCI) is proposed:

$$QCI_y = \sum_{q=1...4} s_{y,q}^2$$

where $s_{y,q}$ is the share of quarter q in the annual procurement value for year y . If procurement is evenly distributed across all four quarters, $QCI=0.25$; as the index approaches 1, procurement becomes increasingly concentrated in a single period.

The following regression specification was used to diagnose the year-end effect:

$$\ln(V_{y,q}) = \alpha + \beta \cdot Q4q + \gamma_y + \varepsilon_{y,q}$$

where $V_{y,q}$ denotes procurement value in quarter q of year y ; $Q4q$ is a dummy variable equal to 1 for the fourth quarter and 0 otherwise; and γ_y represents year fixed effects. HC1 heteroskedasticity-robust standard errors were used.

Methodological limitation. The sample consists of 16 quarterly observations for a single large state-owned enterprise. The regression results should therefore not be interpreted as a causal effect for Uzbekistan as a whole, but rather as diagnostic evidence of temporal concentration risk in strategic procurement planning.

3. Results

Institutional Foundations of Public Procurement Planning in Uzbekistan

The current Law requires public procurement planning to be aligned with budgetary, investment, and operational planning [1]. While this provision creates an important basis for strategic planning, the principal planning instruments used in practice remain annual and quarterly procurement schedules.

The 2025-2027 Strategy calls for rational procurement planning, public disclosure of annual plans, restrictions on specifications that exceed actual needs at the planning stage, and integration of procurement plans with financial resources and production processes through unified software [2]. From this perspective, Uzbekistan can be viewed as being in transition from annual compliance-oriented planning towards integrated strategic planning.

The efficiency principle embedded in the Law requires public procurement decisions to consider not only the price of goods, works, and services, but also the benefits derived from them, quality, and costs incurred over the period of use [1]. This provides a legal and economic basis for incorporating long-term maintenance, warranties, spare parts, and total cost of ownership into strategic procurement planning.

Table 2. Existing planning mechanism and strategic development needs

Element	Existing mechanism	Proposed direction for strategic improvement
Planning horizon	Annual and quarterly procurement schedules	Rolling 3+ year plan for major procurements
Budget linkage	General linkage with budget/investment planning	Link each procurement line to an expenditure-estimate/business-plan code
Demand forecasting	Annual demand	Medium- and long-term demand forecast
Investment project	General procurement plan	Dedicated Investment Project Procurement Plan
Recurring demand	Separate procurements or framework agreement	Category consolidation + framework agreement
Price adjustment	Within the existing regulatory framework	Market price + inflation/expert-review control
Technically complex goods	Technical requirements and contract terms	TCO + 3-year warranty/service/spare-parts support
Digitalisation	Plans and procedures on the procurement portal	ERP-budget-inventory-procurement-contract integration

Source: Author's compilation.

International Experience: Multi-Year and Integrated Planning

OECD evidence shows that the integration of procurement planning and public financial management remains incomplete even in advanced systems. Although 89% of the 35 countries surveyed align procurement plans with budget formulation, only 54% report that procurement plans realistically and comprehensively reflect financial and human resource needs. Full alignment with medium- and long-term budgeting is reported by 49% [8].

There is also substantial scope for deeper digital integration: 71% of OECD countries have integrated e-procurement systems with other digital government systems for real-time information exchange, whereas only 14% report integration with enterprise resource planning (ERP) systems [8]. This evidence reinforces the relevance of linking expenditure estimates, business plans, inventories, production processes, and procurement planning within a unified digital architecture in Uzbekistan.

In the World Bank PPSD model, strategic procurement planning is linked to the project's development objectives, market capacity, risk profile, contract packaging, and market engagement. The PPSD provides the analytical basis for the procurement plan and requires planning for major and high-risk contracts to begin at the project-concept stage [9].

U.S. FAR 7.102 requires acquisition planning and market research for acquisitions, while written acquisition plans address such matters as the approach to competition, market research findings, contract strategy, and life-cycle considerations [14]. FAR 5.404 also encourages the release of long-range acquisition estimates to enhance industry preparedness and stimulate new sources of supply [15].

