

Financial Decision-Making in Schools Using ARKAS-Based Management Information Systems: A Qualitative Case Study

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ABSTRACT

Digital financial management systems are increasingly used to strengthen accountability and decision-making in schools. However, limited research has examined how ARKAS-generated financial data are interpreted and used in school financial governance. This study investigates how ARKAS supports financial decision-making practices in a public junior secondary school in Indonesia. This study employed a qualitative instrumental case study design at SMPN 19 Seluma, Indonesia. Data were collected through semi-structured interviews with eight participants involved in school financial governance, including the principal, vice principal, treasurer, ARKAS operator, administrative staff, teacher representative, school committee representative, and district-level BOS supervisor. Institutional documents, including RKAS documents, BOS realization reports, accountability reports, ARKAS-generated summaries, and meeting minutes, were also analyzed. Data were examined using reflexive thematic analysis, supported by triangulation, member checking, and reflexive memoing. The findings show that ARKAS structures financial planning, implementation, reporting, verification, and deliberative governance through standardized digital procedures. However, school financial governance does not operate as a fully data-driven process. Financial data function as deliberative resources that are interpreted, negotiated, and verified by school actors. Accountability practices remain hybrid, combining system-generated reports with manual verification of receipts and supporting documents. Unequal technical capacity, dependence on ARKAS operators, unstable connectivity, and organizational adaptation challenges also shape system use. This study proposes a negotiated socio-technical model of ARKAS-based financial governance. The findings suggest that effective digital financial governance requires not only technological integration but also data literacy, technical capacity, infrastructure stability, and organizational coordination.

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1. INTRODUCTION

School financial governance plays an important role in supporting educational governance and the allocation of educational resources (Knight, 2013; Yusuf et al., 2024). In managing School Operational Assistance (BOS) funds, schools are required to conduct accountable budgeting, implementation, and reporting processes (Gaspar et al., 2022). In Indonesia, these processes are supported through the School Activity and Budget Plan Application (ARKAS), which facilitates digital-based financial planning and reporting (Syarif & Wahdiat, 2024). The use of ARKAS enables the integration of financial data within school planning, monitoring, and budget evaluation activities. The utilization of financial information systems is also associated with strengthening accountability and control functions in managing educational resources (Widati et al., 2023; Paul, 2021).

The use of educational information systems is associated with the growing adoption of data-driven decision making (DDDM) practices in educational organizations (Nwoko & Ogar, 2024; Elugbaju et al., 2024). DDDM positions data as a basis for organizational decision-making (Gaftandzhieva et al., 2023). Information systems enable schools to integrate financial data in ways that support coordinated and documented governance practices (Sunarjo et al., 2024; Lange & Breiter, 2008). However, the use of financial data in educational organizations is not determined solely by the availability of technology (Erstad et al., 2023). Organizational actors continue to interpret and use financial data according to institutional needs and contextual considerations (Datnow, 2020; Fernandes, 2021). As a result, educational governance practices often reflect data-informed rather than fully data-driven approaches (Brazauskienė, 2025; Young et al., 2018).

In school financial governance, the use of financial data involves interactions among principals, treasurers, system operators, and other organizational actors (Sebidi, 2023; Aina & Bipath, 2020). These interactions influence how financial data are verified, interpreted, and considered in organizational decision-making (Kraft-Terry & Brown, 2023). From a socio-technical perspective, the effectiveness of information systems is shaped by the relationship between technology, users, and organizational contexts (Lee et al., 2008; Kim et al., 2012). In this context, financial data do not function as purely mechanical bases for organizational decisions, but become part of broader processes of interpretation and negotiation within school financial governance (Ratner & Gad, 2019; Soncin & Cannistrà, 2022).

Previous studies on ARKAS have primarily focused on system implementation, reporting compliance, and accountability in BOS fund management (Ismatuzzaeni et al., 2024; Batubara et al., 2025; Sofi et al., 2025). Limited attention has been given to how ARKAS-generated financial data are used in school financial decision-making practices. Existing studies have also provided limited explanation of how school actors interpret, negotiate, and use financial data within governance processes. Research on data-informed decision making in education has generally emphasized school leadership and organizational outcomes rather than financial governance practices supported by information systems (Shen et al., 2016; Lee et al., 2025). These limitations indicate the need for studies that examine ARKAS not only as an administrative tool, but also as part of an interpretive and socio-technical process of school financial governance.

