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Digital Transformation Management and School Performance Governance: A Case Study of Transparency and Accountability in Primary Schools

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ABSTRACT

Digital transformation in school governance has become a strategic imperative in contemporary education management, yet the mechanisms through which it enhances transparency and accountability in school performance management remain insufficiently understood. This study aims to analyze how digital transformation management contributes to transparency and accountability in primary school performance governance, identify the barriers that constrain its development, and examine the strategies schools employ to optimize its implementation. A qualitative case study design was adopted, with data collected through in-depth interviews, field observation, and documentation review across three private primary schools at different stages of digital maturity. Data were analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings reveal that digital transformation operates as a graduated organizational process rather than a technological event, determined by the coherence between leadership commitment, staff readiness, and governance design. Digital systems enhanced transparency through structured, multi-channel stakeholder disclosure and strengthened accountability by converting professional activity into retrievable, verifiable evidence. The most consequential barriers were human rather than technological, and effective strategies were those calibrated to each institution's specific constraint profile. The implications of this study suggest that education policymakers and school leaders must reorient digital transformation initiatives away from tool provision and toward the deliberate development of human capacity, governance culture, and institutional systems that embed transparency and accountability as organizational values rather than compliance obligations.

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INTRODUCTION

Digital transformation has fundamentally altered the expectations placed on educational institutions. Across the globe, schools are no longer evaluated solely on the quality of their instructional programs but increasingly on the transparency of their governance and the accountability of their performance management systems (Albouti & Balaji, 2025). This shift reflects a broader recognition that effective education management requires not only pedagogical innovation but also institutional infrastructure capable of producing, storing, and communicating performance data in ways that are accessible, verifiable, and actionable. Yet a persistent and consequential gap has emerged between the adoption of digital tools and the realization of the governance benefits those tools are

assumed to deliver (Bai et al., 2023). Schools acquire platforms, deploy applications, and digitize administrative workflows, but transparency and accountability in performance management frequently remain as opaque and as difficult to demonstrate as they were under paper-based systems (Malkoc & Dal, 2021). Understanding why this gap persists, and what distinguishes institutions that have genuinely closed it from those that have not, is the animating problem of this study.

In Indonesia, the urgency of this problem has been amplified by a succession of national digital education policies that have raised expectations without uniformly building the institutional capacity to meet them. The Platform Merdeka Mengajar, the *Rapor Pendidikan* system, and the national School Digitalization Program collectively signal a government commitment to data-driven, transparent, and accountable school governance (Nofianti et al., 2025; Sumiyem et al., 2025). These initiatives have succeeded in placing digital tools in the hands of school administrators and teachers across the country, and in many institutions, they have produced measurable improvements in administrative efficiency and communication speed. What they have not uniformly produced is a transformation in how school performance is governed: how principals monitor and evaluate teacher performance, how that performance is documented and made verifiable, and how information about institutional quality is disclosed to parents, school committees, and the broader public. The distance between digital adoption and digital governance remains wide, and it is widest in schools where the pressure to appear digitally compliant has outpaced the institutional development required to govern digitally in substance (Albouti & Balaji, 2025; Parra-Sánchez et al., 2021).

Magelang Regency presents a particularly instructive case for examining this distance. The regency encompasses private primary schools at markedly different stages of digital development: some have integrated technology into core managerial functions including performance planning, supervision, reporting, and evaluation, while others continue to rely on manual systems for the same processes despite having access to digital devices and connectivity. This variation is not explained by geography or school size alone. It reflects differences in leadership vision, organizational culture, staff digital competence, and the degree to which school principals have treated digital transformation as a managerial priority rather than an administrative compliance requirement. In a context where national policy mandates digitalization but leaves implementation largely to individual institutions, Magelang's schools offer a natural comparative landscape for understanding what determines whether digital transformation produces genuine gains in transparency and accountability or merely substitutes one administrative format for another.

The existing literature on digital transformation in education has addressed a wide range of questions, from the effects of technology on student learning outcomes to the role of digital tools in administrative efficiency and teacher professional development (Du & Lyublinskaya, 2022; Møller-Skau & Lindstøl, 2022). Studies examining transparency and accountability in school governance have similarly grown in number, particularly in the context of public fund management and reporting obligations (Bai et al., 2023; Malkoc & Dal, 2021). What remains comparatively underexplored is the intersection of these two bodies of work: how digital transformation management, as a deliberate institutional practice, shapes the transparency and accountability of school performance governance at the primary school level, and what specific mechanisms account for variation in outcomes across institutions operating within the same policy environment. This gap is consequential because without understanding the mechanisms, policy recommendations and institutional strategies remain disconnected from the processes that actually determine whether digitalization improves governance or merely digitizes its surface.

This study addresses that gap by examining how digital transformation management is implemented across three private primary schools in Magelang Regency, what role digital systems play in enhancing transparency of performance information, how digitalization contributes to accountability in principal and teacher performance management, what

barriers constrain the process, and what strategies schools have developed to advance their digital governance capacity. By combining in-depth interviews, field observation, and documentation review across three schools at different stages of digital maturity, the study produces both a detailed account of how digital governance works in practice and a comparative analysis of what distinguishes institutions that have achieved genuine transformation from those still navigating its early stages. The findings contribute to the literature on educational management by demonstrating that digital transformation in school governance is not a technological event but an organizational process whose depth and quality are determined above all by the coherence between institutional leadership, staff readiness, and the deliberate design of governance systems that treat transparency and accountability not as compliance obligations but as organizational values.