Multi-year contracting in the United States permits specified requirements to be procured over several years within an approved programme. Greater demand visibility allows suppliers to plan production capacity, while public authorities may reduce transaction costs and the frequency of repetitive procurement procedures [15].

Table 3. International strategic planning mechanisms and lessons for Uzbekistan

Source/country	Mechanism	Application to Uzbekistan
OECD	Budget–procurement integration; medium-term alignment	Three-year rolling plan + budget/expenditure-estimate crosswalk
World Bank PPSD	Market analysis, risk, contract packaging, market engagement	Investment Project Procurement Plan
U.S. FAR Part 7	Acquisition planning + market research	Strategic acquisition plan for major procurement
U.S. FAR 5.404 / Part 17	Long-range estimates, multi-year contracting	Advance market signalling + multi-year demand
EU Directive 2014/24/EU	Estimated total value, framework/life-cycle approaches	Linking TCO and framework agreements to strategic planning

Source: Author's compilation.

Empirical Analysis of the Temporal Concentration of Procurement Based on Open Data

Quarterly procurement flows calculated from the open data of JSC National Electric Grid of Uzbekistan reveal substantial year-to-year variation in the timing of procurement. In 2022, the fourth quarter accounted for 56.1% of annual procurement, while in 2025 the corresponding share was 43.2%. By contrast, procurement in 2023 was heavily concentrated in the second quarter. Strategic planning risk therefore arises not only as a conventional "year-end effect", but also when predictable needs are compressed into any short period of the procurement calendar.

Table 4. Estimated quarterly procurement value of JSC National Electric Grid of Uzbekistan, 2022-2025, UZS billion

Year	Q1	Q2	Q3	Q4	Annual total
2022	3.1	16.0	24.1	55.1	98.2
2023	2.2	294.4	13.4	49.4	359.3
2024	97.6	16.1	14.3	69.3	197.2
2025	41.1	88.9	82.0	161.2	373.1

Source: Author's calculations based on the official open data of JSC National Electric Grid of Uzbekistan available through the national Open Data Portal (data.egov.uz).

Table 4 indicates that the annual procurement value of JSC National Electric Grid of Uzbekistan followed a highly volatile rather than stable trajectory over 2022-2025. Annual procurement increased from UZS 98.2 billion in 2022 to UZS 359.3 billion in 2023, representing an increase of approximately 3.7 times, or 265.9%. It subsequently declined by 45.1% to UZS 197.2 billion in 2024 before rising by 89.2% to UZS 373.1 billion in 2025. Comparing the beginning and end of the observation period, annual procurement increased by almost 3.8 times, corresponding to an indicative compound annual growth rate of approximately 56.0% over 2022-2025.

The quarterly composition reveals even more pronounced temporal asymmetry. In 2022, 56.1% of annual procurement occurred in the fourth quarter. In 2023, however, the concentration shifted to the second quarter, when procurement reached UZS 294.4 billion, equivalent to approximately 81.9% of the annual total. In 2024, the first quarter accounted for about 49.5% and the fourth quarter for 35.1% of annual procurement. Although procurement activity became relatively more balanced across the second and third

quarters in 2025, procurement in the fourth quarter still reached UZS 161.2 billion, or 43.2% of the annual total.

