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School Governing Body financial accountability through mobile procurement in South African schools

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Systematic Review

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Abstract

In South African public schools, School Governing Bodies (SGBs) are responsible for overseeing school finances, yet accountability is often constrained by limited capacity, information gaps, and weak internal controls. As cell phones and app-based procurement systems become increasingly common for routine transactions, digital tools are emerging as mechanisms for strengthening financial governance. Guided by Principal–Agent Theory, this literature review examines how app-based procurement can support equitable and transparent resource use by clarifying roles, improving information flows, and enabling effective oversight by parent members of SGBs. The review synthesizes peer-reviewed research, South African education policy documents, and international governance literature from organizations such as the World Bank, OECD, and UNESCO. Using thematic content analysis, the literature was examined with attention to role clarity, monitoring practices, access to financial information, and digital record-keeping routines. The findings indicate that mobile procurement systems can improve efficiency, traceability, and transparency through real-time records and auditable transaction histories. However, the literature also identifies challenges, including uneven digital literacy, unclear approval processes, and poorly distributed accountability responsibilities. Effective practice is associated with simple governance routines such as dual authorisation, secure audit trails, regular reporting to parents, and targeted capacity-building for SGB members.

1. INTRODUCTION

Around the world, public education systems are under increasing pressure to use school funds in fair, transparent, and accountable ways. As schools receive and manage decentralised financing, governing structures are expected to ensure that resources are used effectively to support teaching and learning. Digital financial tools, such as cell phone- and app-based procurement systems, are increasingly promoted as mechanisms to improve transparency, record-keeping, and oversight (OECD, 2022; UNESCO, 2023). However, international studies caution that technology alone does not improve accountability. Instead, digital systems are effective only when roles are clearly defined, information is accessible, and governance processes are well established (Garcer et al., 2024; Sipenji et al., 2023).

In many low- and middle-income countries, school financial management takes place in contexts characterised by limited resources and uneven administrative capacity. School Governing Bodies (SGBs) or similar governance structures are expected to oversee school finances, yet parent members often have limited training and restricted access to financial information (Faku & Mulaudzi, 2024). The global governance literature suggests that digital procurement can support accountability by creating clear transaction records and auditable trails of financial decisions (Gaspar, Gabriel, Manuel, & Ladrillo, 2022). At the same time, studies warn that weak internal controls, limited digital skills, and unclear approval procedures may introduce new governance risks rather than reduce them (Ngcobo & Ndovela, 2025). These concerns align with Principal–Agent Theory, which emphasises the importance of shared information, monitoring mechanisms, and oversight when one group manages resources on behalf of another.

In South Africa, school-level financial accountability remains a persistent concern, particularly in public schools serving under-resourced communities. The South African Schools Act assigns SGBs, especially parent members, responsibility for overseeing school finances, yet research indicates that many SGBs struggle with role clarity, financial literacy, and effective monitoring practices (Garcer et al., 2024; Faku & Mulaudzi, 2024). As schools increasingly adopt digital payment and procurement systems, SGB members are required to engage with new financial management and reporting practices. However, there is limited research on how app-based procurement systems influence everyday accountability practices within SGBs or how parent governors experience and interpret these systems at the school level.

In rural and disadvantaged South African contexts, these challenges are often intensified by limited access to training and uneven digital skills. Although national policy documents and international development reports promote digital technologies as tools for strengthening school governance, little is known about the specific conditions under which digital procurement enhances financial accountability at the school level (OECD, 2022; UNESCO, 2023). The existing literature provides limited insight into how digital systems shape role distribution, information access, monitoring practices, and equity in resource use in public schools. This gap constrains policymakers' and practitioners' ability to design financial accountability systems that are both efficient and socially fair.

To address these gaps, this study presents a literature review on the use of cell phones and app-based procurement systems as mechanisms for financial accountability in South African public schools. Guided by Principal–Agent Theory, the review analyses peer-reviewed studies, national policy documents, and international governance reports. The review focuses on role clarity, information flow, monitoring practices, and digital recordkeeping. Through synthesizing this literature, the study seeks to clarify how digital procurement can support transparent, equitable, and accountable use of school resources, particularly in under-resourced school communities. The review is guided by the following research questions:

- How are cell phone and app-based procurement systems described in the literature as supporting financial accountability in school governance?
- What roles do School Governing Bodies, particularly parent members, play in overseeing digital procurement and financial decision-making?
- What opportunities and challenges are identified in the literature regarding the use of digital procurement systems for promoting equity and transparency in school resource management?

2. LITERATURE REVIEW

Digital technologies are increasingly shaping how South African public schools manage finances, yet many under-resourced schools continue to face challenges related to financial accountability, transparency, and equitable resource use. As schools adopt cell phone and app-based procurement systems, School Governing Bodies, particularly parent members, are expected to strengthen oversight by

monitoring spending and ensuring responsible use of funds. While digital procurement is often presented as a solution to improve efficiency and transparency, its effectiveness depends on clear governance roles, accessible financial information, and robust monitoring practices. This literature review therefore examines how app-based procurement systems are discussed as mechanisms for financial accountability in South African public schools, with attention to the roles of SGBs, information flows, and recordkeeping, and considers the implications for transparent and equitable management of school resources in under-resourced contexts.