RESEARCH METHOD

This study employs a qualitative approach with an intrinsic case study design, selected because the research aim is not to test a hypothesis or generalize across populations but to develop a detailed, contextually grounded understanding of how digital transformation management operates in practice within specific institutional settings (Bennett & Southcott, 2025; Miller et al., 2023; Waghorn & Yelland, 2024). The qualitative case study framework is particularly appropriate here because the phenomenon under investigation, namely the ways in which digital governance shapes transparency and accountability in primary school performance management, is embedded in the lived organizational realities of each school and cannot be adequately captured through quantitative measurement alone. Three private primary schools in Magelang Regency were selected as research sites through purposive sampling based on three criteria: active implementation of digital systems in school management, demonstrable commitment to transparency and accountability in governance, and participation in the government's school digitalization program. The selection of three schools with different levels of digital maturity was deliberate, as it enables cross-case comparison that illuminates not only what digital transformation looks like when it is working well but also what constrains it at earlier stages of institutional development.

Data were collected through three methods applied in combination across all research sites: in-depth interviews, direct field observation, and systematic documentation review. In-depth interviews were conducted with six informants selected purposively on the basis of their direct involvement in digital transformation planning, implementation, and evaluation at their respective schools. The six informants comprised three school principals and three classroom teachers, one principal and one teacher from each school, providing both a leadership and a practitioner perspective on digital governance at every research site. Each interview followed a semi-structured protocol covering digital system implementation, transparency and accountability practices, barriers encountered, and strategies adopted, and was recorded and transcribed verbatim for subsequent analysis. Field observation was conducted across multiple visits to each school during the data collection period, with the researcher documenting the actual use of digital tools in administrative and managerial activities, the behavior of principals and teachers in digital governance contexts, and the physical and technological infrastructure available at each site. Documentation review encompassed school program plans, teacher performance records, supervision reports, digital platform archives, administrative meeting minutes, and school development plans, providing material evidence against which interview and observation data could be verified and extended. The combination of these three methods was designed specifically to enable triangulation, ensuring that no finding rests on a single source and that convergence across sources can be demonstrated rather than merely claimed. Table 1 presents the data collection framework applied in this study.

Table 1 presents the data collection framework, specifying the method, instrument, data source, and analytical purpose for each technique employed in this study.

Table 1. Data Collection Framework

Method	Instrument	Data Source	Analytical Purpose
In-depth interview	Semi-structured interview guide	KS-A, G-A, KS-B, G-B, KS-C, G-C	Capture informant experience, perception, and interpretation of digital governance practices
Field observation	Observation checklist and field notes	School A, School B, School C	Document actual digital tool use, managerial behavior, and institutional infrastructure
Documentation review	Document analysis protocol	Program plans, performance records, supervision reports, platform archives, meeting minutes	Verify and extend interview and observation findings with material institutional evidence

Data analysis followed the interactive model of (Asemi & Asemi, 2022; Huang, 2025; Mitić & Djenić, 2024), comprising four iterative stages: data collection, data condensation, data display, and conclusion drawing and verification. Data condensation involved the systematic reduction of the full data corpus through coding and categorization, in which raw interview transcripts, field notes, and documentary evidence were reviewed line by line and assigned initial codes reflecting recurring concepts, patterns, and themes. These initial codes were subsequently grouped into focused codes and then organized into the five thematic clusters that structure the findings of this study. Data display involved the construction of thematic matrices and cross-case comparison tables that made patterns visible across the three schools and across the three data sources simultaneously. Conclusion drawing and verification involved the iterative refinement of emerging interpretations against the full body of evidence, with alternative explanations considered and either incorporated or ruled out on the basis of the data. Credibility was ensured through method triangulation, source triangulation across informant positions and school contexts, member checking with key informants, and audit trail documentation of all analytical decisions.

RESULT AND DISCUSSION

Result

The findings of this study are organized into five thematic clusters derived from qualitative data collected across three private primary schools (*sekolah dasar swasta*) in Magelang Regency. Data were gathered through in-depth interviews with six informants, direct field observation at each school, and systematic documentation review. The five clusters address the forms of digital transformation management in school performance governance, the role of digital systems in enhancing transparency, the contribution of digitalization to accountability, the barriers encountered in managerial digital transformation, and the strategies employed to optimize digital governance. Across all five clusters, data from the three sources are woven together to demonstrate convergence rather than merely assert it. **Table 2** presents the profile of research informants and the triangulation of data sources applied in this study.

Table 2. Research Informant Profiles and Data Source Triangulation

No	Code	Position	School	Interview	Observation	Documentation
1	KS-A	Principal	SD Swasta A	✓	✓	✓
2	G-A	Teacher	SD Swasta A	✓	✓	✓
3	KS-B	Principal	SD Swasta B	✓	✓	✓
4	G-B	Teacher	SD Swasta B	✓	✓	✓
5	KS-C	Principal	SD Swasta C	✓	✓	✓
6	G-C	Teacher	SD Swasta C	✓	✓	✓

Table 2 confirms that all six informants contributed to all three data collection methods, enabling both method triangulation and source triangulation across institutional roles and school contexts. This multi-layered design underpins the credibility and transferability of the findings presented in this section.