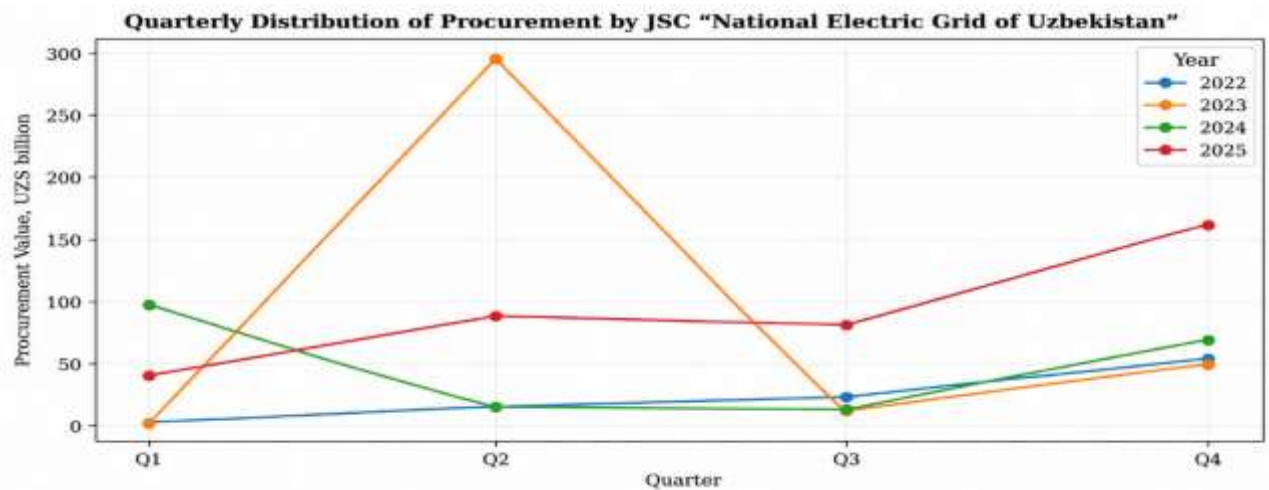


Figure 1. Quarterly distribution of procurement, 2022-2025

Source: Author's calculations based on the official open data of JSC National Electric Grid of Uzbekistan available through the national Open Data Portal (data.egov.uz).

The graphical representation in Figure 1 makes the volatility observed in the tabular data more explicit. Rather than displaying a smooth quarter-to-quarter pattern, the procurement series contains pronounced spikes in specific periods. The largest local peak occurs in Q2 2023, followed by another substantial peak in Q4 2025. This configuration points to high temporal variability in the procurement portfolio and supports the case for monitoring not only annual spending limits but also sharp deviations in quarterly and monthly procurement patterns.

In the author's view, such dynamic series can be incorporated into risk-based financial monitoring of public procurement. The share of a given quarter in annual procurement, quarter-on-quarter growth, and the degree of quarterly concentration should be assessed jointly. Where these indicators deviate materially from historical or policy-defined ranges, the system could automatically flag the contracting authority's procurement plan, funding source, initial price justification, and procurement method for enhanced review. Such an approach would support a shift from broad-based inspection towards targeted scrutiny of higher-risk transactions.

Table 5. Indicators of temporal procurement concentration

Year	Q4 share, % (YEC)	QCI	Interpretation
2022	56.1	0.402	high concentration
2023	13.8	0.691	high concentration
2024	35.1	0.380	moderate concentration
2025	43.2	0.304	moderate concentration

Source: Author's compilation.

The temporal concentration indicators reported in Table 5 provide a quantitative measure of the uneven distribution of procurement. Across the four years, the average share of fourth-quarter procurement was 37.0%, suggesting that a degree of year-end concentration persisted. In 2022, the YEC indicator reached 56.1%, meaning that more than half of annual procurement took place in the final quarter. Although the indicator declined to 43.2% in 2025, it remained substantially above the 25% benchmark associated with an equal quarterly distribution.

The QCI results demonstrate that temporal concentration is not confined to the fourth quarter. In 2023, QCI reached 0.691 and was classified as high concentration, primarily because UZS 294.4 billion of procurement was concentrated in the second quarter. Thus, the Year-End Concentration indicator (YEC) and the overall Quarterly Concentration Index (QCI) are complementary but conceptually distinct: YEC captures the extent to which procurement shifts towards the end of the year, whereas QCI detects excessive concentration in one or more periods irrespective of which quarter is affected.