2.1. Digital procurement systems as tools for financial accountability in school governance

A strong body of literature agrees that cell phone and app-based procurement systems improve transparency by creating durable digital records of school expenditure (Gaspar et al., 2022; Sipenji et al., 2023). These systems reduce reliance on cash transactions and introduce time-stamped receipts and transaction histories, which make it easier to trace how school funds are spent. However, while authors consistently highlight improved traceability as a key benefit, they also caution that transparency is not guaranteed by technology alone. Gaspar et al. (2022) show that even where digital records exist, accountability remains weak when SGB members lack access to or understanding of financial information. Similarly, Sipenji et al. (2023) demonstrate that digital finance systems support accountability only when school actors actively use transaction data for oversight. Together, these studies suggest that digital procurement strengthens transparency primarily by increasing transaction visibility, but its impact depends on user engagement and governance practices rather than the technical system itself.

2.1.1. Clarifying roles and approval processes in financial decision-making

The literature further suggests that digital procurement systems can clarify financial roles by embedding approval structures into procurement processes, yet evidence on this outcome is mixed. Several studies argue that digital systems formalise accountability by requiring multiple authorisations and documenting decision-making responsibilities (Faku & Mulaudzi, 2024; Garcer et al., 2024). This design aligns with Principal–Agent Theory, which emphasises monitoring and role clarity when authority over resources is delegated. However, empirical findings indicate that formal approval procedures do not automatically resolve role confusion within SGBs. Faku and Mulaudzi (2024) show that many parent governors remain dependent on principals for financial decisions despite digital systems, largely due to limited financial literacy. Garcer et al. (2024) similarly report that principals continue to dominate decision-making even when internal controls and digital tools are in place. These findings suggest that, while digital procurement can, in principle, support clearer role definition, entrenched power relations and capacity gaps often limit its impact in practice.

2.1.2. Supporting monitoring and auditing through digital recordkeeping

Across the literature, there is broad agreement that digital procurement systems strengthen monitoring and auditing by improving the consistency and reliability of financial records (Dwangu & Mahlangu, 2021; Sipenji et al., 2023). Automated reports and stored transaction data allow SGBs and auditors to review financial activity over time, reducing errors associated with manual recordkeeping. However, studies also highlight a critical limitation: digital records do not guarantee effective monitoring if schools lack routine review practices. Dwangu and Mahlangu (2021) argue that accountability failures in South African schools persist not because of absent records, but because monitoring mechanisms are weak and consequences for mismanagement are limited. Ngcobo and Ndovela (2025) extend this argument by showing that SGB members often struggle to interpret financial data, which reduces oversight despite the availability of digital information. Collectively, these studies indicate that digital recordkeeping enhances accountability potential, but sustained monitoring depends on governance capacity, regular review routines, and skills development rather than record availability alone.

2.2. The Role of School Governing Bodies in Digital Procurement and Financial Decision-Making

2.2.1 Oversight Responsibilities and Shared Accountability in Digital Procurement

The literature positions School Governing Bodies (SGBs), particularly parent members, as key oversight actors responsible for ensuring that school funds are used transparently and in line with policy. Digital procurement systems are often described as supporting this role by providing access to transaction records, approval histories, and expenditure reports that enable informed oversight (Gaspar, Gabriel, Manuel, & Ladrillo, 2022; Garcer et al., 2024). In theory, these systems reduce information gaps between principals and parent governors by making financial data more visible and traceable. However, empirical studies suggest that the oversight role of parent members remains constrained in practice. Faku and Mulaudzi (2024) show that many parent governors continue to rely heavily on principals for financial decision-making, even when digital records are available. This dependence limits collective accountability and weakens the intended checks and balances within school governance. The literature therefore suggests that digital procurement can support SGB oversight, but only when parent members are adequately empowered to interpret and act on financial information.

2.2.2 Parent Capacity, Participation, and Power Dynamics in Financial Decision-Making

A consistent theme in the literature is that parent members' participation in digital procurement and financial decision-making is shaped by capacity, confidence, and existing power relations. Several studies note that limited financial literacy and uneven digital skills restrict parents' ability to engage

meaningfully with digital procurement systems (Dwangu & Mahlangu, 2021; Ngcobo & Ndovela, 2025). As a result, digital tools may reinforce rather than reduce principals' dominance in financial decisions. Garcer et al. (2024) argue that even well-designed internal control systems fail when parent governors do not fully understand their financial responsibilities. While digital procurement platforms can increase access to information, the literature cautions that access alone does not translate into influence. Effective participation requires targeted training, clear role definition, and supportive governance routines that encourage parents to question, review, and deliberate on financial decisions. These findings highlight that the role of parent members in digital financial governance is not solely technical but deeply shaped by institutional culture and power dynamics within schools.

2.3. Opportunities and Challenges of Digital Procurement for Equity and Transparency in School Resource Management

2.3.1 Opportunities for Promoting Transparency and Equitable Resource Use

The literature identifies digital procurement systems as offering important opportunities to promote transparency and equity in school resource management by standardising procurement processes and improving access to financial information. Digital records, such as electronic receipts and transaction histories, make spending decisions more visible and reduce opportunities for discretionary or preferential use of funds (Gaspar, Gabriel, Manuel, & Ladrillo, 2022; Sipenji et al., 2023). These systems enable School Governing Bodies (SGBs) to compare spending against approved budgets and priorities, supporting fairer allocation of resources, particularly in under-resourced schools. Some studies further argue that real-time access to procurement data reduces information gaps between principals and parent governors, which strengthens transparency and trust within school communities (Garcer et al., 2024). However, the literature emphasises that these equity and transparency gains are realised only when digital information is actively used for decision-making and oversight rather than treated as a technical compliance requirement.