Forms of Digital Transformation Management in School Performance Governance

Across the three schools, how digital transformation is managed in practice reflects less the presence of technology and more the depth to which it has been absorbed into institutional governance. At School A, this absorption is comprehensive. KS-A described a working environment in which digital tools have fundamentally changed the logic of performance oversight: *"We no longer manage school programs through paper files. Everything from program planning to teacher performance evaluation is recorded digitally. When I need to review a teacher's work, I can access the data immediately without waiting for a manual report."* (KS-A, Interview, March 2025) G-A confirmed that this shift is experienced at the level of daily teaching practice, not only at the leadership level, noting that lesson plans and activity reports are uploaded to a shared platform that the principal can monitor in real time. Field observation corroborated both accounts: the researcher observed teachers actively uploading documentation during preparation periods while the principal's office displayed a live monitoring dashboard showing each teacher's program completion status. Digital performance summaries, electronic supervision records, and archived evaluation reports reviewed during fieldwork provided material confirmation that technology at School A functions as a governance instrument rather than an administrative convenience.

At School B, the picture is one of active transition. KS-B acknowledged that digital tools are in use but that the system remains incomplete:

"We have started using digital tools for reporting and administration, but not everything is online yet. Some processes, especially performance evaluations, are still done manually because not all teachers are comfortable with the new system." (KS-B, Interview, March 2025) Observation at School B confirmed this directly: some teachers submitted reports through a shared digital drive while others completed identical tasks on printed forms in the same room. At School C, digital practice remains peripheral. KS-C was candid about the gap between institutional aspiration and material capacity: *"We use* Dapodik *for student data and messaging applications for communication. For lesson planning and performance records, most teachers still use paper. We want to develop further but our infrastructure and budget are not yet sufficient."* (KS-C, Interview, April 2025)

No institutional digital management platform was in active use during observation at School C, and documentation consisted predominantly of paper-based files. Across all three schools, the convergence of interview, observation, and documentary evidence confirms that digital maturity in school governance is determined not by technology availability but by the institutional depth of its integration. **Table 3** synthesizes the key themes derived from this cluster across all six informants.

Table 3. Thematic Matrix: Digital Transformation Management in School Performance Governance

Code	Representative Excerpt	Main Theme	Sub-theme
KS-A	"Everything from planning to evaluation is recorded digitally."	Full managerial integration	Data-driven governance
G-A	"The principal can monitor our progress in real time."	Real-time performance visibility	Embedded digital work culture
KS-B	"Not everything is online yet; evaluations are still manual."	Transitional digital adoption	Partial system integration
G-B	"Not all teachers are comfortable and our budget is limited."	Staff competence and resource gap	Barrier to full integration
KS-C	"Most teachers still use paper; infrastructure is insufficient."	Early-stage digitalization	Infrastructure and capacity deficit
G-C	"Digital tools are used only for basic administration."	Peripheral digital use	Limited managerial scope

Table 3 illustrates that the six informants collectively describe digital transformation as a graduated institutional process rather than a binary condition. School A has integrated digital tools into its core governance logic; School B is actively navigating the transition from partial to full integration; and School C remains at an early stage in which digital practice is confined to peripheral administrative functions. The convergence of interview, observation, and documentation data across all three profiles confirms that the depth of digital transformation is shaped above all by the coherence between leadership commitment, staff readiness, and material infrastructure.

Digital Systems as Instruments for Enhancing Transparency of School Performance Information

What distinguishes the three schools is not whether digital tools are present but how deeply those tools have been absorbed into the logic of governance itself. At School A, digitalization has moved well beyond administration into the core of managerial decision-making. KS-A described this shift directly:

> *"We no longer manage school programs through paper files. Everything from program planning to teacher performance evaluation is recorded digitally. When I need to review a teacher's work, I can access the data immediately without waiting for a manual report."* (KS-A, Interview, March 2025)

G-A confirmed that this shift is felt at the classroom level, noting that lesson plans and activity records are uploaded to a shared platform accessible to the principal in real time. What emerges from these two accounts together is a picture of digital governance that is not top-down but mutually constituted: the system works because both leadership and teachers have internalized it as the normal mode of professional operation. Observation confirmed this: a live monitoring dashboard in the principal's office displayed each teacher's program completion status during the researcher's visit, while documentation reviewed at this school, including digitally archived supervision reports and semester performance summaries, provided material evidence of an integrated, data-driven governance system.

At School B, the same aspiration exists but the same depth has not yet been achieved. KS-B acknowledged that performance evaluations remain manual despite progress in administrative digitalization, while G-B identified uneven staff competence and budget constraints as the factors limiting further integration. Observation at School B found digital and manual workflows running in parallel within the same administrative space, a condition that documentation, comprising both electronic reports and handwritten evaluation forms stored side by side, confirmed without ambiguity. School C presents the earliest stage of the three. KS-C stated that digital use is currently confined to student data management and informal communication, with lesson planning and performance records remaining predominantly paper-based. No institutional digital management platform was in active use during observation, and documentation at this school consisted almost entirely of printed files and handwritten registers. **Table 4** maps the digital transformation profile of each school across four governance dimensions, synthesized from interview, observation, and documentation data.