The decline in QCI from 0.380 in 2024 to 0.304 in 2025 indicates a comparatively more even quarterly distribution of procurement. Nevertheless, the simultaneous increase in the fourth-quarter share to 43.2% in 2025 yields an important methodological implication: an improvement in an aggregate concentration index can coexist with a stronger year-end effect. Public procurement monitoring should therefore avoid reliance on a single aggregate measure and instead employ a composite risk dashboard incorporating YEC, QCI, quarter-on-quarter growth, the composition of procurement methods, and the share of large-value contracts.

From a financial-control perspective, a high temporal concentration of procurement may generate several potential risk channels. First, pressure to utilise budgetary or corporate resources before the end of a reporting period may compress procurement lead times. Second, conducting a large number of procedures within a short period may disperse oversight capacity and reduce the depth of scrutiny applied to individual transactions. Third, where delivery and contract performance extend into the following reporting period, the control chain between procurement outcome and payment becomes more complex. At the same time, large investment projects, seasonal maintenance, and delivery schedules for technological equipment in the electricity sector may objectively generate uneven quarterly patterns. Concentration indicators should therefore be interpreted not as evidence of wrongdoing in themselves, but as risk signals warranting additional analysis and, where appropriate, enhanced oversight.

Econometric Diagnostic Assessment

The regression results indicate a statistically significant tendency for procurement values to be higher in the fourth quarter. The specification controls for general differences in procurement values across years through year fixed effects.

Table 6. OLS estimates of the fourth-quarter effect

Indicator	Baseline model (2022–2025)	Robustness: excluding 2023
Observations	16	12
$\beta(Q4)$	1.079	1.143
HC1 robust SE	0.446	0.362
p-value	0.0156	0.0016
R ²	0.344	0.611
$\exp(\beta)-1$	+194.2%	+213.7%
Year fixed effects	Yes	Yes

Source: Author's compilation.

In the baseline model, $\beta=1.079$ with $p=0.0156$. In the log-linear specification, the transformation $\exp(\beta)-1$ implies that fourth-quarter procurement is associated with an approximately 194.2% higher procurement value relative to other quarters. When 2023, which contains the exceptionally large second-quarter concentration, is excluded as a robustness check, $\beta=1.143$, $p=0.0016$, and the corresponding transformed difference is approximately 213.7%.

This result should not be interpreted as evidence that the fourth quarter itself causes inefficiency. Major investment contracts, project implementation schedules, or financing phases may naturally generate concentration in a particular quarter. However, when a substantial share of predictable and recurring needs is compressed into a short period, procurement cycle time may be reduced, the time available for market research and competition may narrow, and pressure for urgent procurement may intensify. Monitoring YEC and QCI as strategic planning KPIs is therefore warranted.

Discussion

Transition from Annual Planning to Strategic Demand Management

An annual procurement schedule indicates what a contracting authority expects to purchase in the forthcoming year. A strategic plan should go further by explaining why and when the procurement is needed, the outcome it is intended to support, how demand is expected to evolve in subsequent years, how it will be financed, and what market capacity is available.

The first element of strategic planning should therefore be the ex ante identification of medium- and long-term needs, their alignment with financial resources, sectoral programmes, and public policy priorities, and their full, transparent, and analytically usable representation in electronic systems.

A distinction between “need” and “procurement” is essential. A need is a resource required to achieve an organisational outcome, whereas procurement is only one possible means of meeting that need. Strategic planning should therefore compare the use or repair of existing assets, leasing, joint procurement, centralised procurement, and new acquisition before a purchasing decision is made.

Recurring Needs: Category Management and Framework Agreements

Where recurring needs - such as office supplies, fuel, spare parts, IT services, communications, maintenance, and laboratory materials - are addressed through separate procurement cycles each time, transaction costs and calendar concentration may increase.

Accordingly, consolidating homogeneous and recurring requirements by category and expanding demand aggregation, framework agreements, centralised procurement, and joint procurement can contribute to more targeted, economical, and effective use of public resources.

Current legislation permits framework agreements to be concluded with several successful suppliers for periods ranging from one to three years [1, 11]. Their strategic value lies in signalling aggregate demand to the market in advance, establishing a competitive supplier pool, and avoiding the need to conduct a full new tender process for each recurring requirement.

