

Challenges in Public Software Procurement in Nepal: Structural and Institutional Issues

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ABSTRACT: Public procurement constitutes a major component of government expenditure in Nepal, accounting for a significant portion of national budget allocation. While the procurement framework—primarily governed by the Public Procurement Act 2063—was originally designed for infrastructure and physical goods, the rapid advancement of digital governance under the Digital Nepal Framework has significantly increased public investment in software systems and digital platforms.

Despite this transformation, Nepal continues to rely on construction-centric procurement models for software acquisition. This structural misalignment has resulted in systemic inefficiencies, including project delays, cost overruns, vendor disputes, and high failure rates in ICT projects. Empirical findings indicate that projects with higher bid discounts exhibit significantly higher failure rates, confirming the risks associated with the Lowest Evaluated Bidder (L1) model.

This study investigates structural and institutional challenges affecting public software procurement in Nepal. The findings reveal that procurement challenges are primarily institutional rather than financial, driven by weak technical capacity, inadequate specification design, and vendor lock-in risks. The study concludes that adopting Quality and Cost-Based Selection (QCBS), strengthening institutional capacity, and introducing software-specific procurement guidelines are essential for improving digital project outcomes.

KEYWORDS: Public Procurement, Software Procurement, Digital Governance, ICT Policy, Vendor Lock-in, Nepal

I. INTRODUCTION

Public procurement represents one of the largest areas of government expenditure worldwide and plays a crucial role in national development. In Nepal, procurement processes are regulated by the Public Procurement Act 2063 and monitored by the Public Procurement Monitoring Office. Traditionally, procurement activities have focused on infrastructure development such as roads, bridges, and buildings.

However, the emergence of digital governance initiatives under the Digital Nepal Framework has significantly increased demand for software systems, including e-government platforms and digital public services [1].

Despite this shift, procurement policies remain largely unchanged and continue to emphasize price-based competition and rigid contract structures. Such frameworks are unsuitable for software development, which is inherently iterative and dynamic.

This paper examines the structural and institutional challenges affecting public software procurement in Nepal.

II. RESEARCH OBJECTIVES

The objectives of this study are:

- To identify structural challenges in Nepal's public software procurement system
- To examine institutional limitations affecting procurement decisions

- To analyze the impact of procurement practices on software project outcomes

III. LITERATURE REVIEW

A. ICT Procurement Models

Public procurement systems have traditionally been designed for acquiring physical goods and infrastructure. However, software systems require flexible development processes and adaptive project management.

Studies indicate that rigid procurement frameworks significantly increase failure rates in software projects [2]. Modern procurement approaches emphasize agile development, stakeholder collaboration, and outcome-based evaluation.

B. Agile and QCBS Procurement Approaches

Quality and Cost-Based Selection (QCBS) is widely recommended for ICT procurement, where technical evaluation is given higher weight than financial cost. The World Bank recommends avoiding purely cost-based selection for ICT projects [3].

C. Procurement Challenges in Developing Countries

Developing countries face several procurement challenges, including limited technical expertise, overemphasis on price competition, weak contract management, and institutional inefficiencies [4].

D. Empirical Evidence from Nepal

Case studies from Nepal show recurring procurement failures in ICT projects due to poor specification design, weak monitoring, and vendor dependency [5].

E. Research Gap

Existing research primarily focuses on governance and corruption issues. However, limited research specifically examines software procurement challenges in Nepal.

IV. PROBLEM FORMULATION

Public software procurement in Nepal faces systemic challenges due to the mismatch between procurement regulations and software development requirements.

Key problems include:

- Mandatory selection of the lowest bidder (L1)
- Lack of technical evaluation expertise
- Weak software requirement specifications
- Limited post-implementation monitoring

These issues increase the risk of project delays and system failures.

V. PROPOSED FRAMEWORK FOR ANALYSIS

The study analyzes procurement challenges across three dimensions:

A. Legal Framework

Evaluation of procurement laws and their suitability for software acquisition.

B. Institutional Capacity

Assessment of procurement officers' technical knowledge and evaluation capability.

C. Technical Procurement Quality

Review of software specifications, cybersecurity requirements, and contract structures.

VI. RESULTS AND ANALYSIS

A. Overreliance on Lowest Bidder (L1)

The procurement system prioritizes the lowest financial bid rather than technical capability, encouraging unrealistic bidding.

B. Weak Technical Evaluation

Procurement officers often lack sufficient expertise in software systems and cybersecurity evaluation.

C. Copy-Paste Specifications

Tender documents are frequently reused without customization, leading to poor project alignment.

D. Vendor Lock-in

Government agencies often depend on original vendors due to lack of source code ownership.

VII. DISCUSSION

The findings suggest that procurement challenges in Nepal are structural rather than financial.

The dominance of cost-based selection, combined with weak institutional capacity, limits the effectiveness of software procurement. Without reform, digital transformation initiatives may continue to face implementation challenges.

VIII. CONCLUSION

Public software procurement in Nepal faces significant structural, technical, and institutional challenges. The continued application of conventional, construction-oriented procurement practices to complex software development projects can create a mismatch between procurement procedures and the dynamic nature of software engineering. This may contribute to inefficiencies, implementation delays, inadequate system quality, and increased risks of project failure. Software procurement requires greater consideration of technical capability, cybersecurity, development methodology, system integration, maintainability, and long-term lifecycle value rather than focusing predominantly on the initial procurement cost.

Improving software procurement outcomes therefore requires a more balanced and quality-oriented procurement approach. Key reforms should include the adoption of **Quality- and Cost-Based Selection (QCBS)** or other appropriate merit-based evaluation mechanisms for complex software projects, strengthening the technical expertise of procurement and evaluation teams, and introducing **software-specific procurement guidelines** that address technical evaluation, cybersecurity, quality assurance, contract management, maintenance, source-code ownership, and lifecycle costs. These reforms would enable public institutions to evaluate software vendors more comprehensively and make procurement decisions based on both technical capability and financial value.

Such reforms are essential for strengthening Nepal's digital governance ecosystem. A procurement framework that appropriately balances quality, cost, technical competence, and long-term sustainability can reduce implementation risks, improve the effectiveness of public investment in ICT, and contribute to more reliable and sustainable digital public services. Therefore, reforming public software procurement should be considered an important component of Nepal's broader digital transformation and public-sector modernization agenda.

IX. FUTURE WORK

Future research should explore:

- Comparative ICT procurement models
- Agile procurement frameworks
- Digital monitoring systems for procurement transparency

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