This study examines how ARKAS-based school management information systems are utilized in school financial decision-making. The analysis focuses on the use of financial data in planning, implementation, evaluation, and governance processes related to school fund management. Drawing on data-informed decision-making and socio-technical perspectives, this study explores how interactions among systems, actors, and organizational contexts shape school financial governance. Conceptually, the study proposes a negotiated socio-technical governance perspective for understanding the use of ARKAS in school financial governance.

2. METHODS

This study employed a qualitative approach using an instrumental case study design to examine how the ARKAS-based School Management Information System supports financial decision-making in

schools. An instrumental case study was considered appropriate because it enables an in-depth exploration of organizational and socio-technical phenomena within real-life contexts (Baxter & Jack, 2015; Gammelgaard, 2017). The study was positioned within an interpretivist perspective, focusing on how school actors interpret and use financial data in governance practices.

The study was conducted at SMPN 19 Seluma, a public junior secondary school in Indonesia that has implemented ARKAS as part of its School Operational Assistance (BOS) fund management system. The school was selected purposively because ARKAS was actively used in budgeting, reporting, expenditure monitoring, and program evaluation processes, making it relevant for examining the interaction between digital systems and school financial governance practices.

Participants were selected purposively based on their direct involvement in school financial governance and ARKAS utilization. The study involved eight participants representing managerial, operational, technical, and supervisory roles, including the principal, vice principal, treasurer, ARKAS operator, administrative staff member, teacher representative, school committee representative, and district-level BOS supervisor. These participants were considered capable of providing contextual information regarding financial data use and governance practices. Participant characteristics are presented in Table 1.

Table 1. Characteristics of Participants

Code	Position	Role in Financial Governance	Experience
I1	Principal	Financial decision-making and policy approval	4 years
I2	Vice Principal	Program coordination and budget planning	5 years
I3	Treasurer	Financial administration and BOS reporting	4 years
I4	ARKAS Operator	System operation and data management	4 years
I5	Administrative Staff	Financial documentation support	3 years
I6	Teacher Representative	Program implementation and budget use	6 years
I7	School Committee Representative	Oversight and deliberative participation	5 years
I8	BOS Supervisor	Financial monitoring and accountability oversight	7 years

Data were collected through semi-structured interviews and document analysis between February and March 2026. The interviews explored financial planning, financial data use, accountability practices, organizational deliberation, and challenges in ARKAS implementation. A total of eight face-to-face interviews were conducted, each lasting approximately 45–70 minutes, generating around eight hours of interview data. All interviews were audio-recorded with participants' consent and transcribed verbatim. Field notes were also documented to support contextual interpretation. Data collection continued until sufficient thematic patterns were identified across interviews and institutional documents.

Document analysis was conducted to strengthen triangulation and contextual understanding of school financial governance practices (Bowen, 2009). Five categories of institutional documents were analyzed, including School Activity and Budget Plans (RKAS), BOS realization reports, accountability reports, ARKAS-generated summaries, and meeting minutes related to budgeting and evaluation processes. The documents were selected because they represented formal institutional records directly related to financial planning, reporting, verification, and decision-making practices.

Table 2. Institutional Documents Analyzed

Code	Document Type	Analytical Purpose
D1	RKAS documents	Examining budgeting and planning practices
D2	BOS realization reports	Examining expenditure reporting practices
D3	Accountability reports	Examining accountability procedures
D4	ARKAS-generated summaries	Examining financial data integration
D5	Meeting minutes	Examining deliberative governance practices

The documents were reviewed iteratively and coded according to themes related to planning, reporting, verification, accountability, and organizational deliberation. Relevant excerpts from

institutional documents were then compared with interview transcripts to identify convergence, inconsistency, and contextual alignment across data sources.

All participants were informed about the purpose of the study, confidentiality procedures, and their right to withdraw at any stage. Written informed consent was obtained prior to data collection. Participant identities were protected using pseudonymous codes (I1–I8), and all data were used solely for research purposes.

To enhance trustworthiness, the study applied triangulation, member checking, and reflexive memoing. Triangulation was conducted by comparing findings across interviews and institutional documents. Member checking was carried out by returning preliminary interpretations to participants for confirmation. Reflexive memos were maintained throughout data collection and analysis to document emerging interpretations and analytical decisions.