A Dedicated Procurement Strategy for Major Investment Projects

Procurement risk in major state-linked investment projects differs materially from that of routine annual procurement. Interdependencies among technical design, site readiness, imported equipment, construction works, consultancy, commissioning, and related contracts may cause project delays if contract packaging or sequencing is poorly designed.

A principal advantage of the World Bank PPSD is that it integrates the procurement plan with the project’s development objectives, market conditions, and risk analysis [9]. Against this background, introducing a standardised Investment Project Procurement Plan for major state-linked investment projects in Uzbekistan could strengthen strategic project governance.

Such a plan should include, at a minimum, procurement packages, estimated contract values, financing sources, market approach, procurement method, market engagement,

local-content potential, the critical path, procurement milestones, risk ownership, contract-management KPIs, and life-cycle obligations.

From Initial Purchase Price to Whole-Life-Cycle Cost

Comparing technically complex and long-lived equipment solely on the basis of acquisition price may lead to strategically suboptimal decisions. A nominally cheaper asset may generate a higher total economic cost if local service capacity, spare parts, software licences, energy consumption, or maintenance costs are unfavourable.

For technically complex goods with an expected operating life exceeding three years and requiring local service infrastructure, it is therefore advisable to require suppliers to provide at least three years of guaranteed operation, maintenance, spare-parts availability, and service support.

This represents a shift from the acquisition price towards Total Cost of Ownership (TCO). Strategic planning based on TCO should incorporate not only the purchase price but also maintenance, service, energy, spare-parts costs, and disposal or residual value over the entire operating life of the asset.

$$TCO = P_0 + \sum_t [(M_t + S_t + E_t + SP_t)/(1+r)^t] - RV/(1+r)^T$$

where P_0 is the initial purchase price; M is maintenance cost; S is service cost; E is energy/operating cost; SP is spare-parts cost; RV is residual value; r is the discount rate; and T is the asset's operating life.

Scientific Novelty and Practical Recommendations

Based on the analysis, the author proposes the following mutually reinforcing mechanisms for improving strategic public procurement planning by contracting authorities. Several of these proposals are intended as institutional enhancements to existing annual and quarterly planning arrangements and should not be interpreted as requirements already established under current law.

1. Strategic forecasting of medium- and long-term needs. Public contracting authorities should identify their medium- and long-term needs in advance, align them with financial resources, sectoral programmes, and public policy priorities, and disclose them in electronic systems in a complete, transparent, and analytically usable form. Demand forecasts may be prepared under baseline, optimistic, and stress scenarios.

2. Introduction of rolling plans for major public procurements covering at least three years. Selected major public contracting authorities should prepare and approve rolling procurement plans covering at least three years, update them annually, and publish them on the dedicated public procurement information portal by 1 January each year. Such plans would not replace annual and quarterly schedules but would constitute a higher strategic planning layer.

The purpose of a three-year plan is not to create an irrevocable commitment to future procurement, but to provide a credible demand signal to the market, estimate financing needs in advance, allow sufficient preparation time for major contracts, and support the development of supplier capacity.

3. Harmonisation of the level of detail between expenditure estimates/business plans and procurement schedules. Contracting authorities should prepare expenditure estimates or business plans at the same level of detail as the goods, works, and services included in procurement schedules. Each procurement line should be digitally linked to its financing code, funding source, and corresponding budget or business-plan item.

A Budget-Procurement Alignment (BPA) indicator may be introduced for this purpose:

$$BPA = \frac{\sum(\text{moliyaviy manbaga biriktirilgan reja qiymati})}{\sum(\text{jami rejalashtirilgan xarid qiymati})} \times 100$$

The target value of BPA should be 100%. This would enable early detection of procurement items without confirmed financing, reduce double planning of resources, and minimise budget-procurement mismatches.

4. Introduction of an Investment Project Procurement Plan. For major state-linked investment projects, contracting authorities should prepare a dedicated Investment Project Procurement Plan using a standardised format approved by the competent public procurement authority.