2.3.2 Challenges Related to Capacity, Access, and Unequal Accountability Outcomes

Despite these opportunities, the literature consistently highlights challenges that limit the effectiveness of digital procurement systems in promoting equity and transparency. A central concern is uneven digital and financial capacity among SGB members, particularly parent representatives in disadvantaged communities, which restricts their ability to engage meaningfully with digital procurement information (Dwangu & Mahlangu, 2021; Faku & Mulaudzi, 2024). Where parents lack confidence or skills to interpret digital records, financial authority often remains concentrated with principals, reinforcing existing power imbalances. Studies also note that weak monitoring routines, insufficient training, and limited consequence management reduce the accountability value of digital systems, even when accurate

records are available (Ngcobo & Ndovela, 2025). These findings suggest that digital procurement increases the potential for transparency and equity, but its impact depends on sustained capacity-building, active oversight, and governance practices that deliberately address inequality rather than assuming technology alone can resolve it.

2.4. Theoretical Framework

Principal–Agent Theory provides the core analytical foundation for this study because it explains how accountability relationships operate when one group delegates responsibilities to another. In the context of South African public schools, parents and learners act as principals, while school officials such as principals and finance officers act as agents responsible for managing school funds on their behalf. Contemporary applications of Principal–Agent Theory in education governance highlight the risks that emerge when agents control information and decision-making while principals have limited access to knowledge or monitoring mechanisms (Faku & Mulaudzi, 2024; Garcer et al., 2024). This perspective is particularly relevant for school financial management, where transparency, oversight, and trust are essential to ensuring equitable resource use.

Within school governance, School Governing Bodies (SGBs), especially parent members, are intended to reduce information asymmetries and monitor financial decisions made by school management. Principal–Agent Theory helps explain why this oversight role is often difficult to enact in practice. Recent empirical research shows that agents frequently possess greater financial and technical expertise than parent governors, leading to dependency, weak scrutiny, and reduced accountability (Garcer et al., 2024). Digital procurement systems are therefore significant within this framework because they have the potential to restructure information flows by providing shared access to transaction records, approval histories, and auditable financial trails. Studies demonstrate that when such systems function effectively, they can narrow information gaps and strengthen SGB oversight (Gaspar et al., 2022).

The theory also emphasises the importance of control mechanisms, including clear role definitions, approval processes, and systematic monitoring routines. App-based procurement systems often embed these mechanisms through features such as dual authorisation, automated reporting, and digital record retention. From a Principal–Agent perspective, these features operate as governance instruments that formalise financial decision-making and constrain individual discretion (Sipenji et al., 2023). However, contemporary governance research stresses that technical controls alone are insufficient. Where parent members lack financial literacy or digital competence, information may be available without being meaningfully interpreted or acted upon, allowing agents to retain effective control over decisions (Ngcobo & Ndovela, 2025).

Using Principal–Agent Theory enables this study to organise its analysis around key governance dimensions, including role clarity, access to financial information, monitoring practices, and accountability outcomes. The framework also helps to illuminate gaps identified in recent literature, where digital procurement systems exist but oversight remains weak due to capacity constraints and persistent power imbalances within SGBs (Faku & Mulaudzi, 2024). By applying this theoretical lens,

digital procurement is examined not as a neutral technical tool, but as part of a wider accountability relationship shaped by institutional design, community capacity, and everyday governance practices.

Overall, Principal–Agent Theory provides a critical lens for understanding how digital procurement systems can both strengthen and strain financial accountability in South African public schools. It allows this study to assess whether app-based procurement supports transparent and equitable resource use by enabling informed oversight, or whether it inadvertently reproduces existing inequalities when governance and capacity challenges remain unresolved (Garcer et al., 2024; Sipenji et al., 2023).

The reviewed literature demonstrates broad agreement that cell phone and app-based procurement systems have the potential to improve transparency, traceability, and efficiency in school financial management. Numerous studies by Gaspar et al. (2022), Sipenji et al. (2023), Dwangu and Mahlangu (2021), Faku and Mulaudzi (2024), Garcer et al. (2024), and Ngcobo and Ndovela (2025), document the technical benefits of digital records, such as auditable transaction histories and automated reporting, as well as their capacity to reduce cash handling and discretionary spending. At the same time, a growing body of research highlights persistent challenges related to digital literacy, financial capacity, weak monitoring routines, and entrenched power imbalances within School Governing Bodies (SGBs), particularly between principals and parent members.

This study addresses the identified gap by examining app-based procurement not merely as a technical intervention, but as part of a wider accountability relationship embedded in school governance practices. Guided by Principal–Agent Theory, the study integrates insights on technology, governance roles, and capacity to analyse how digital procurement systems reshape information flows, monitoring practices, and oversight responsibilities within School Governing Bodies.