Table 4. Digital Transformation Implementation Profiles Across Three Schools

Governance Dimension	School A	School B	School C
Program planning and management	Fully digital and data-driven	Partially digital	Manual with minimal digital input
Teacher performance documentation	Integrated digital system	Mixed digital and manual	Predominantly manual
Data-based decision-making	Consistently practiced	Emerging	Not yet established

Overall digital maturity	Advanced	Transitional	Early-stage

The three profiles in **Table 4** reveal that digital transformation in school governance is a graduated process whose depth at any given institution is determined by the coherence between leadership vision, staff readiness, and material infrastructure rather than by the availability of technology alone.

Digital Systems as Instruments for Enhancing Transparency of School Performance Information

The data reveal a critical distinction that cuts across all three schools: digital communication and genuine transparency are not the same thing. All three schools use digital tools to share information with parents and stakeholders, but the degree to which that sharing constitutes structured, accountable, and comprehensive disclosure varies substantially. At School A, transparency is treated as a governance value operationalized through digital infrastructure rather than as a communication byproduct. KS-A described the scope of this commitment:

> *"We publish our school programs, teacher performance summaries, student achievement records, and activity reports through our digital platforms. Parents and the school committee can access this information at any time. Transparency is not something we do occasionally; it is built into how we manage the school."* (KS-A, Interview, March 2025)

G-A added that this institutional visibility has a reflexive professional effect: "It makes me more careful and consistent in my work," she noted, pointing to a dimension of transparency that is easily overlooked — it does not only serve stakeholders outward but disciplines professional practice inward. Observation at School A found a digital display in the school's public area with QR codes linking to published program reports, while documentation reviewed included regularly updated performance summaries distributed to the school committee, confirming that structured proactive disclosure is operational.

The contrast with Schools B and C is instructive precisely because both schools use digital communication actively, yet neither has converted that activity into systemic transparency. At School B, KS-B acknowledged that evaluation data are handled internally and that disclosure remains event-based rather than comprehensive. Observation confirmed the absence of a publicly accessible reporting platform, and documentation showed parent communications focused on activities and achievements rather than performance indicators. At School C, KS-C described relying entirely on messaging groups, with no formal publication mechanism in place. G-C confirmed that information sharing is reactive rather than proactive, occurring in response to parent inquiries rather than through structured institutional disclosure. **Table 5** maps transparency practices across five indicators for each school, drawing on triangulated data from all three collection methods.

Table 5. Digital Transparency Practices Across Three Schools

Transparency Indicator	School A	School B	School C
Publication of school programs	Systematic; multi-channel	Event-based	Absent
Disclosure of performance data	Regular; structured	Internal only	Not practiced
Stakeholder access to information	Open; multi-platform	Limited	Messaging only
Two-way communication with parents	Active and structured	Present but informal	Reactive
Overall transparency level	Institutionalized	Selective	Informal

Table 4 makes visible what the interview and observation data confirm: the gap between School A and the other two schools is not a gap in digital tool usage but a gap in institutional commitment to disclosure as a governance norm. Schools B and C communicate

digitally but have not yet institutionalized transparency as a structural feature of how they govern.

The Contribution of Digitalization to Accountability in School Performance Management

Accountability and transparency, though related, are activated through different mechanisms in these data. Where transparency concerns what is made visible to external stakeholders, accountability concerns how professional performance is documented, verified, and evaluated within the institution. The data show that digitalization strengthens accountability primarily by converting professional activity into retrievable, verifiable evidence, but that this conversion happens at very different levels of completeness across the three schools. At School A, the accountability architecture is evidence-based in the fullest sense. KS-A described its effect with precision:

> *"When I conduct a supervision visit, the results are recorded digitally and linked to each teacher's performance file. At the end of the semester, I can pull up a complete record of every teacher's progress. Nothing is lost and nothing can be disputed."* (KS-A, Interview, March 2025)

The phrase "nothing can be disputed" signals a shift from accountability as a relational process dependent on trust and memory to accountability as a structural process anchored in verifiable data. G-A confirmed that this architecture serves teachers as much as it serves oversight: digital records eliminate the end-of-semester scramble for evidence and allow teachers to approach evaluation with documented confidence. Observation at School A found supervision records entered directly into the platform during visits rather than reconstructed afterward, while archived evaluation reports cross-referenced with implementation evidence confirmed that accountability here is genuinely data-driven.

At School B, digitalization has improved documentation regularity without yet integrating its components into a coherent accountability system. Activity reports are submitted digitally but evaluation records remain manual, preventing consolidated performance analysis. At School C, informal messaging archives have begun to function as a rudimentary accountability record, making teacher participation in school activities visible to the principal even without a formal system. Observation confirmed this informal practice is consistent across the staff at School C, and G-C noted that it has begun to regularize documentation habits regardless.

Table 6 presents the accountability mechanisms identified at each school, classified by type and supporting evidence.