The document should be conceptually similar to the World Bank PPSD but adapted to the national institutional environment, covering procurement packaging, market sounding, domestic industrial capacity, the critical path, contract interfaces, and procurement risks. This would bring procurement management forward from the post-financing stage to the feasibility and design stages of the investment project.

5. Wider use of unified competitive mechanisms for recurring needs. Category management, demand aggregation, framework agreements, centralised procurement, and joint procurement should be expanded for recurring goods and services in order to promote targeted, economical, and results-oriented use of public funds.

A strategic category plan should jointly assess annual and multi-year demand, the supplier base, standardisation potential, price dynamics, substitute products, domestic production capacity, and suitability for framework arrangements.

6. Linking second-stage price requests under framework agreements to dynamic market controls. Although current legislation permits framework agreements for periods of one to three years, a clearer mechanism for managing long-term price risk would strengthen their strategic effectiveness.

Under the proposed approach, second-stage price requests under a framework agreement concluded following a competitive selection should be based on the average market price generated by the electronic system, subject to a ceiling derived from cumulative inflation relative to the framework agreement's base price:

$$P_t(max) = \min[P_{market,t}; P_0 \times (1 + \pi_{0 \rightarrow t})]$$

where $P_{market,t}$ is the current average market price generated by the electronic system; P_0 is the base price under the framework agreement; and $\pi_{0 \rightarrow t}$ is cumulative inflation between the base date and the current date.

Where the price of the procurement item under a framework agreement concluded following a tender is increased, the adjustment should be permitted only where a positive comprehensive expert opinion on the price component is available. Such a mechanism would help distinguish objective market movements from unjustified contract-price revisions.

7. Three-year service obligations and TCO for technically complex goods. For technically complex goods with an operating life exceeding three years and requiring local service infrastructure, suppliers should be required to provide at least three years of guaranteed operation, maintenance, spare-parts availability, and service support.

Embedding this obligation in the technical component of the procurement strategy would facilitate a shift from the "lowest acquisition price" criterion towards "lowest life-cycle cost and assured availability". Downtime costs should also be assessed for medical equipment, energy equipment, specialised vehicles, servers, laboratory equipment, and other technological assets.

8. Introduction of a Strategic Procurement Planning Quality Index (SPPQI). The quality of procurement planning should be assessed not only by whether a plan is published on time, but also by its strategic content.

$$SPPQI = \sum w_k Z_k \quad \sum w_k = 1$$

The Z components are: H - planning horizon; B - alignment with the budget/business plan; P - alignment with public and sectoral policy; M - market analysis; C - category consolidation; D - digital transparency and data quality; L - consideration of life-cycle/TCO; and R - risk analysis. Weights may be determined using the Analytic Hierarchy Process (AHP), the entropy method, or expert assessment, taking sector-specific characteristics into account.

9. Creation of a Plan-to-Contract digital trace. Each contract should be linked to the corresponding strategic-plan item through a unique identifier: need forecast → budget line → procurement plan → procedure → contract → payment → performance. Large off-plan procurements, material delays relative to the plan, or year-end concentration should automatically generate risk alerts.

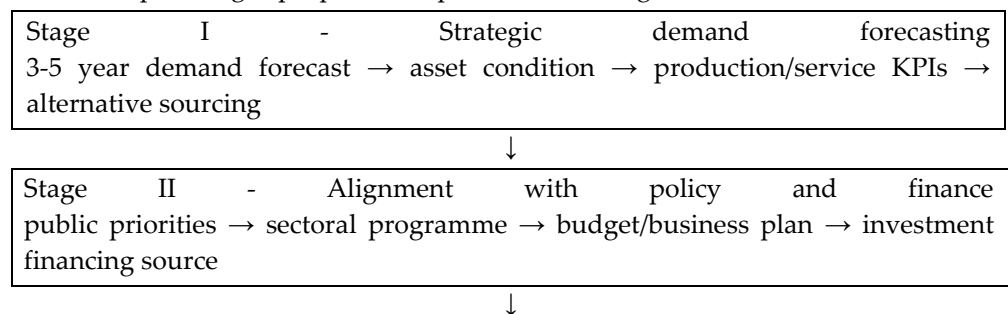
10. Automated KPIs and risk thresholds for year-end concentration. YEC and QCI should be calculated automatically for each public contracting authority. High concentration is not, by itself, evidence of a violation; however, where concentration remains high in recurring and predictable categories, a planning-quality review should be triggered.

