



## Article

# Improving Financial Control Over the Planning of Public Procurement

Uchkun Yunusovich O'roqov\*<sup>1</sup>

1. PhD in Economics, Professor, Tashkent State University of Economics, Tashkent, Uzbekistan

\*Correspondence: [u.uroqov@tsue.uz](mailto:u.uroqov@tsue.uz)

**Abstract:** This article examines the theoretical, institutional and economic dimensions of improving financial control over the planning of public procurement. The procurement plan is interpreted as an ex ante management instrument linking the future requirements of a contracting authority to the budget, the investment programme, cash flow, inventory holdings and the supply market. The study draws on the current legislation of Uzbekistan, the World Bank PEFA assessment, open official data of the Ministry of Economy and Finance and of the Competition Committee, and OECD, World Bank and international academic research. In 2023, 48.2 per cent of procurement value was awarded through non-competitive methods, rising to a competitive share of 59.3 per cent once natural-monopoly services are excluded; in 2024 procurement volume approached UZS 248.6 trillion across approximately 1.8 million contracts. At this scale even minor planning errors generate significant fiscal and transaction losses. Applying the micro-data evidence of Liebman and Mahoney on end-of-fiscal-year spending concentration, the article proposes a lot-level econometric model for Uzbekistan incorporating plan publication date, plan amendments, year-end concentration, price deviation from a reference price and the number of bidders. The author develops a Procurement Planning Quality Index, a plan stability coefficient, a year-end concentration coefficient, a plan-to-contract digital trail and a planning risk score.

**Citation:** O'roqov U. Y. Improving Financial Control Over the Planning of Public Procurement. American Journal of Social and Humanitarian Research 2025, 6(9), 2339-2350

Received: 09<sup>th</sup> Jun 2025

Revised: 10<sup>th</sup> Jul 2025

Accepted: 20<sup>th</sup> Aug 2025

Published: 30<sup>th</sup> Sept 2025



**Copyright:** © 2025 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Public Procurement, Procurement Planning, Ex Ante Control, Budget Planning, Competition, Risk Analysis, Procurement Plan, Plan Stability, Digital Control, Procurement Efficiency.

## 1. Introduction

The efficiency of public procurement is frequently assessed only after the procurement procedure has been completed – through the number of bidders, the contract price, the savings achieved or the performance of the contract. Yet the greater part of the procurement outcome is determined before the tender is announced. If the requirement is incorrectly assessed, if the procurement is planned late, if quantities are set too high or too low, if the technical specification does not correspond to market capabilities, or if the financing schedule is not aligned with the supply cycle, no subsequent competitive procedure can fully compensate for these errors.

Procurement planning is therefore not an initial administrative step in the procurement cycle but a strategic management function that predetermines the subsequent efficiency of budget expenditure. Planning must encompass the identification of the requirement, the standardisation of the procurement object, the determination of the source of financing, market research, the selection of the procurement method and timing,

the optimal formation of lots, and the creation of a realistic time reserve for contract performance.

The Law of the Republic of Uzbekistan on Public Procurement defines procurement planning as a process carried out by the contracting authority which systematises procurements and ensures their alignment with budget, investment and economic planning [1]. The prevailing rules require annual and quarterly plan schedules to be published on the special information portal, setting out core parameters such as the procurement object, quantity, value, month, source of financing and place of delivery [2].

The possibility of amending plan schedules provides contracting authorities with the managerial flexibility required to adapt to changing external conditions. However, where frequent amendments are made very close to the announcement of a procurement and this becomes systematic, the forecasting function of planning is weakened and the plan risks becoming a document that merely formalises decisions already taken. From this perspective the frequency, cause and timing of plan amendments should constitute a distinct object of control. A high-quality plan published in good time is not only an internal management document for the contracting authority but also a market signal for the supply side.

The central research problem is that, in practice, control over planning is often confined to verifying that a plan exists and that it was uploaded to the portal within the prescribed deadline. From the standpoint of economic efficiency, however, the quality of the plan matters more: its stability, realism, correspondence to market conditions, time horizon, the divergence between planned and contracted parameters, the balanced distribution of procurements across the year, and its connection with performance outcomes. The objective of the article is to assess the existing institutional mechanisms of control over public procurement planning, to identify the economic risks of inadequate planning on the basis of open official data and international econometric evidence, and to develop a data-driven ex ante digital control model for Uzbekistan.

Four principal strands can be distinguished in the scholarly literature on public procurement planning: the integration of the procurement plan with the budget process; the ex ante analysis of demand and of the market; the optimal distribution of procurements over time; and the assessment of the relationship between planning quality and subsequent procurement outcomes.