Table 6. Digitalization and Accountability Mechanisms Across Three Schools

Accountability Dimension	School A	School B	School C
Performance documentation system	Integrated digital; fully retrievable	Partially digital; fragmented	Informal; messaging archives
Supervision and evaluation records	Digital; time-stamped and linked	Mixed digital and manual	Paper-based
Data use in performance evaluation	Consistent; evidence-based	Emerging	Not yet practiced
Accountability mechanism type	Structural and data-driven	Transitional	Nascent and informal

Table 6 confirms that digitalization contributes to accountability through two distinct pathways: structured evidence production at School A, where an integrated system makes performance verifiable, and documentation discipline at Schools B and C, where even partial or informal digital record-keeping begins to regularize professional practice. The implication is significant: accountability benefits from digitalization are not confined to institutions with advanced infrastructure.

Barriers and Challenges in Managerial Digital Transformation

A consistent pattern across the data is that the most consequential barriers to digital transformation are human rather than technological. This finding holds even at School A, where infrastructure is most developed. KS-A identified the persistence of competence gaps among senior staff as the school's primary ongoing constraint, noting that "bringing everyone along takes continuous effort" and that institutional digital progress is effectively paced by its least proficient members. Observation at School A confirmed this: platform usage logs showed lower upload completion rates among senior teachers, while the researcher observed peer assistance being provided for routine digital tasks during the fieldwork period. At School B, the barrier landscape is compound. KS-B described the challenge:

> *"Every time we want to upgrade our system or introduce a new application, we face the same problem: the budget is not sufficient and not all teachers adapt at the same pace. We are moving forward but progress is slow."* (KS-B, Interview, March 2025)

G-B added that frequent application updates create recurring adaptation fatigue, producing a cycle in which teachers who have only recently become comfortable with a system are required to relearn it. Observation at School B documented visible resistance during a staff meeting in which a new reporting feature was introduced, while meeting minutes reviewed at this school identified budget constraints and uneven staff readiness as the two primary obstacles to completing the digital transition. At School C, barriers are foundational rather than transitional. Unstable internet connectivity, insufficient devices, and limited budget converge to create material ceilings on digital ambition that no training program alone can overcome. A school development plan reviewed during fieldwork listed infrastructure improvement as a priority but recorded it as unfunded, confirming that the barrier is institutionally recognized but not yet addressable. **Table 7** classifies the barriers identified across the three schools by type, dimension, and severity.

Table 7. Classification of Barriers to Digital Transformation Across Three Schools

Barrier Type	Dimension	School A	School B	School C
Human	Digital competence gap	Residual; senior staff	Moderate; uneven across staff	Significant; compounded by age
Financial	Budget constraints	Minimal	Moderate	Severe
Technical	Infrastructure and connectivity	Adequate	Developing	Inadequate
Cultural	Resistance to change	Low	Moderate	Moderate to high
Overall barrier severity		Low	Moderate	High

Table 7 reveals that barriers to digital transformation are neither uniform nor reducible to a single dimension. School A's barriers are residual and manageable through sustained peer support; School B's are compound and require simultaneous attention to budget, system design, and staff development; and School C's are foundational, requiring structural investment before any governance digitalization can meaningfully advance.

Strategies for Optimizing Digital Transformation in School Performance Governance

The strategic responses developed across the three schools are distinctive in design but share one underlying logic: each school has built its approach around the constraint that most limits its specific path forward rather than modeling its strategy on an idealized endpoint. This context-sensitivity is itself a finding, and it is confirmed by the convergence of interview, observation, and documentation data across all three institutions. At School A, where governance infrastructure is established, strategy is oriented toward continuous refinement and distributed learning. KS-A described an approach in which digital capacity is

renewed through peer exchange rather than centralized training:

> *"When a teacher discovers a better way to use our platform, they share it with the team. We also evaluate our digital systems every semester to see what is working and what needs to be improved."* (KS-A, Interview, March 2025)

Observation at School A documented a staff session in which teachers collaboratively resolved a recurring platform issue, an instance of the distributed learning culture KS-A described. Semester digital evaluation reports reviewed at this school confirmed that the platform is treated as a living governance instrument subject to structured, data-informed refinement. At School B, strategy is participatory and incremental. KS-B explained that involving teachers in deciding which processes to digitalize first converts potential resistance into ownership, producing measurably higher adoption rates than top-down mandates. A phased digitalization roadmap developed collaboratively with teaching staff and reviewed during fieldwork confirmed that this approach is institutionally formalized. At School C, KS-C articulated a sequencing logic in which human readiness precedes infrastructure investment: "Before we can think about new systems, we need to make sure our teachers are ready." Observation documented a peer-led training session in which the school's most digitally proficient teacher guided colleagues through a basic digital submission process, and a post-session reflection log confirmed that the capacity-first strategy is being implemented with deliberate structure despite its modest scope.

Table 8 presents the core strategy of each school alongside its rationale, implementation form, and observed outcome.