Table 8. Proposed strategic planning mechanisms and expected economic outcomes

Proposal	Core economic mechanism	Expected outcome
3+ year rolling plan	Demand visibility + lead time	Reduced urgent procurement and calendar concentration
Budget–Procurement crosswalk	One-to-one linkage with the financing source	Reduced budget mismatches and immobilisation of funds
Investment Project Procurement Plan	PPSD/critical path/risk	Reduced project delays and contract-interface risk
Category + framework	Demand aggregation	Reduced transaction costs and repetitive procedures
Dynamic framework pricing	Market price + inflation/expertise	Management of price risk and restriction of unjustified indexation
3-year service obligation + TCO	Life-cycle cost	Reduced downtime and post-purchase costs
SPPQI	Planning quality score	Shift oversight from formal compliance to strategic quality
Plan-to-Contract trace	End-to-end data linkage	Ex ante risk detection and accountability

Source: Author's compilation.

11. Based on the preceding analysis, the following eight-stage model of strategic procurement planning is proposed for public contracting authorities:



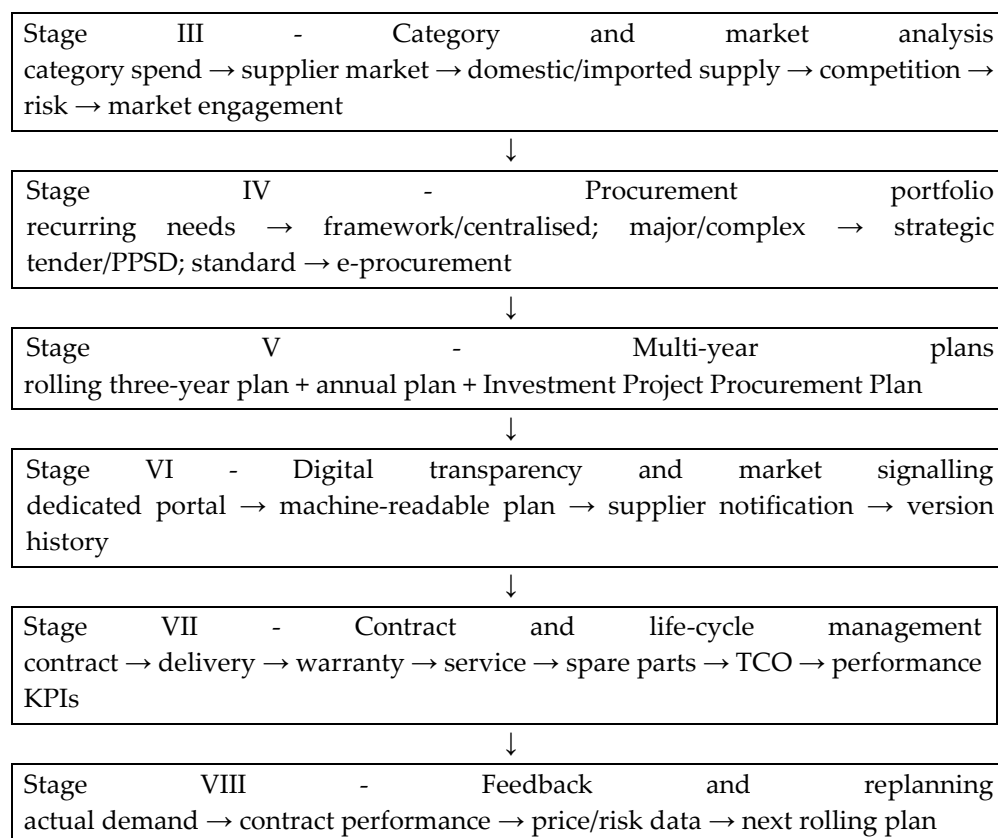


Figure 2. Integrated strategic procurement planning model for public contracting authorities

Source: Author's compilation.