Analysing the experience of the United States Federal Acquisition System, Anchishkina presents procurement planning as a system connecting the formation of public requirements, the allocation of budget resources and contracting [3]. In her approach the effectiveness of planning depends less on the plan document itself than on its integration with the budget and contract cycle. Kostina links the planning function to the information and control system, arguing for the consolidation of plans, contracts and performance data within a single monitoring framework [4]. This approach is close to the plan-to-contract digital trail concept advanced below, which envisages the automatic comparison of plan parameters with subsequent procurement outcomes. Kikavets treats planning as the foundation for the effective financial provision of public procurement, holding that a mismatch between public requirements, budget ceilings and procurement conditions leads either to the inefficient commitment of financial resources or to rushed absorption of funds at the end of the year [5]. In the author's textbook, planning is examined as the principal initial stage of the procurement process, systematising the tasks associated with identifying the requirement, securing financing and selecting the procurement object and procedure [6].

The OECD identifies the integration of public procurement with the budget process as one of the core principles of an effective procurement system. As of 2024, 88 per cent of the jurisdictions surveyed reported that procurement plans were aligned with budget formulation and planning, yet only half indicated that plans set out financial and human

resource requirements in sufficient detail [7]. This finding demonstrates a fundamental distinction between the existence of a plan and the quality of a plan. The MAPS methodology emphasises that annual or multi-annual procurement plans should support budget formulation, multi-annual financial planning and the forward visibility of the procurement process [8]. From the MAPS perspective, sound planning is not merely the compilation of a list of procurements but requires justification of the requirement, the market, lotting, method and timing.

The OECD review of Kazakhstan notes that the early publication of annual procurement plans, together with the specification of the procurement object, method, planned month and delivery deadlines, improves the ability of suppliers to plan ahead, while incomplete plans, late publication and frequent amendment are potential sources of supplier complaints [9]. World Bank results on the e-GP reform in Bangladesh show that digitising and monitoring the entire procurement cycle can shorten procurement timelines: the average period from tender announcement to contract signature fell from 100 days to 53 days by 2023, the share of e-GP rose from 2 per cent in 2017 to 80 per cent in 2022, and electronic procurement significantly reduced administrative costs [10]. This experience indicates that planning should be treated not in isolation from the electronic procedure but as the first stage of an end-to-end digital cycle.

Analysing micro-data on United States federal procurement, Liebman and Mahoney provide empirical evidence that 'use-it-or-lose-it' budget incentives produce a sharp concentration of expenditure at the end of the fiscal year [11]. In data covering 14.6 million contracts over 2004–2009, approximately 1.9 per cent of annual spending occurred in a typical week, whereas 8.7 per cent occurred in the final week of the fiscal year – 4.9 times higher than in a typical week. Examining 686 major information technology projects, the same authors show that projects initiated in the final week were two to six times more likely to receive a low quality rating, with quality scores on average 1.9 percentage points lower in certain specifications. The markedly lower year-end concentration observed at the United States Department of Justice, where the scope for carrying funds over is greater, is cited as quasi-experimental evidence.

Bandiera, Prat and Valletti, studying the procurement of standardised goods by Italian public bodies, distinguish between 'active waste', associated with corrupt gain, and 'passive waste', arising from poor organisation and from deficiencies in information and managerial capability [12]. Planning errors are an important source of passive waste and may generate economic losses – through higher prices, fragmented demand, poorly constructed lots or late procurement – even in the complete absence of corruption.

The general conclusion of the literature is that the effectiveness of a procurement plan cannot be reduced to the question of whether the plan was published on time. The scientifically significant question is the measurement of the effect of plan parameters on subsequent competition, price, contract performance and budget outcomes. The absence in Uzbekistan of open micro-data and of a dedicated indicator system capable of assessing such plan-to-outcome relationships defines the research gap addressed by this study.

## 2. Materials and Method

The study employs normative-legal analysis, comparative institutional analysis, diagnostic analysis of open statistical data, econometric specification, scenario analysis and scientific abstraction. The empirical base for Uzbekistan comprises the 2023 public procurement data reported in the World Bank 2024 PEFA assessment [13], the 2024 procurement results published by the Ministry of Economy and Finance [14], the analyses of public procurement conducted by the Competition Committee in 2022–2024 [15], [16], and the applicable normative-legal acts [1], [2].