Data were analyzed using reflexive thematic analysis following Braun and Clarke's six-phase framework (Braun & Clarke, 2021; Byrne, 2022). The analysis began with repeated reading of interview transcripts and institutional documents to achieve data familiarization. Initial codes were generated inductively from the data and subsequently grouped into broader categories based on recurring patterns. Through iterative analysis, these categories were developed into themes representing how ARKAS-generated financial data were interpreted, negotiated, and utilized in school financial governance.

3. FINDINGS AND DISCUSSION

3.1 Findings

The findings of this study indicate that the implementation of ARKAS has contributed to the restructuring of financial governance practices within the school through the integration of digital financial data into planning, implementation, verification, and deliberative decision-making processes. However, the findings also show that financial governance within ARKAS-based practices does not operate as a fully data-driven process. Instead, financial data are interpreted, negotiated, and validated by school actors within organizational and socio-technical contexts. Across participants' accounts and institutional documents, the study identified five overarching themes: (1) digital structuring of financial governance, (2) negotiated use of financial data in decision-making, (3) verification practices as institutional accountability, (4) unequal technical capacity and system dependency, and (5) socio-technical fragility in digital financial governance.

Table 3. Themes of Digital Financial Governance in ARKAS-Based School Management

Theme	Central Meaning	Illustrative Evidence
Digital Structuring of Financial Governance	<i>ARKAS standardizes and structures financial planning and reporting practices</i>	Budget planning follows predefined digital procedures and expenditure categories
Negotiated Use of Financial Data	<i>Financial data inform deliberation but do not autonomously determine decisions</i>	Decisions remain shaped by collective discussion and contextual judgment
Verification as Institutional Accountability	<i>Financial data require manual validation to establish institutional trust</i>	ARKAS data are cross-checked against receipts and supporting documents
Unequal Technical Capacity and System Dependency	<i>Governance practices depend heavily on technical actors and uneven digital literacy</i>	School staff rely substantially on ARKAS operators for system management
Socio-Technical Fragility in Digital Governance	<i>System effectiveness is shaped by infrastructure, organizational conditions, and human interpretation</i>	Connectivity problems and limited user competence affect financial management practices

The following sections present each theme in relation to financial governance practices within ARKAS-based school management.

3.1.1 Digital Structuring of Financial Governance

One of the central findings of this study is that ARKAS has contributed to a more structured and digitally coordinated financial governance process. Participants consistently explained that budgeting, expenditure planning, and financial reporting are now organized through procedures embedded within the system. Financial planning activities increasingly follow expenditure classifications and reporting structures predefined in ARKAS, reducing informal administrative practices and improving procedural consistency.

The principal explained that financial planning activities are now more systematically regulated through the system: *"All planning is now entered into ARKAS, so it becomes more structured and cannot be done arbitrarily."* (I1)

Similarly, the vice principal stated that planning discussions are generally organized according to expenditure categories already provided within the system: *"The system already provides expenditure categories, so discussions usually focus on determining which programs should be prioritized within the available budget structure."* (I2)

Document analysis supported these accounts. RKAS documents showed that proposed programs were systematically categorized according to ARKAS expenditure components, while meeting records indicated that budget deliberations frequently referred to ARKAS-generated financial summaries during planning discussions.

Although ARKAS contributes to procedural standardization, financial priorities continue to be shaped through collective deliberation and contextual considerations. A school committee representative explained: *"The data help make planning clearer, but discussions are still important because school needs sometimes change depending on conditions."* (I7)

These findings indicate that ARKAS structures financial governance practices through standardized digital procedures while still allowing space for organizational interpretation and contextual adjustment during planning processes.

3.1.2 Negotiated Use of Financial Data in Decision-Making

The findings further indicate that financial data generated through ARKAS are used as references for organizational deliberation rather than as automatic determinants of decisions. Across interviews and institutional documents, participants described financial decision-making as a discussion-based and interpretive process in which digital financial data support evaluation, prioritization, and coordination activities. School management meetings emerged as important spaces where ARKAS-generated reports were collectively interpreted and discussed.