Once lot-level and contract-level open data are fully integrated within national e-procurement systems, the effect of strategic planning on procurement outcomes could be assessed using a panel econometric model. The following specification is proposed:

$$VFM_{ijt} = \beta_0 + \beta_1 MTP_{ijt} + \beta_2 BPA_{ijt} + \beta_3 ME_{ijt} + \beta_4 FA_{ijt} + \beta_5 TCO_{ijt} + \mu_i + \tau_t + \varepsilon_{ijt}$$

where VFM is a proxy for value for money combining competition, price deviation, implementation time, and quality; MTP indicates whether the procurement was identified in advance in a multi-year plan; BPA denotes budget-procurement alignment; ME represents market engagement; FA captures the use of framework/category mechanisms; TCO reflects life-cycle requirements; μ_i denotes contracting-authority fixed effects; and τ_t denotes time fixed effects.

A second model may use a Logit or Probit specification to estimate the probability that procurement is conducted outside the plan or on an urgent basis:

$$Pr(Urgent_i=1) = F(\alpha + \beta_1 PlanHorizon + \beta_2 ForecastError + \beta_3 BudgetDelay + \beta_4 InventorySignal + \beta_5 CategoryPlan + \dots)$$

Following implementation of the proposed strategic planning mechanisms, these models could be combined with difference-in-differences or staggered-adoption designs to estimate causal effects. This would allow future regulatory reforms to be evaluated using identified econometric evidence rather than simple before-and-after comparisons.

4. Conclusion

The findings demonstrate that strategic public procurement planning extends well beyond the preparation of a routine annual procurement schedule. It encompasses demand forecasting, coordination of budgetary and investment resources, assessment of

market capacity, formation of the procurement portfolio, management of the contract life cycle, and feedback from implementation outcomes into subsequent planning cycles.

Uzbekistan's current legislation links procurement planning with budgetary, investment, and operational planning and provides for the disclosure of annual and quarterly plans through electronic procurement systems. The 2025-2027 Strategy further calls for the integration of planning, financial resources, and production processes within a unified digital environment. Together, these institutions provide an important legal foundation for a transition towards strategic procurement planning.

OECD evidence shows that, although integration between procurement plans and budgeting is widespread, medium- and long-term financial alignment and ERP integration remain limited. The World Bank PPSD and U.S. acquisition-planning practices likewise demonstrate the importance of addressing market analysis, risk, contract packaging, and long-range demand from the earliest stages of major and complex procurements.

The diagnostic econometric analysis based on the 2022-2025 open data of JSC National Electric Grid of Uzbekistan indicates a statistically significant tendency for fourth-quarter procurement values to exceed those of other quarters. In the baseline model, the fourth-quarter coefficient is $\beta=1.079$ ($p=0.0156$), corresponding to a transformed difference of approximately 194.2%. This should not be interpreted as a national causal estimate; rather, it supports monitoring calendar concentration as a strategic procurement-planning risk indicator.

In the author's view, the next stage of reform should involve a transition from an "annual procurement schedule" to a "rolling multi-year procurement strategy"; from parallel administration of expenditure estimates and procurement plans to a "budget-procurement digital crosswalk"; from isolated repetitive purchases to category management and framework agreements; from preparing procurement only after an investment project has advanced to a PPSD-type Investment Project Procurement Plan; and from a narrow focus on purchase price to TCO and assured service outcomes.

The proposed rolling plan for major procurements covering at least three years, the Investment Project Procurement Plan, the market-price-inflation-expert-review filter for framework pricing, three-year service obligations for technically complex goods, the SPPQI, and the Plan-to-Contract digital trace would facilitate a transition from reactive purchasing to proactive strategic procurement. These mechanisms are expected to improve the targeted, economical, and effective use of public resources, provide clearer market signals and adequate time for competition, and strengthen contract performance and investment-project outcomes.

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