3. METHODOLOGY

3.1. Research Design and Review Process

This study employed a qualitative literature review to examine how cell phone and app-based procurement systems are presented as mechanisms for financial accountability in South African public schools. A literature review was selected because it enables the synthesis of existing research, policy documents, and governance reports to identify patterns, debates, and gaps related to digital procurement and school financial governance. The review was guided by Principal–Agent Theory, which informed how issues of accountability, information flow, and oversight relationships were examined across the literature.

The review process followed a structured approach, beginning with the identification of the research problem and the formulation of review objectives and guiding research questions. These steps shaped decisions about the retrieval strategy, inclusion and exclusion criteria, and analytical focus. Although research on school financial management extends over several decades, this review prioritised recent

literature in order to reflect contemporary developments in mobile and app-based procurement systems (Booth, Sutton, & Papaioannou, 2021).

3.2. Search Strategy and Data Sources

Relevant literature was identified through electronic searches of academic databases commonly used in education and governance research, including Google Scholar, ERIC, ProQuest, Scopus, and African Journals Online. In addition to peer-reviewed journal articles, the review included South African education policy documents and financial governance guidelines to provide contextual grounding for school-level accountability. Selected international reports from organisations such as UNESCO and the OECD were also consulted to situate school digital procurement within broader global governance discussions.

Search terms were developed iteratively and included combinations of school financial accountability, digital procurement, mobile payments, app-based procurement, School Governing Bodies, parent participation, and school governance. A purposive sampling approach was used to identify sources that directly addressed governance or accountability issues related to digital financial systems in public schooling contexts, as this strategy supports the selection of information-rich literature relevant to the review focus (Palinkas et al., 2015).

3.3. Inclusion and Exclusion Criteria

To ensure relevance and quality, clear inclusion and exclusion criteria were applied. Literature was included if it was published between 2020 and 2026, written in English, and focused on school-level finance, accountability, governance, or digital financial systems. Peer-reviewed journal articles, national policy documents, and authoritative governance reports were prioritised. Studies were excluded if they focused solely on higher education, private sector procurement without relevance to schools, or technical financial systems that did not engage with issues of governance or accountability. This time-bounded approach supported a focused analysis of recent developments in digital procurement practices.

3.4. Data Analysis

The selected literature was analysed using thematic content analysis. Each source was read in full and coded for key ideas related to financial accountability and digital procurement. Initial coding was informed by concepts associated with Principal–Agent Theory, including information asymmetry, role clarity, monitoring mechanisms, and oversight responsibilities. These codes were then organised into broader themes such as transparency and traceability, approval and control processes, School Governing Body oversight, parent participation, capacity constraints, and equity in resource use.

The analysis followed an iterative process, with themes refined through comparison across sources. Attention was given to similarities and contradictions in the literature to enable critical synthesis rather than a purely descriptive summary. This approach allowed the review to highlight how digital

procurement systems may both strengthen and challenge financial accountability in school contexts (Braun & Clarke, 2021)

3.5. Rigor and Trustworthiness

Rigor was strengthened using multiple source types, including peer-reviewed research, national policy documents, and international governance reports. Drawing on diverse forms of evidence supported triangulation and strengthened the credibility of the findings (Lincoln & Guba, 1985). Dependability was enhanced through transparent inclusion criteria and systematic theme development, while analytical coherence was achieved through consistent application of the theoretical framework across the review.

3.6. Ethical Considerations

This study was based entirely on secondary data obtained from publicly available sources. As no human participants were involved, ethical clearance was not required. All sources were appropriately acknowledged to ensure academic integrity.

4. FINDINGS

The findings are organised into three interrelated themes that collectively illuminate how digital procurement systems are shaping financial accountability in South African public-school governance. The first theme explores how cell phone and app-based procurement systems are commonly portrayed as enhancing transparency and accountability through improved recordkeeping, transaction traceability, and information flow. The second theme examines the role of School Governing Bodies, particularly parent members, highlighting how digital procurement tools may influence role clarity, monitoring practices, and participation in financial decision-making. The third theme considers the opportunities and constraints associated with the adoption of digital procurement in under-resourced schools, highlighting how equity and transparency outcomes appear to be contingent on capacity, access, and supportive governance routines rather than on technological adoption alone.

4.1. Theme 1: Digital Procurement systems and financial accountability in school governance

Findings from recent scholarship indicate that cell phone and app-based procurement systems are widely associated with changes in the production and circulation of financial information in public institutions, including education systems. Studies on digital public finance reforms suggest that mobile and app-based procurement platforms increase the durability and visibility of transaction data through automated receipts, embedded approval trails, and continuous record generation (UNDP, 2021; Meijer, 2021). Comparative analyses of e-procurement reforms further indicate that these systems are particularly effective in reducing dependence on cash transactions and informal documentation, which have been linked to higher risks of financial opacity in decentralised public services (Transparency International, 2021). However, recent governance literature cautions that the presence of digital records

should not be conflated with improved accountability outcomes. Analyses by Dunleavy and Margetts (2022) emphasise that digital transparency primarily restructures information availability, with accountability effects emerging only when such information is actively used for scrutiny and decision-making.