### *Diagnostic indicators*

The following indicators are proposed conceptually for the assessment of planning quality. The plan stability coefficient is defined as:

$$\text{RBC} = 1 - (\text{N\_amend} / \text{N\_plan})$$

where N\_amend is the number of amendments introduced to plan items and N\_plan is the number of items in the annual plan. A higher value indicates a more stable plan. Where a single item is amended several times, a value-weighted measure or an item-version count is preferable. The year-end concentration coefficient is:

$$\text{YEC} = \text{V\_end} / \text{V\_year} \times 100$$

where V\_end is the value of procurements conducted in December, in the fourth quarter or in the final thirty days of the fiscal year, and V\_year is the annual value of procurements. The indicator must be assessed with reference to the procurement category and to seasonality; otherwise objectively seasonal procurements may be incorrectly flagged as a risk. The deviation of the planned price from the reference price is:

$$\text{PPD} = |\text{P\_plan} - \text{P\_ref}| / \text{P\_ref} \times 100$$

where P\_plan is the price stated in the plan and P\_ref is a reference price normalised on the basis of artificial intelligence estimation, market data or historical contracts. Finally, the quantity deviation is:

$$\text{QDV} = |\text{Q\_plan} - \text{Q\_contract}| / \text{Q\_plan} \times 100$$

A high QDV may indicate an error in the demand forecast, a change in financing or a revision of the technical specification.

### *Econometric approach*

A consolidated machine-readable micro-dataset linking all versions of procurement plans, the date of each amendment and subsequent contract outcomes is not fully available in open form on Uzbekistan's portals. For this reason the article does not generate spurious regression results for Uzbekistan. The econometric analysis is conducted in two parts: published and reliable regression results based on international micro-data are analysed; and a lot-level model specification is developed that could be implemented within Uzbekistan's electronic procurement system.

The principal specification of Liebman and Mahoney may be expressed in simplified form as:

$$\text{Quality}_i = \alpha + \beta_1 \text{LastWeek}_i + \gamma X_i + \mu_{\text{agency}} + \tau_{\text{year}} + \varepsilon_i$$

where Quality<sub>i</sub> is the quality score of an IT project, LastWeek<sub>i</sub> is a dummy indicating that the procurement was initiated in the final week of the fiscal year, X<sub>i</sub> denotes project characteristics, and μ<sub>agency</sub> and τ<sub>year</sub> are agency and year fixed effects. In the published results β<sub>1</sub> is negative, indicating lower quality for projects initiated at the year-end [13]. The principal risk model proposed for Uzbekistan is specified as:

$$\text{Pr}(\text{Risk}_i = 1) = \text{logit}^{-1}(\alpha + \beta_1 \ln(\text{Lead}_i + 1) + \beta_2 \text{Amend}_i + \beta_3 \text{LateAdd}_i + \beta_4 \text{Q4}_i + \beta_5 \text{PPD}_i + \delta Z_i + \mu_{\text{c}} + \tau_{\text{m}})$$

where Risk<sub>i</sub> equals one if the procurement was cancelled, attracted a single bidder, generated a complaint, resulted in a contract amendment, experienced a delivery delay or produced another defined risk outcome; Lead<sub>i</sub> is the number of days between publication of the plan and commencement of the procurement; Amend<sub>i</sub> is the number of plan amendments; LateAdd<sub>i</sub> indicates late addition or amendment; Q4<sub>i</sub> indicates a fourth-quarter procurement; PPD<sub>i</sub> is the price deviation; Z<sub>i</sub> denotes control variables such as method, value, category and region; μ<sub>c</sub> is a contracting-authority fixed effect; and τ<sub>m</sub> denotes month effects.

The research hypotheses are as follows. H1: an increase in lead time reduces the probability of risk (β<sub>1</sub> < 0). H2: an increase in the number of amendments and in late

additions raises risk ( $\beta_2, \beta_3 > 0$ ). H3: unjustified year-end concentration raises risk even after seasonality is controlled for ( $\beta_4 > 0$ ). H4: a large deviation of the planned price from the reference price adversely affects subsequent procurement outcomes ( $\beta_5 > 0$ ).

Because the number of bidders is a count variable, a Poisson or negative binomial model is recommended for assessing effects on competition:

$$E[\text{Bidders}_i | X] = \exp(\alpha + \beta_1 \ln(\text{Lead}_i + 1) - \beta_2 \text{Amend}_i - \beta_3 \text{Q4}_i - \beta_4 \text{PPD}_i + \delta Z_i)$$

Where dispersion is high, a negative binomial specification is preferable to the Poisson model. To assess the effect of planning on price outcomes, OLS or quantile regression may be applied to savings or to the contract-to-reference price ratio. The variables of the proposed dataset are summarised in Table 1.