Table 8. Optimization Strategies for Digital Transformation Across Three Schools

Strategic Element	School A	School B	School C
Core strategy	Continuous refinement and distributed learning	Participatory and incremental digitalization	Capacity-first human development
Primary rationale	Sustain and deepen existing system	Convert resistance into ownership	Build human readiness before infrastructure
Implementation form	Peer knowledge-sharing; semester system evaluation	Staff-involved process prioritization; phased roadmap	Peer-led training; internal digital literacy sessions
Observed outcome	Self-sustaining digital governance culture	Improved adoption rates; reduced resistance	Growing teacher digital confidence
Constraint addressed	Residual competence gap	Transitional friction and budget limits	Foundational infrastructure and readiness deficit

Table 8 confirms that strategic intelligence in digital transformation lies not in the sophistication of the technology adopted but in the precision with which institutional leadership diagnoses what each school most needs to move forward. The convergence of interview, observation, and documentation evidence across all three schools demonstrates that sustainable digital governance is built incrementally, contextually, and above all, with people at its center.

Discussion

The findings of this study converge on a single overarching argument: digital transformation in primary school performance management is not a technological event but an organizational process whose depth is determined by how deeply digital tools have been absorbed into institutional governance logic. This distinction shifts the analytical focus from what technology schools possess to how schools use technology to govern, explaining why institutions within the same policy environment and with comparable digital resources produce divergent governance outcomes. The three schools examined here did not differ

primarily in technology access; they differed in the extent to which digital transformation had been treated as a managerial priority, embedded in organizational culture, and sustained through deliberate investment in human capacity. That difference, more than any hardware or software specification, determined how meaningfully digitalization shaped transparency and accountability in school performance management across all three institutional contexts examined.

The finding that digital transformation operates at distinct levels of institutional maturity aligns with digital maturity frameworks in the educational management literature but extends them in a direction prior work has not fully developed. (Hinterhuber et al., 2021) and (Gillani et al., 2024) characterize digital transformation as a progression through identifiable stages, treating this progression primarily as a function of technological infrastructure. This study demonstrates that infrastructure is necessary but insufficient. School A's advanced governance profile was produced not by superior technology but by a leadership decision to treat digital integration as a governance imperative, and by the organizational culture that decision sustained over time. School C possessed comparable devices and connectivity but had not made that governance decision, leaving digital practice peripheral to managerial functions. This finding extends (Mardhiyyah Thaib & Parahyanti, 2025; Nguyen et al., 2025; Thien et al., 2025) by specifying that institutional readiness is above all a function of leadership orientation rather than material endowment.

The transparency findings both confirm and complicate existing scholarship on digital governance. (Chagas & Da-Costa, 2023; Langer & König, 2023; Otter & Robinson, 2024) argue that digital systems increase transparency by making information accessible and reducing institutional opacity, and School A's data support this: deliberate publication of performance summaries and program reports through multi-channel platforms produced stakeholder access that was structural rather than contingent. However, Schools B and C reveal a limitation the existing literature has not adequately addressed: digital communication and genuine transparency are not equivalent. Both schools used digital tools actively yet neither institutionalized disclosure as a governance norm. This distinction between digitally mediated communication and digitally grounded transparency is analytically consequential. (Gil & Hwang, 2024; Intemann, 2024; Südkamp & Dempsey, 2021) argue that transparency is a governance value before it is a communication practice, and this study confirms that argument applies with equal force to primary school management contexts.

The accountability findings extend (Farrell, 2024), whose framework distinguishes accountability as a virtue from accountability as a structural mechanism. The data demonstrate that digitalization contributes primarily through the second dimension: by converting professional activity into retrievable, time-stamped, verifiable evidence, digital systems transform accountability from a relational process dependent on trust and memory into a structural process anchored in data. At School A, this transformation is complete, producing an accountability architecture in which performance evidence is documented in real time and available for evaluation without reconstruction. This evidence-based accountability model advances the literature on evidence-based practice in school management (Cameron et al., 2025; Lengnick Hall et al., 2023; Varma & Bhawalpuria, 2024) by demonstrating that digital documentation systems are the practical infrastructure through which evidence-based accountability becomes operationally possible rather than merely aspirationally desirable in institutional governance.

The barrier findings resonate with and extend the human-centered transformation literature in ways that carry significant policy implications. (Höyng & Lau, 2023) demonstrate that digital transformation produces adverse working conditions when imposed without adequate attention to employee readiness, and this study confirms that the most consequential barriers to digital governance transformation are human rather than technological across all three schools. Even at School A, competence gaps among senior staff constitute the primary ongoing constraint. This challenges a dominant policy

assumption that providing schools with digital tools is sufficient to produce digital governance. The data demonstrate that tool provision without commensurate investment in human development produces uneven rather than systemic transformation. This finding has direct implications for how the *Platform Merdeka Mengajar* and related national initiatives should be designed, evaluated, and monitored by education authorities at the district and provincial levels.

The strategy findings contribute to organizational learning and change management literature by demonstrating that context-sensitive strategy is the defining feature of effective digital governance development. Each school developed a strategy calibrated to its specific constraint profile: School A focused on distributed peer learning because its constraint was residual; School B adopted participatory incrementalism because its constraint was transitional resistance; and School C prioritized human capacity development because its constraint was foundational. This pattern extends (Zakaria et al., 2025), who argues that strategic management in educational quality improvement must be grounded in accurate institutional diagnosis rather than generic prescription. The findings advance that argument into the specific domain of digital governance, demonstrating that strategic intelligence lies not in the sophistication of technology adopted but in the precision with which institutional leadership diagnoses what the school most specifically needs to move forward.