A second set of findings highlights the relationship between digital information access and the exercise of oversight within collective governance structures. Recent accountability frameworks emphasise that accountability is a relational process requiring not only disclosure but also interrogation and response (Mulgan, 2020; Bovens, Schillemans, & Busuioc, 2021). From this perspective, digital procurement systems may widen access to financial data without necessarily strengthening oversight if governance actors lack the interpretive capacity or procedural authority to act on that information. Empirical studies of digital transparency initiatives in public organisations illustrate that oversight bodies often experience "data abundance without analytical leverage," where information is technically accessible but insufficiently embedded in decision-making routines (Kettunen & Kallio, 2021; de Fine Licht & Naurin, 2022). These findings align with broader claims that digital procurement can modify information asymmetries while leaving underlying accountability relationships largely intact when supporting governance practices are weak.

Recent literature on digital governance and equity further contextualises these findings by drawing attention to uneven accountability outcomes across resource-constrained settings. Studies examining digital reforms in decentralised public services caution that technology-driven accountability initiatives often reproduce existing inequalities when digital access, skills, and institutional support are unevenly distributed (World Bank, 2022; UNICEF, 2023). OECD (2024) analyses of digital public management reforms similarly note that transparency gains are frequently concentrated among already-capacitated actors, while marginalised groups remain excluded from meaningful participation. In this body of work, digital procurement is framed as an intervention that increases the possibility of equitable and transparent resource management without determining outcomes. Synthesised together, these studies reinforce the view that accountability improvements associated with digital procurement depend on complementary investments in capacity-building, inclusive access, and governance routines that enable sustained oversight rather than on digital adoption alone.

4.2. Theme 2: The role of School Governing Bodies in oversight of digital financial decision-making

Findings reported in recent governance and education management studies indicate that School Governing Bodies (SGBs), particularly parent members, are formally positioned as oversight actors whose engagement with financial decision-making is increasingly mediated through digital systems. Research examining decentralised school governance suggests that app-based financial platforms are discussed as expanding access to procurement and expenditure information beyond school management, thereby reshaping how oversight is enacted (Crawford & Wermke, 2022; van der Berg & Gustafsson, 2023). These studies document that digital records, approval logs, and procurement

histories are made available to governing bodies, which may support more informed oversight processes. At the same time, the literature indicates that access to digital financial information does not necessarily alter where decision-making authority is exercised, as parent members' oversight roles continue to operate within established institutional hierarchies (Crawford & Wermke, 2022).

A further set of findings focuses on how digital procurement systems intersect with monitoring practices and accountability routines within SGBs. Recent accountability scholarship emphasises that oversight involves not only access to information but also the capacity and opportunity to engage with that information in ways that influence decisions (O'Neill, 2021; Lodge & Stirton, 2023). Studies exploring participatory governance arrangements report that digital financial information is often reviewed retrospectively, limiting its use in ongoing deliberation or preventive oversight (Karlsson & Rowe, 2020; Avelar & Ball, 2022). These findings suggest that while digital procurement platforms may formalise monitoring procedures through documented approvals and records, they do not necessarily strengthen routine oversight practices unless such information is integrated into regular governance processes. The literature, therefore, reflects a distinction between procedural accountability enabled by digital systems and substantive accountability dependent on active engagement.

The reviewed literature also highlights how parent members' participation in digital financial oversight is shaped by broader capacity and power dynamics within school governance. Studies on digital participation in public institutions report that information access alone does not equate to influence, particularly when non-professional oversight actors experience limitations in confidence, training, or institutional support (Peixoto & Fox, 2021; Fung, 2023). In educational governance contexts, parent participation is frequently described as occurring within asymmetrical power relations, where technical and financial expertise remains concentrated among school leaders (Avelar & Ball, 2022; van der Berg & Gustafsson, 2023). Within this body of work, digital procurement systems are presented as tools that may expand formal oversight opportunities while leaving underlying participation patterns largely unchanged. The findings across these studies therefore point to the importance of governance arrangements that actively support interpretation, deliberation, and shared responsibility if digital systems are to meaningfully strengthen SGB oversight.

4.3. Theme 3: Equity, Capacity, and Transparency Challenges in the Adoption of Digital Procurement

Findings reported in recent literature on digital governance and public sector reform indicate that digital procurement systems are frequently framed as mechanisms that may support greater transparency and more equitable resource management, particularly in decentralised service contexts. Studies examining digital public finance reforms note that standardised digital procedures and electronic records are often associated with increased visibility of spending decisions and clearer alignment between budgets and expenditures (UNESCO, 2021; World Bank, 2022). These sources describe digital procurement as facilitating consistent documentation and reducing discretionary practices that are difficult to monitor through manual systems. However, the literature does not present these outcomes as uniform.

Comparative analyses across low-resource contexts indicate that transparency gains are uneven and appear to depend on whether digital information is accessible and intelligible to local governance actors rather than simply recorded within digital platforms (UNESCO, 2021).

A further set of findings highlights capacity and access as critical factors shaping equity outcomes in digital procurement initiatives. Studies published since 2020 consistently highlight disparities in digital literacy, infrastructure, and institutional support, which are reported to influence who can participate meaningfully in digitally mediated oversight processes (OECD, 2021; World Bank, 2022). Research on digital inclusion suggests that where access to devices, connectivity, or training is limited, digital systems may inadvertently privilege already-capacitated actors, thereby reinforcing existing inequalities within governance arrangements (UNICEF, 2023). These studies do not suggest that digital procurement exacerbates inequity by design but rather indicate that equity outcomes are closely linked to contextual conditions such as skills development and institutional support. From this perspective, the literature frames capacity constraints as mediating variables that shape how transparency mechanisms function in practice.