**Table 1.** Variables of the econometric dataset proposed for Uzbekistan.

| Variable                     | Measurement                                                          | Expected effect                     |
|------------------------------|----------------------------------------------------------------------|-------------------------------------|
| Lead                         | Days from publication of the plan to commencement of the procurement | Risk –; competition +               |
| Amend                        | Number of amendments to the plan                                     | Risk +                              |
| LateAdd                      | Item added or amended late (dummy)                                   | Risk +                              |
| Q4 / Last30                  | Fourth quarter or final thirty days (dummy)                          | Risk +; quality –                   |
| PPD                          | Deviation of planned price from reference price, per cent            | Risk +                              |
| QDV                          | Deviation between planned and contracted quantity, per cent          | Risk +                              |
| Bidders                      | Number of bidders                                                    | Outcome and competition indicator   |
| Value                        | ln(estimated value)                                                  | Control variable                    |
| Category / Region / Customer | Fixed effects                                                        | Controls for structural differences |

*Source: author's compilation.*

#### ***Data limitations and the sample-selection problem***

The 'share of problematic procurements' reported in the analyses of the Competition Committee is not interpreted here as the frequency of infringement in the public procurement market as a whole. Supervisory bodies typically select for analysis those procurements that display elevated risk indicators. Accordingly:

$$P(\text{Violation} = 1 | \text{Selected} = 1) \neq P(\text{Violation} = 1)$$

That is, the share of infringements within a selected supervisory sample does not directly represent the true share within the population. Conducting causal or representative econometric analysis in future will require a population-level dataset linking plan-version, tender, award and contract data for all procurements [17].

### **3. Results and Discussion**

#### ***The institutional mechanism of procurement planning in Uzbekistan***

The current legislation requires procurement plans to be linked to budget and investment planning. Budget-funded contracting authorities publish the annual plan schedule on the special information portal by 25 March of the current year, while corporate contracting authorities publish the plan for the following year by 25 December. Quarterly plans are published before the beginning of the following quarter [1]. This arrangement provides a normative basis for aligning procurement with the financing period and for signalling demand to the market in advance.

Under Resolution No. 276 of the Cabinet of Ministers, annual and quarterly plan schedules may be amended, provided that amendments are made at least three working

days before the commencement of the procurement procedure [2]. This provision affords the necessary operational flexibility. From an academic standpoint, however, the task of control should extend beyond verifying whether amendment is permissible, to assessing the frequency, financial weight, causes and outcome effects of amendments. Table 2 summarises the planning requirements and the corresponding control points.

**Table 2.** Procurement planning requirements and control points in Uzbekistan.

| Planning element          | Current requirement or practice                          | Proposed control point                                          |
|---------------------------|----------------------------------------------------------|-----------------------------------------------------------------|
| Annual and quarterly plan | Publication on the special portal                        | Timeliness, completeness and realism                            |
| Link to the budget        | Alignment with the budget, investment and business plan  | Automated verification against financial ceilings and cash flow |
| Content of the plan       | Object, quantity, value, month, source, place            | Verification against technical standardisation and market data  |
| Amendment of the plan     | Permitted at least three working days before procurement | Version history, cause codes, change-risk score                 |
| Domestic market signal    | From 2026 plan data are transmitted to producers         | Market readiness and supplier responses                         |
| Link to performance       | Procurement is conducted on the basis of the plan        | Plan → tender → award → contract → delivery trace               |

*Source: author's compilation.*

#### ***National diagnostics based on open official statistics***

According to the World Bank PEFA assessment, the 2023 public procurement database covered data on the procurement object, value and successful supplier, and the coverage of monitoring was rated highly. The total value of recorded procurements in 2023 amounted to UZS 76,971.2 billion. Of this, UZS 39,883.0 billion, or 51.8 per cent, was awarded through competitive methods and UZS 37,088.1 billion, or 48.2 per cent, through non-competitive methods. Once four principal groups of natural-monopoly services are excluded, the share of competitive procurement rises to 59.3 per cent [13].

These figures do not establish a direct causal relationship with planning quality, but they demonstrate the importance of selecting the procurement method and of assessing market opportunities at the ex ante stage. If the availability of competition is not fully examined during planning, or if time pressure creates a need for an accelerated method, the scope for broadening competition at the subsequent stage is constrained.

According to official data of the Ministry of Economy and Finance, the volume of public procurement in 2024 amounted to UZS 248.6 trillion, with approximately 1.8 million contracts concluded and savings of UZS 13.9 trillion recorded as a result of competitive procurement [14]. At this scale, even a one per cent resource error attributable to planning quality could in theory translate into the temporally misallocated commitment of billions or trillions of som, or into delay in the procurement cycle. This one per cent illustration is a scenario device and not an estimate of actual loss. Table 3 consolidates the open diagnostic indicators.