This study makes three specific contributions to the field of educational management. First, it provides empirical evidence that digital transformation in school performance governance is an organizational process determined by the coherence between leadership commitment, staff readiness, and governance design, offering a human-centered corrective to technology-centered assumptions dominating Indonesian primary school digitalization policy. Second, it demonstrates that transparency and accountability are activated through distinct mechanisms in digital governance contexts: transparency requires institutional commitment to structured, proactive disclosure as a governance norm, while accountability requires conversion of professional activity into verifiable digital evidence. Both mechanisms must be attended to separately by school leaders and policymakers. Third, by comparing three schools at different digital maturity stages within the same policy environment, this study produces a graduated model of digital governance development that offers principals, supervisors, and policymakers a practically grounded framework for diagnosing institutional capacity and designing contextually appropriate improvement strategies.

CONCLUSION

This study demonstrates that digital transformation in primary school performance management is fundamentally an organizational process rather than a technological one, shaped by the coherence between leadership commitment, staff readiness, and governance design. Across the three schools examined, digital systems contributed to transparency by extending stakeholder access to institutional information and to accountability by converting professional activity into retrievable, verifiable evidence, but both contributions were realized fully only where digitalization had been adopted as a governance priority rather than an administrative convenience. The most consequential barriers were human rather than technological, and the most effective strategies were those calibrated precisely to each school's specific constraint profile. This study is limited by its focus on three private primary schools in a single regency and its exclusion of stakeholder perspectives beyond principals and teachers. Future research should employ mixed-methods designs across larger and more diverse school samples, incorporate longitudinal data, and examine broader stakeholder perspectives to produce a more comprehensive account of digital governance transformation in Indonesian primary education.

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REFERENCES

Albouti, A., & Balaji, K. D. (2025). From Technology Adoption to Digital Transformation How Institutional Trust and Digital Readiness Shape HRIS Success in Higher Education. *Journal of Logistics, Informatics and Service Science*, 12(10), 110–124. https://doi.org/10.33168/JLISS.2025.1007

Asemi, A., & Asemi, A. (2022). Data to Evaluate the Usability of an Interactive System Based on a Judgment-Based Model. *Data in Brief*, 43. https://doi.org/10.1016/j.dib.2022.108418

Bai, G., Li, X., Zhang, S., Wang, Q., & Liu, G. (2023). Analysis of Visual Quality After Multifocal Intraocular Lens Implantation in Post-LASIK Cataract Patients. *Heliyon*, 9(5). https://doi.org/10.1016/j.heliyon.2023.e15720

Bennett, R., & Southcott, J. (2025). "Me Dancing": An Intrinsic Case Study of Primary School Girls' Understandings of Movement and Dance Through Their Drawings. *Qualitative Report*, 30(1), 2990–3009. https://doi.org/10.46743/2160-3715/2025.5907

Cameron, S., Franks, P. C., Huvila, I., & Mooradian, N. (2025). Navigating Accountability: The Role of Paradata in AI Documentation and Governance. *Journal of Documentation*, 81(4), 906–926. https://doi.org/10.1108/JD-01-2025-0009

Chagas, V., & Da-Costa, G. (2023). WhatsApp and Transparency: An Analysis on the Effects of Digital Platforms' Opacity in Political Communication Research Agendas in Brazil. *Profesional de La Informacion*, 32(2). https://doi.org/10.3145/epi.2023.mar.23

Du, X., & Lyublinskaya, I. (2022). Designing Professional Development for Special Education Teachers: Effects on Assistive Technology Competency in Developing Inquiry-Based Student Experiences. *Journal of Digital Learning in Teacher Education*, 38(4), 199–210. https://doi.org/10.1080/21532974.2022.2113938

Farrell, M. (2024). Accountability as a Mechanism and a Virtue in Irish Public Sector Recordkeeping. *Records Management Journal*, 34(2–3), 190–204. https://doi.org/10.1108/RMJ-09-2023-0051

Gil, J., & Hwang, H. (2024). Substitutive Effects of Accounting Transparency and Corporate Governance on Firm Value. *International Journal of Management and Sustainability*, 13(3), 732–742. https://doi.org/10.18488/11.v13i3.3861

Gillani, F., Chatha, K. A., Jajja, S. S., Cao, D., & Ma, X. (2024). Unpacking Digital Transformation: Identifying Key Enablers, Transition Stages and Digital Archetypes. *Technological Forecasting and Social Change*, 203. https://doi.org/10.1016/j.techfore.2024.123335

Hinterhuber, A., Kienzler, M., & Liozu, S. (2021). New Product Pricing in Business Markets: The Role of Psychological Traits. *Journal of Business Research*, 133, 231–241. https://doi.org/10.1016/j.jbusres.2021.04.076

Höyng, M., & Lau, A. (2023). Being Ready for Digital Transformation: How to Enhance Employees' Intentional Digital Readiness. *Computers in Human Behavior Reports*, 11. https://doi.org/10.1016/j.chbr.2023.100314

Huang, L. (2025). Creating a Dashboard for Interactive Data Visualization with Dash in Python. *Programming Historian*, 14. https://doi.org/10.46430/phen0124