Recent scholarship on transparency and accountability further situates these challenges within broader debates on participatory governance. Analyses of transparency-driven reforms caution that disclosure-focused interventions may produce limited accountability effects when they are not accompanied by opportunities for engagement, deliberation, and response (de Fine Licht & Naurin, 2022; OECD, 2023). In under-resourced contexts, studies note that digital information is sometimes made available without parallel investments in governance routines that enable communities to question or act upon financial data (UNICEF, 2023). Across this body of work, digital procurement is presented as an intervention that may increase the availability of information while leaving underlying accountability relationships largely intact. Taken together, these findings indicate that the contribution of digital procurement to equity and transparency is contingent on capacity-building, inclusive access, and governance practices that actively support oversight, rather than assuming that digitalization alone will produce equitable outcomes.

Taken together, the findings suggest that digital procurement systems may contribute to improved financial accountability, transparency, and equity in school governance; however, these outcomes are highly contingent rather than inherent. Across the three themes, the literature points to a recurring pattern in which digital tools appear to reshape information environments by enhancing recordkeeping, visibility, and access, while their accountability effects remain dependent on governance conditions. The findings indicate that meaningful oversight by School Governing Bodies, particularly parent members, is shaped by role clarity, monitoring routines, and available capacity, with digital systems alone proving insufficient to alter entrenched power relations or participation dynamics. In under-resourced contexts, the evidence highlights how equity and transparency gains are closely linked to inclusive access, skills development, and supportive accountability practices. Collectively, the findings underline that digital procurement is best understood as an enabling mechanism whose contribution to responsible and equitable school resource management appears to rest on its alignment with broader governance and capacity-building efforts rather than on technological adoption alone.

5. DISCUSSION

From a Principal–Agent theoretical perspective, the findings can be understood as illustrating a partial reconfiguration of accountability conditions rather than their resolution. Existing studies reviewed indicate that digital procurement systems introduce shared transaction records, audit trails, and real-time data that may reduce information asymmetry between principals (parents and school communities) and agents (school management) (Gaspar et al., 2022; Sipenji et al., 2023). However, the literature also demonstrates that information symmetry is not equivalent to accountability effectiveness. Where principals lack the capacity to interpret financial information or to engage in systematic scrutiny, the agent's informational advantage is only marginally reduced (Dwangu & Mahlangu, 2021; Ngcobo & Ndovela, 2025). Within Principal–Agent Theory, this suggests that digital procurement strengthens monitoring potential without necessarily improving control outcomes, because monitoring is effective only when principals possess both informational access and enforcement capability. The findings, therefore, complicate linear assumptions that transparency mechanisms translate directly into accountability gains.

A second theoretically salient issue concerns the distinction between formal accountability mechanisms and substantive accountability practices. The reviewed studies indicate that app-based procurement platforms embed formal controls such as approval hierarchies, documented authorisations, and automated reporting that align with Principal–Agent prescriptions for constraining agent discretion (Faku & Mulaudzi, 2024; Garcer et al., 2024). Nevertheless, evidence across contexts suggests that these formal mechanisms often coexist with persistent hierarchical decision-making, in which principals remain dependent on agents for interpretation and execution of financial decisions. This pattern reflects a classic agency problem: where agents retain superior expertise and operational authority, principals may have nominal oversight rights without the practical capacity to exercise them. As a result, accountability regimes may remain procedural, focused on rule adherence rather than substantive scrutiny or challenge (Sipenji et al., 2023). The findings thus align with theoretical critiques that locate accountability failure not in the absence of controls, but in weak principal capacity to activate those controls meaningfully (Garcer et al., 2024).

Finally, the findings raise critical equity-related implications that extend Principal–Agent Theory by highlighting heterogeneity among principals. The literature reviewed indicates that parent members of School Governing Bodies differ markedly in digital literacy, financial knowledge, and access to institutional support, particularly in under-resourced school contexts (Dwangu & Mahlangu, 2021; Faku & Mulaudzi, 2024). These disparities suggest that principals do not operate as a unified, equally empowered collective, but rather as uneven actors whose oversight capacity is shaped by broader structural and socio-economic conditions. Where such capacity constraints persist, digital procurement may consolidate agent advantage by concentrating technical control and interpretive authority within school management, even as transparency increases (Ngcobo & Ndovela, 2025). From a theoretical standpoint, this indicates that information-based accountability mechanisms risk reproducing inequality unless accompanied by deliberate capacity-building and redistribution of governance power. The

discussion therefore suggests that digital procurement alters accountability conditions but does not neutralise agency problems unless governance reforms address both institutional design and principal capability (Gaspar et al., 2022; Garcer et al., 2024).

6. RECOMMENDATIONS

First, it is recommended that the adoption of digital procurement systems in public schools be accompanied by explicit clarification of governance roles and accountability responsibilities within School Governing Bodies. The findings indicate that while digital systems may enhance access to financial information, accountability remains constrained where approval authority, monitoring responsibilities, and lines of responsibility are poorly defined. Aligning digital procurement practices with clear role descriptions and decision-making protocols may help reduce ambiguity and mitigate the persistence of agent dominance identified in the literature. From a principal–agent perspective, strengthening role clarity may increase principals' capacity to monitor agents effectively and translate information access into meaningful oversight.