**Table 3.** Open official diagnostics of public procurement in Uzbekistan.

| Indicator                          | Result                                    | Implication for control                                             |
|------------------------------------|-------------------------------------------|---------------------------------------------------------------------|
| 2023 PEFA: total procurement value | UZS 76,971.2 billion                      | Scope exists to integrate planning-related micro-data               |
| 2023 competitive methods           | 51.8%; 59.3% excluding natural monopolies | Method selection and market analysis are objects of ex ante control |
| 2023 non-competitive methods       | 48.2%                                     | The scope for competition must be documented at the planning stage  |

| Indicator                               | Result                                            | Implication for control                                  |
|-----------------------------------------|---------------------------------------------------|----------------------------------------------------------|
| 2024 total public procurement           | UZS 248.6 trillion; approx. 1.8 million contracts | Even minor planning errors carry a large fiscal scale    |
| 2024 savings in competitive procurement | UZS 13.9 trillion                                 | Savings KPIs should be complemented by plan-quality KPIs |

*Source: compiled by the author on the basis of [15] and [16].*

#### ***Planning-related risks in the analyses of the Competition Committee***

In 2022 the Competition Committee analysed 62,465 tender procurements and identified a total of 27,730 competition-restricting actions in 18,738 of them. A proportion of the recorded cases related to factors arising at the procurement design and planning stage, including the unjustified exclusion of bidders, the creation of preferential conditions, excessively onerous technical requirements, unreasonably short delivery periods and the bundling of unrelated goods or services into a single lot [15].

In 2023 the Committee analysed 25,867 procurements and recorded 21,574 competition-restricting actions in 16,493 of them; at the end of 2024, 23,001 procurements were analysed and 28,304 such actions were identified in 16,135 of them [15], [16]. Interpreting these shares across years as evidence that infringement has increased would be methodologically incorrect, since the supervisory sample is risk-oriented and the selection criteria may differ from year to year; the marked reduction in the number of procurements analysed between 2022 and 2023 reflects a change in selection methodology rather than a contraction of the market. The data nevertheless indicate that planning and technical-specification problems are significant among the procurements identified by the supervisory authority as high-risk (Table 4).

**Table 4.** Risk-oriented analyses of the Competition Committee, 2022–2024.

| Period | Procurements analysed | Problematic procurements | Share, % | Actions identified | Actions per problematic procurement |
|--------|-----------------------|--------------------------|----------|--------------------|-------------------------------------|
| 2022   | 62,465                | 18,738                   | 30.0     | 27,730             | 1.48                                |
| 2023   | 25,867                | 16,493                   | 63.8     | 21,574             | 1.31                                |
| 2024   | 23,001                | 16,135                   | 70.1     | 28,304             | 1.75                                |

*Source: compiled by the author on the basis of [15] and [16]. Note: these figures are the results of selective, risk-oriented supervision and do not represent the frequency of infringement across the entire population of public procurements.*

#### ***Econometric evidence: year-end rush procurement and quality***

Interpreted from the standpoint of procurement planning, the findings of Liebman and Mahoney indicate that year-end concentration is not merely a matter of expenditure discipline but a joint indicator of planning quality and budget incentives. The execution of 8.7 per cent of annual expenditure within a single week represents a pronounced departure from a normal distribution. The 1.9 percentage-point reduction in quality and the two- to six-fold increase in the probability of low quality demonstrate that this time pressure is associated with real outcomes [11].

These results cannot be transferred mechanically to Uzbekistan, since budget rules, procurement methods and the institutional environment differ. They do, however, provide a strong empirical basis for incorporating indicators such as the Procurement Planning Quality Index and the year-end concentration coefficient into the control architecture. Once plan versions and contract outcomes are linked in open micro-data in Uzbekistan, this hypothesis can be tested directly on national data. Table 5 sets out the correspondence between the international evidence and the hypotheses to be tested.

**Table 5.** International econometric evidence and hypotheses to be tested for Uzbekistan.

| Evidence or indicator                            | International result                                                  | Test for Uzbekistan                                    |
|--------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------|
| Expenditure in the final week of the fiscal year | 8.7% (typical week approx. 1.9%); 4.9 times higher                    | Last30 and Q4 dummies; YEC                             |
| Quality of IT projects                           | Final-week projects two to six times more likely to be of low quality | Contract delay, complaint and quality outcomes         |
| Average quality differential                     | -1.9 percentage points in certain models                              | Fixed-effects regression                               |
| Scope for rollover                               | Lower year-end surge at the Department of Justice                     | Interaction with financing type and reallocation rules |
| Passive waste                                    | Managerial and organisational error raises prices                     | Plan amendment, lotting and market-sounding indicators |

*Source: compiled by the author on the basis of [11] and [12].*

### Discussion

For legal control, the existence of the plan schedule and its publication within the prescribed deadline are what matter. For economic control, this is not sufficient. A plan may be published at the start of the year yet subsequently amended several times; a large share of procurement may shift to the end of the year; quantities and prices may diverge sharply from those eventually contracted; or the market may be left without time for suppliers to prepare. In such cases the formal requirement is satisfied while the quality of planning remains low. Control must therefore be extended from a compliance-based approach to a performance-and-risk-based approach. The governing question changes from 'does a plan exist?' to 'is the plan realistic, stable and market-consistent, and what outcome did it produce?'