Intemann, K. (2024). Value Transparency and Promoting Warranted Trust in Science Communication. *Synthese*, 203(2). https://doi.org/10.1007/s11229-023-04471-1

Langer, M., & König, C. J. (2023). Introducing a Multi-Stakeholder Perspective on Opacity, Transparency and Strategies to Reduce Opacity in Algorithm-Based Human Resource Management. *Human Resource Management Review*, 33(1). https://doi.org/10.1016/j.hrmr.2021.100881

Lengnick Hall, R., Willging, C. E., Aarons, G. A., & Reeder, K. (2023). Site-Level Evidence-Based Practice Accreditation: A Qualitative Exploration Using Institutional Theory. *Human Service Organizations Management, Leadership and Governance*, 47(3), 157–175. https://doi.org/10.1080/23303131.2023.2194940

Malkoc, N., & Dal, S. (2021). The Relationship Between Management Styles and Trainers' Job Motivation in the Public Institutions. *International Journal of Evaluation and Research in Education*, 10(1), 108–114. https://doi.org/10.11591/ijere.v10i1.20816

Mardhiyyah Thaib, R. N., & Parahyanti, E. (2025). Servant Leadership and Innovative Work Behavior: The Role of Meaningful Work and Strengths Use. *Journal La Sociale*, 6(1), 137–150. https://doi.org/10.37899/journal-la-sociale.v6i1.1807

Miller, E. M., Porter, J. E., & Barbagallo, M. S. (2023). Simplifying Qualitative Case Study Research Methodology: A Step-By-Step Guide Using a Palliative Care Example. *Qualitative Report*, 28(8), 2363–2379. https://doi.org/10.46743/2160-3715/2023.6478

Mitić, J., & Djenić, S. (2024). Improvement of Learning Outcomes in Traditional Learning Model by Introducing Online Activities and Big Data Analytics. *Interactive Learning Environments*, 32(7), 3783–3798. https://doi.org/10.1080/10494820.2023.2190362

Møller-Skau, M., & Lindstøl, F. (2022). Arts-Based Teaching and Learning in Teacher Education: "Crystallising" Student Teachers' Learning Outcomes Through a Systematic Literature Review. *Teaching and Teacher Education*, 109. https://doi.org/10.1016/j.tate.2021.103545

Nguyen, T. H. T., Zakarneh, M., McDonald, M., & Amankwah-Amoah, J. (2025). Reconceptualizing Ethical Leadership for the Global South: An Institutional Logics Perspective. *Leadership Quarterly*, 36(5). https://doi.org/10.1016/j.leaqua.2025.101897

Nofianti, Hardianto, D., & Pujiriyanto. (2025). Middle School Teachers' Perceptions of the Merdeka Mengajar Platform as a Source of Independent Learning. *Jurnal Penelitian Pendidikan IPA*, 11(1), 128–134. https://doi.org/10.29303/jppipa.v11i1.9766

Otter, V., & Robinson, D. M. (2024). Transparency and Changing Stakeholder Roles in the Digital Age of Sustainable Agri-Food Supply Chain Networks. *Frontiers in Sustainable Food Systems*, 8. https://doi.org/10.3389/fsufs.2024.1449684

Parra-Sánchez, D. T., Talero-Sarmiento, L. H., & Guerrero, C. D. (2021). Assessment of ICT Policies for Digital Transformation in Colombia: Technology Readiness for IoT Adoption in SMEs in the Trading Sector. *Digital Policy, Regulation and Governance*, 23(4), 412–431. https://doi.org/10.1108/DPRG-09-2020-0120

Südkamp, C. M., & Dempsey, S. E. (2021). Resistant Transparency and Nonprofit Labor: Challenging Precarity in the Art + Museum Wage Transparency Campaign. *Management Communication Quarterly*, 35(3), 341–367. https://doi.org/10.1177/0893318921993833

Sumiyem, Waluyo, E., & Utanto, Y. (2025). Empowering Early Childhood Teachers Through the Merdeka Mengajar Platform: Opportunities and Challenges in the Digital Era. *Jurnal Penelitian Pendidikan IPA*, 11(10), 882–892. https://doi.org/10.29303/jppipa.v11i10.12621

Thien, L. M., Yang, M., & Xu, X. (2025). Unleashing Teachers' Readiness for Leadership Roles Through Distributed Leadership, Affective-Identity Motivation to Lead, and

Teacher Optimism. *Leadership and Policy in Schools*. https://doi.org/10.1080/15700763.2025.2592755

Varma, A., & Bhawalpuria, T. (2024). Accountability and Governance in Academia: A Foucauldian Perspective on Digital Governance and Control. *International Journal of Educational Management*. https://doi.org/10.1108/IJEM-10-2023-0518

Waghorn, E., & Yelland, N. (2024). Researching Children's Lifeworlds Through an Innovative Case Study Methodology. *Qualitative Research Journal*. https://doi.org/10.1108/QRJ-08-2024-0169

Zakaria, A. R., Karwadi, Budiman, A. M., Fatahillah, M., & Akib, A. R. M. (2025). Strategic Management Practices in Pesantren: Innovations for Enhancing Educational Quality and Organizational Sustainability. *Malaysian Online Journal of Educational Management*, 13(2), 86–97. https://doi.org/10.22452/mojem.vol13no2.5