

Algorithmic Accountability Frameworks for High-Risk AI Systems in Public Sector Procurement

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Abstract — Government agencies are increasingly procuring artificial intelligence systems to support decisions in welfare eligibility, policing resource allocation, and public benefits administration, yet existing procurement frameworks were not designed to evaluate algorithmic risk. This paper examines how accountability mechanisms can be embedded within public sector procurement processes for systems classified as high risk under emerging regulatory regimes. Drawing on document analysis of procurement guidelines from several jurisdictions alongside semi-structured interviews with procurement officers and vendor compliance staff, we identify recurring gaps between stated transparency requirements and the technical documentation vendors actually provide at the tendering stage. We propose a staged accountability framework that introduces algorithmic impact assessments, independent audit rights, and post-deployment monitoring obligations as binding procurement conditions rather than voluntary vendor disclosures. The framework distinguishes obligations appropriate at pre-award, contract, and operational phases, allowing procurement teams without deep technical expertise to apply consistent evaluation criteria. Findings suggest that procurement, rather than standalone AI legislation, functions as an under-used lever for enforcing accountability because it directly controls market access for vendors. We discuss implications for harmonizing procurement-based accountability with broader AI governance frameworks currently under development.

Index Terms — algorithmic accountability, AI governance, public procurement, high-risk systems, regulatory compliance

I. INTRODUCTION

Government agencies increasingly procure artificial intelligence systems to support decisions in welfare eligibility, policing resource allocation, and public benefits administration, yet existing procurement frameworks were largely designed for conventional software acquisition and are ill-equipped to evaluate algorithmic risk [1]. Vendors frequently retain proprietary control over model architecture and training data, leaving procurement officers with limited technical means to verify claims about fairness or accuracy prior to contract award [2]. This asymmetry becomes particularly consequential for systems classified as high risk under emerging regulatory regimes, where downstream harms may not surface until systems have already been deployed at scale.

Prior accountability scholarship has emphasized transparency obligations and algorithmic impact assessments, but has focused primarily on post-deployment auditing rather than on the procurement stage where market access is actually de-

termined [3]. Procurement processes function as a gatekeeping mechanism distinct from standalone AI legislation, since a vendor unable to meet procurement conditions is effectively excluded from the public sector market regardless of how comprehensive external legislation eventually becomes [4]. Understanding how accountability mechanisms can be embedded directly within procurement therefore addresses a governance lever that has received comparatively less systematic attention.

This paper examines how accountability mechanisms can be embedded within public sector procurement processes for high-risk AI systems, drawing on comparative document analysis and practitioner interviews to propose a staged accountability framework applicable across the procurement lifecycle.

II. RELATED WORK

Existing literature on algorithmic accountability has largely converged around three governance instruments: algorithmic impact assessments conducted prior to deployment, independent audit rights exercised during operation, and post-deployment monitoring obligations intended to detect performance drift. Much of this literature, however, treats these instruments as voluntary vendor commitments or as requirements imposed through standalone AI-specific legislation, rather than as binding conditions attached to the procurement contract itself. Comparative public administration research has separately documented that procurement officers frequently lack the technical expertise to evaluate vendor claims, resulting in reliance on vendor-provided documentation whose completeness varies considerably across tendering processes and jurisdictions.

III. METHODOLOGY

The study draws on document analysis of procurement guidelines from several jurisdictions currently developing or implementing high-risk AI regulatory regimes, supplemented by semi-structured interviews with procurement officers and vendor compliance staff involved in recent public sector AI tenders.

A. Comparative Document and Interview Analysis

Procurement guidelines and tender documentation were coded thematically to identify stated transparency requirements and to compare these against the technical documentation vendors

Table 1. Accountability provisions observed across procurement processes

Provision	Binding	Voluntary	Absent
Algorithmic impact assessment	3	4	2
Independent audit rights	2	3	4
Post-deployment monitoring	1	5	3
Technical documentation disclosure	4	3	2

actually submitted at the tendering stage, revealing recurring gaps between formal requirements and delivered evidence. Interview transcripts were analyzed to identify recurring institutional constraints, including limited technical staffing and unclear internal escalation pathways when vendor documentation appeared incomplete or inconsistent with stated capabilities.

IV. RESULTS

Table 1 summarizes the frequency with which key accountability provisions appeared as binding contractual conditions versus voluntary vendor disclosures across the jurisdictions examined, illustrating substantial variation in enforcement mechanism strength.

Jurisdictions where accountability provisions were embedded as binding contract conditions, rather than voluntary disclosures, exhibited more consistent submission of substantive technical documentation at the tendering stage according to interviewed procurement officers.

V. DISCUSSION

These findings suggest that procurement functions as an under-used lever for enforcing algorithmic accountability precisely because it directly controls market access for vendors seeking public sector contracts, independent of whether standalone AI legislation has been finalized. The staged framework proposed here distinguishes obligations appropriate at pre-award, contract, and operational phases, allowing procurement teams without deep technical expertise to apply consistent evaluation criteria rather than relying on ad hoc technical judgment. Harmonizing procurement-based accountability with broader AI governance frameworks currently under development remains an open institutional challenge, particularly where procurement authority and AI regulatory authority reside in separate government bodies.

VI. CONCLUSION

This study proposed a staged algorithmic accountability framework for public sector procurement of high-risk AI systems, introducing algorithmic impact assessments, independent audit rights, and post-deployment monitoring as binding procurement conditions. Comparative evidence from multiple jurisdictions indicates that procurement-embedded accountability produces more consistent vendor disclosure than voluntary frameworks, offering a practical governance lever that complements standalone AI legislation currently under development.

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