Competition does not emerge on the day the tender notice is published. If a potential supplier receives advance information about demand, it can plan production, imports, financing, certification and logistics. Conversely, short-notice and unanticipated procurements confer a relative advantage on the narrow group of firms that happen to hold existing stock or ready logistics capacity.

In budget execution, the timely absorption of funds may serve as an indicator of financial discipline. Absorption is not, however, an economic outcome in itself. If late planning causes numerous contracts to be concluded in haste during the fourth quarter or in the closing weeks of the year, pressure may be placed on competition, technical expertise and contract quality. It is therefore appropriate for procurement supervision to employ a temporal balancing KPI alongside the conventional annual absorption ratio.

Amending a plan may be the economically correct decision in justified circumstances: an emergency requirement, a price shock, a change in budget parameters, a new task or altered technical conditions. A simplistic criterion under which more amendments are always worse should therefore not be applied. The appropriate approach is to code the causes of amendment, to distinguish objective causes from managerial error, and to link both to subsequent procurement outcomes.

### *Scientific novelty and practical proposals*

In our view, the following scientific and applied mechanisms should be introduced in order to improve control over the sound planning of public procurement.

1. Introduce a mechanism for the automatic transmission to domestic producers of data on goods contained in the plan schedules of contracting authorities. This would

strengthen advance market preparation, signal demand to potential suppliers and institutionalise the market-preparation function.

2. Introduce a Procurement Planning Quality Index (PPQI), assessing the plan not simply as present or absent but comprehensively on a scale of 0 to 100:

$$\text{PPQI} = w_1L + w_2S + w_3P + w_4Q + w_5C + w_6M$$

where L denotes the planning horizon or lead time; S denotes plan stability; P denotes price accuracy; Q denotes quantity accuracy; C denotes the balancing of procurements across the year; and M denotes market readiness. All components are normalised to the 0–100 range, and the weights  $w_1$ – $w_6$  may be calibrated through the analytic hierarchy process, the entropy method or expert assessment. Prior to empirical validation the weights should be regarded as conceptual parameters rather than as binding norms.

3. Exercise control over plan amendments on a version-control basis. The date, initiator, cause, effect on price or quantity and subsequent outcome of every amendment should be retained. Amendments may be classified under codes such as objective external factor, budget change, error in demand forecast and revision of technical specification.

4. Introduce an automatic risk indicator for year-end concentration. The share of an organisation's procurement falling in the fourth quarter and in the final thirty days should be compared with its own historical profile and with the seasonality of the relevant product category.

5. Incorporate plan-to-actual divergence into key performance indicators. The price, quantity and procurement month set out in the plan should be compared automatically with the parameters of the resulting contract, and large PPD or QDV values should be closable only with a recorded explanation.

6. Integrate the procurement plan with warehouse records, the asset register and consumption norms. Where sufficient stock of an identical item is held, an automatic alert should be generated against new procurement; where reserves fall to a minimum level, an advance procurement signal should be produced.

7. Incorporate market sounding and supplier readiness into the planning process. For large and complex procurements, the number of suppliers in the market, production and delivery lead times and technical alternatives should be examined once the plan has been published.