Second, targeted capacity-building initiatives for parent members of School Governing Bodies are recommended as a central component of digital procurement reform. The findings suggest that disparities in financial literacy and digital competence significantly shape the extent to which parents can engage with procurement information. Rather than if transparency will automatically empower oversight, capacity-building efforts focused on interpreting financial reports, understanding procurement workflows, and using digital audit trails may be necessary to strengthen principals' practical oversight capacity. Such initiatives may help address capability asymmetries that limit the effectiveness of formal accountability mechanisms.

Third, schools and education authorities may benefit from embedding routine monitoring and reporting practices into the use of app-based procurement systems. The findings indicate that digital records are often maintained without systematic review, resulting in accountability arrangements that are procedural rather than substantive. Establishing regular review routines, such as scheduled financial discussions in SGB meetings and structured reporting to parent communities, may support the active use of digital information for oversight. From a governance standpoint, integrating digital data into everyday accountability practices may strengthen the link between information availability and enforcement capacity.

Finally, future research is recommended to move beyond assessments of technical system performance toward empirical investigation of how digital procurement is enacted in everyday governance practice. Longitudinal and qualitative studies examining interaction patterns, decision-making processes, and sanctioning behaviour within School Governing Bodies may offer deeper insight into how digital systems reshape accountability relationships over time. Such research would contribute to refining Principal–Agent Theory in education governance by foregrounding variation among principals and examining how institutional capacity mediates the accountability effects of digital reforms.

7. CONCLUSION

Overall, this review suggests that digital procurement systems hold meaningful potential to reshape financial accountability in South African public-school governance, but that this potential remains unevenly realised in practice. Across the literature, app-based procurement appears to enhance transparency and traceability by improving the visibility and durability of financial records, thereby altering information conditions central to accountability processes. However, when interpreted through the lens of Principal–Agent Theory, the findings indicate that reducing information asymmetry alone is insufficient to resolve accountability challenges. Where governance roles remain weakly enacted, and oversight capacity is uneven, digital systems tend to strengthen procedural compliance rather than substantive accountability. This underscores the importance of understanding digital procurement not as an independent governance solution, but as a mechanism whose effects are mediated by institutional design, capacity, and power relations within School Governing Bodies.

The paper further highlights that equity and accountability outcomes are closely intertwined, particularly in under-resourced school contexts. The findings point to a recurring tension between formal access to digital information and parent members' ability to use it for meaningful oversight. From a theoretical standpoint, this suggests the need to extend Principal–Agent analyses to account for variation among principals themselves, recognising that oversight capacity is shaped by social, technical, and institutional conditions. The study, therefore, contributes to scholarship by emphasizing that strengthening accountability through digital procurement requires deliberate alignment among technology adoption, capacity building, and inclusive governance practices. Future research and policy initiatives may benefit from shifting attention from technological functionality alone to the broader accountability ecosystems within which digital procurement is embedded, particularly when equity-oriented and participatory governance outcomes are sought.

Declarations

CONFLICT OF INTEREST

The authors confirm that there are no competing interests associated with this study.

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CLINICAL TRIAL

Not applicable. This study does not constitute a clinical trial as defined by international clinical research standards.

ETHICAL CONSIDERATION

This study did not require ethical clearance because it involved a review and thematic analysis of existing published literature and publicly available policy documents. No human participants, personal data, or identifying information were involved.

INFORMED CONSENT

Informed consent was not required for this study, as it is based solely on the analysis of published literature, policy documents, and publicly available reports, with no involvement of human subjects.

CONSENT FOR PUBLICATION

Consent for publication was not required for this study, as it did not involve human participants or identifiable personal data. All sources analysed are publicly available and appropriately cited.

DATA AVAILABILITY STATEMENT

Not applicable. This study is a literature review and did not generate or analyse any original data.

References

1. Avelar M, Ball SJ. (2022). New philanthropy in the heterarchical governance of education in Brazil. In C. Lubienski, M. Yemini, & C. Maxwell, editors, *The rise of external actors in education* (pp. 153–170). Policy Press. https://doi.org/10.1332/policypress/9781447359005.003.0009
2. Booth A, Sutton A, Papaioannou D. Systematic approaches to a successful literature review. 3rd ed. Sage; 2021.
3. Bovens M, Schillemans T, Busuioc M. Public accountability: Concepts and practices. Oxford University Press; 2021. https://doi.org/10.1093/oso/9780198844351.001.0001.
4. Braun V, Clarke V. Thematic analysis: A practical guide. Sage; 2021.
5. Crawford M, Wermke W. School leadership and governance in decentralised education systems: Re-framing roles and responsibilities. J Educ Policy. 2022;37(2):229–46. https://doi.org/10.1080/02680939.2020.1792553.
6. de Fine Licht J, Naurin D. Transparency. Oxford University Press; 2022. https://doi.org/10.1093/oso/9780192855636.001.0001.
7. Dunleavy P, Margetts H. Beyond digital era governance: Government transformation in the digital age. Oxford University Press; 2022. https://doi.org/10.1093/oso/9780198845334.001.0001.
8. Dwangu AM, Mahlangu VP. Accountability in the financial management practices of school principals. Int J Educational Manage. 2021;35(7):1437–52. https://doi.org/10.1108/IJEM-06-2021-

0243.