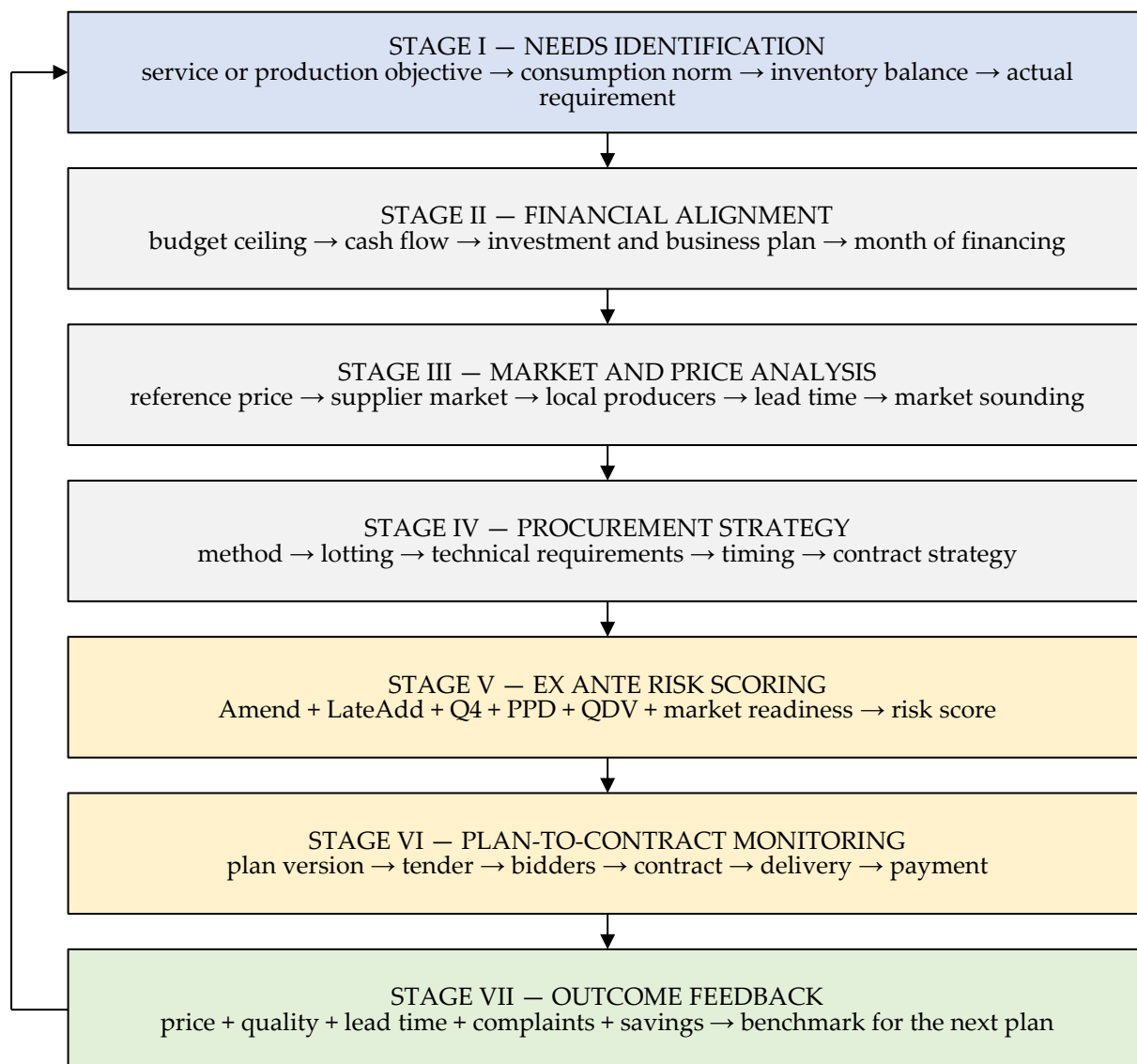
8. Introduce a lot optimisation algorithm capable of automatically detecting the risks of unjustified fragmentation of demand and of the artificial bundling of unrelated objects.

9. Apply a rolling procurement plan model. The annual plan is retained as the strategic base, while a rolling horizon of six to twelve months is re-forecast monthly or quarterly, securing flexibility and forward visibility simultaneously.

10. Differentiate ex ante control according to the planning risk profile. Rather than subjecting all plans to identical verification, enhanced scrutiny should be directed at items characterised by high value, numerous amendments, late inclusion, large PPD, fourth-quarter concentration and low market readiness.

11. Publish the history of plan versions as open data. Enabling the first version of the plan, every amendment and the final contracted outcome to be downloaded from the special portal in machine-readable format would strengthen both academic analysis and public oversight [19].

12. Introduce the proposed integrated model of control over procurement planning. The model initiates control not after the procurement notice has been issued but at the moment the requirement is formed, and transmits the outcome of contract performance back into subsequent planning (Figure 1).



**Figure 1.** Integrated digital model of control over public procurement planning.

*Source: author's elaboration.*

The model differs in principle from existing practice in that the object of control is not the plan document alone but the quality of the planning decision and its subsequent outcome. Delay in contract performance, quality problems or price deviation are automatically incorporated into the following year's plan as a benchmark and as risk history. Planning thereby moves from the preparation of a one-off document to a self-learning procurement planning cycle.

#### 4. Conclusion

The findings demonstrate that the sound planning of public procurement is the principal ex ante condition for the efficient use of budget resources. The procurement outcome begins to take shape not with the tender notice but at the stage at which the requirement, quantity, price, timing, market and lot strategy are determined. In Uzbekistan, the current legislation has established an institutional basis for linking procurement plans to budget and investment planning, for publishing annual and quarterly plans, and for conducting procurement on the basis of the plan.

Open official statistics show that the financial scale of public procurement is very substantial: in 2024, approximately 1.8 million contracts worth UZS 248.6 trillion were concluded. Systematic planning errors are therefore not a minor administrative deficiency

but a major fiscal, competition and transaction risk. The fact that the risk-oriented analyses of the Competition Committee recorded cases relating to procurement design – excessively onerous technical requirements, unreasonably short delivery periods and the bundling of unrelated goods into a single lot – indicates the need to shift control from the tender outcome to the planning stage. Since these samples are risk-oriented, however, they cannot be interpreted as the general level of infringement.

International econometric evidence likewise demonstrates the effect of poor temporal planning on quality. In United States federal procurement, 8.7 per cent of annual expenditure fell in the final week, and IT projects initiated in that week performed significantly worse in terms of low-quality risk. This supports treating year-end concentration in procurement supervision not solely as a matter of cash execution but also as an indicator of quality and of planning.

In our view, the next stage of control should move from the question of whether the plan was published on time to the question of how realistic, stable and productive the plan is. To this end it is appropriate to deploy the Procurement Planning Quality Index, the plan-to-contract digital trail, the history of plan versions, the PPD and QDV indicators, the year-end concentration coefficient and an ex ante risk score within a single system. The proposed econometric architecture would make it possible to test empirically, on national micro-data, the relationship between planning quality and procurement risk and competition. This requires that plan versions, amendment causes and contract outcomes be made available on the special information portal through a single machine-readable identifier.

As a result, control over public procurement planning would be transformed from formal compliance verification into an early-warning digital management mechanism that integrates budgetary requirements, the market, timing and contract outcomes. This would serve to broaden competition, reduce year-end rush procurement, lower the risks of re-procurement and contract delay, and enhance the economic productivity of public funds.

## REFERENCES

- [1] Republic of Uzbekistan, Law of the Republic of Uzbekistan No. ZRU-684 of 22 April 2021 “On Public Procurement”, National Database of Legislation, 2021. [Online]. Available: <https://lex.uz/docs/5382974>
- [2] Cabinet of Ministers of the Republic of Uzbekistan, Resolution No. 276 of 20 May 2022 “On approval of the Regulation on the organisation and conduct of procedures related to the implementation of public procurement”, National Database of Legislation, 2022. [Online]. Available: <https://lex.uz/docs/6026643>
- [3] O. V. Anchishkina, “Planning of public procurement: the experience of the United States Federal Acquisition System and Russian practice”, Moscow, Russia, 2011.
- [4] A. S. Kostina, “Planning in the public procurement system and directions for improving information control”, Moscow, Russia, 2018.
- [5] V. V. Kikavets, “Planning as the basis for the effective financial provision of public procurement”, Moscow, Russia, 2022.
- [6] U. Yu. O’roqov, *Public Procurement: Textbook*. Tashkent, Uzbekistan: Nihol Print, 2022.
- [7] OECD, *Implementing the OECD Recommendation of the Council on Public Procurement: 2024 Report*. Paris, France: OECD Publishing, 2024. [Online]. Available: <https://www.oecd.org>
- [8] MAPS Secretariat, *Methodology for Assessing Procurement Systems (MAPS): Indicator on Procurement Planning and the Budget Cycle*. Paris, France: MAPS Secretariat. [Online]. Available: <https://www.mapsinitiative.org>
- [9] OECD, *Public Procurement in Kazakhstan: Reforming for Efficiency*. Paris, France: OECD Publishing. [Online]. Available: <https://www.oecd.org>

- 
- [10] World Bank, "Bangladesh: Digitizing public procurement – Electronic Government Procurement (e-GP) results and implementation materials," Washington, DC, USA: World Bank. [Online]. Available: <https://www.worldbank.org>
  - [11] J. B. Liebman and N. Mahoney, "Do expiring budgets lead to wasteful year-end spending? Evidence from federal procurement," *American Economic Review*, vol. 107, no. 11, pp. 3510–3549, 2017, doi: 10.1257/aer.20131296.
  - [12] O. Bandiera, A. Prat, and T. Valletti, "Active and passive waste in government spending: Evidence from a policy experiment", *American Economic Review*, vol. 99, no. 4, pp. 1278–1308, 2009, doi: 10.1257/aer.99.4.1278.
  - [13] World Bank, *Uzbekistan Public Expenditure and Financial Accountability (PEFA) Performance Assessment Report, Indicator PI-24: Procurement Management*. Washington, DC, USA: World Bank, 2024. [Online]. Available: <https://www.pefa.org>
  - [14] Ministry of Economy and Finance of the Republic of Uzbekistan, "Official data on the results of the public procurement system in 2024", Tashkent, Uzbekistan, 2025. [Online]. Available: <https://imv.uz>
  - [15] Committee for the Development of Competition and Protection of Consumer Rights of the Republic of Uzbekistan, "Official report on the analyses conducted in the field of public procurement in 2023", Tashkent, Uzbekistan, 2024. [Online]. Available: <https://raqobat.gov.uz>
  - [16] Competition Committee of the Republic of Uzbekistan, "Results of the analysis and supervision of public procurement in 2024", Tashkent, Uzbekistan, 2025. [Online]. Available: <https://raqobat.gov.uz>
  - [17] World Bank, *Using Data Analytics in Public Procurement: Concepts and Applications for Integrity, Efficiency and Performance Monitoring*. Washington, DC, USA: World Bank. [Online]. Available: <https://www.worldbank.org>