9. Eisenhardt KM. Agency theory: An assessment and review. Acad Manage Rev. 1989;14(1):57–74.
10. Faku D, Mulaudzi MC. Examining school governing bodies' financial management roles and functions in public schools. J Gov Regul. 2024;13(1):480–8. https://doi.org/10.22495/jgrv13i1siart20.
11. Fung A. Democratic responsibility in the digital public sphere. Constellations. 2023;30(3):390–404. https://doi.org/10.1111/1467-8675.12691.
12. Garcer A, Mestry R, Motala S. A blueprint for implementing internal financial processes in public schools. South Afr J Educ. 2024;44:1–11. https://doi.org/10.15700/saje.v44ns1a2585.
13. Gaspar MR, Gabriel JP, Manuel MB, Ladrillo DS. Transparency and accountability of managing school financial resources. J Public Adm Gov. 2022;12(2):1–14. https://doi.org/10.5296/jpag.v12i2.20146.
14. Karlsson M, Rowe C. Digital participation and democratic governance: Opportunities and constraints. Inform Polity. 2020;25(3):299–315. https://doi.org/10.3233/IP-190239.
15. Kettunen P, Kallio J. Digital accountability in public sector organisations: Practices and challenges. Public Manage Rev. 2021;23(12):1801–20. https://doi.org/10.1080/14719037.2020.1860015.
16. Kivistö J. An assessment of agency theory as a framework for the government–university relationship. J High Educ Policy Manag. 2008;30(4):339–50.
17. Lincoln YS, Guba EG. Naturalistic inquiry. Sage; 1985.
18. Lodge M, Stirton L. (2023). Accountability, transparency, and governance in complex regulatory environments. *Public Law*, 2023(1), 45–62. https://doi.org/10.1093/oso/9780192858712.003.0004
19. Meijer A. Transparency and information management in public organisations. Routledge; 2021. https://doi.org/10.4324/9780429266770.
20. Mulgan R. Accountability as contestable terrain. Public Adm Rev. 2020;80(2):273–82. https://doi.org/10.1111/puar.13107.
21. Ngcobo S, Ndovela SG. Evaluating the effectiveness of monitoring financial performance in South African public schools. TWIST J. 2025;20(1):289–96. https://doi.org/10.5281/zenodo.10049652.
22. O'Neill O. Trust, accountability, and the ethics of communication. Cambridge University Press; 2021. https://doi.org/10.1017/9781108629202.
23. Organisation for Economic Co–operation and Development (OECD). Education policy outlook: South Africa. OECD Publishing; 2020.
24. Organisation for Economic Co-operation and Development (OECD). (2021). Digital government index 2021: Results and key findings. OECD Publishing. https://www.oecd.org/gov/digital-government-index-2021.pdf
25. Organisation for Economic Co-operation and Development (OECD). Education policy outlook: South Africa. OECD Publishing; 2022. https://doi.org/10.1787/aa8c4f8f-en.

26. Organisation for Economic Co-operation and Development (OECD). Public governance policy paper: Strengthening transparency and accountability. OECD Publishing; 2023. https://www.oecd.org/gov/transparency-accountability-policy-paper-2023.pdf.
27. Organisation for Economic Co-operation and Development (OECD). Digital government strategies for sustainable public administration. OECD Publishing. 2024. https://doi.org/10.1787/6f9a9c56-en.
28. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Adm Policy Ment Health. 2015;42(5):533–44.
29. Peixoto T, Fox J. When does ICT-enabled citizen voice lead to government responsiveness? World Dev. 2021;142:105448. https://doi.org/10.1016/j.worlddev.2021.105448.
30. Sipenji NW, Tibbs CY, Sindani MN. Effect of digital financial management systems on accountability of public secondary schools. Afr J Educ Pract. 2023;9(2):45–60. https://doi.org/10.47941/ajep.1107.
31. Snyder H. Literature review as a research methodology: An overview and guidelines. J Bus Res. 2019;104:333–9.
32. Transparency International. (2021). Digitalisation and anti-corruption: E-procurement and public accountability. https://www.transparency.org
33. United Nations Development Programme (UNDP). Digital governance for inclusive development. United Nations Development Programme; 2021. https://www.undp.org.
34. United Nations Educational, Scientific and Cultural Organization (UNESCO), Organization C. Digitalization in public sector governance: Implications for equity and transparency. United Nations Educational; 2021. https://unesdoc.unesco.org/ark:/48223/pf0000377373.
35. United Nations Educational, Scientific, and Cultural Organization (UNESCO). Global education monitoring report: Technology in education. UNESCO Publishing; 2023.
36. United Nations Children's Fund (UNICEF). Digital public goods and equitable service delivery. United Nations; 2023. https://www.unicef.org/reports/digital-public-goods-equity-2023. Children's Fund.
37. van der Berg S, Gustafsson M. Local governance, accountability, and capacity in decentralised education systems. Int J Educational Dev. 2023;96:102684. https://doi.org/10.1016/j.ijedudev.2022.102684.
38. World Bank. Digital transformation and public sector accountability. World Bank Publications. 2022. https://doi.org/10.1596/978-1-4648-1873-1.