The principal explained that ARKAS-generated reports function as references during governance meetings: *"Data from ARKAS become a reference during meetings, so decisions are not made arbitrarily."* (I1)

A school committee representative similarly emphasized that financial reports improve transparency during discussions, although decisions still require contextual interpretation: *"The reports help us understand the financial condition of the school, but discussions are still necessary because not all priorities can be decided only from the numbers."* (I7)

This perspective was reinforced by a teacher representative, who explained that practical educational needs often shape how financial information is interpreted during decision-making processes: *"Sometimes the financial data look sufficient on paper, but discussions are still needed because classroom and program needs can change depending on actual conditions."* (I6)

Meeting records further showed that ARKAS-generated expenditure summaries were frequently referenced during budget prioritization and program evaluation discussions. However, the records also indicated that final decisions incorporated additional considerations, including program urgency, operational constraints, and institutional priorities.

These findings suggest that financial data within ARKAS-based governance function as deliberative resources that support organizational coordination and decision-making while remaining dependent on professional judgment and contextual interpretation.

3.1.3 Verification Practices as Institutional Accountability

Another important finding concerns the role of verification practices in maintaining institutional accountability within ARKAS-based financial governance. Although ARKAS provides structured financial reports and automated administrative procedures, participants emphasized that digital records are not immediately treated as fully reliable without additional validation processes.

The treasurer explained that financial data generated through ARKAS must still be manually verified using supporting documents: *"Even though the data are already in ARKAS, we still need to check them manually with receipts and transaction documents."* (I3)

This perspective was reinforced by the BOS supervisor, who argued that accountability depends on consistency between digital records and actual financial transactions: *"The system helps organize the reports, but verification is still necessary to ensure that the reported expenditures truly match the actual transactions."* (I8)

An administrative staff member also described verification as a routine activity before financial reports are submitted: *"Before the reports are submitted, we usually check the documents several times to make sure the numbers in ARKAS match the physical evidence."* (I5)

Document analysis confirmed these practices. Financial accountability reports and meeting records repeatedly referred to document verification procedures before reporting submission and budget approval. Several records also indicated that discrepancies between digital records and supporting evidence required additional clarification and revision.

These findings indicate that ARKAS-based governance combines digital coordination with manual verification practices. Institutional trust in financial reporting remains dependent on continuous validation between system-generated data and supporting administrative evidence.

3.1.4 Unequal Technical Capacity and System Dependency

The findings also demonstrate that the effectiveness of ARKAS-based governance is strongly influenced by unequal technical competence among school actors. Participants consistently described substantial dependence on technically skilled personnel, particularly ARKAS operators, during financial reporting and system management activities.

An administrative staff member explained: *"Not all staff understand how to use the system directly, so most financial input still depends on the operator."* (I5)

Similarly, a teacher representative stated: *"Usually we rely on explanations from the operator because the system itself is not easy for everyone to understand."* (I6)

The ARKAS operator also explained that technical assistance is frequently required during reporting and budgeting activities: *"Many teachers and staff still ask for help when they need to check reports or input financial information because they are not yet familiar with the system."* (I4)

Institutional records further showed that reporting coordination and data synchronization activities frequently depended on a limited number of technically competent personnel. In several cases, reporting delays were associated with technical difficulties or the unavailability of system operators.

These findings indicate uneven digital literacy among school actors, resulting in considerable dependence on technically skilled personnel during financial governance processes. While ARKAS contributes to procedural standardization, governance practices remain shaped by differences in technical competence and access to system knowledge.

3.1.5 Socio-Technical Fragility in Digital Financial Governance

Although participants generally perceived ARKAS as improving financial administration, the findings also reveal the fragility of digital financial governance under broader socio-technical conditions. Participants repeatedly described how technical disruptions, infrastructure limitations, and uneven organizational adaptation affected the implementation of financial management processes.

One recurring issue concerned internet connectivity and system synchronization. The ARKAS operator explained: *"Sometimes the network becomes unstable, and reporting cannot be completed immediately because the system cannot synchronize properly."* (I4)

A treasurer similarly noted that technical interruptions often required repeated reporting procedures: *"If the system suddenly disconnects, we sometimes need to repeat the reporting process, and that makes the work slower and more complicated."* (I3)

Participants also described uneven adaptation toward digital administration. A teacher representative explained: *"The system helps organize the reports, but for people who are not familiar with digital administration, it can feel complicated and time-consuming."* (I6)

Document analysis supported these accounts. Administrative notes and meeting records repeatedly referred to reporting delays, technical coordination difficulties, and the need for continuous assistance during reporting periods.

Collectively, these findings demonstrate that ARKAS-based financial governance operates through interconnected organizational and socio-technical processes.

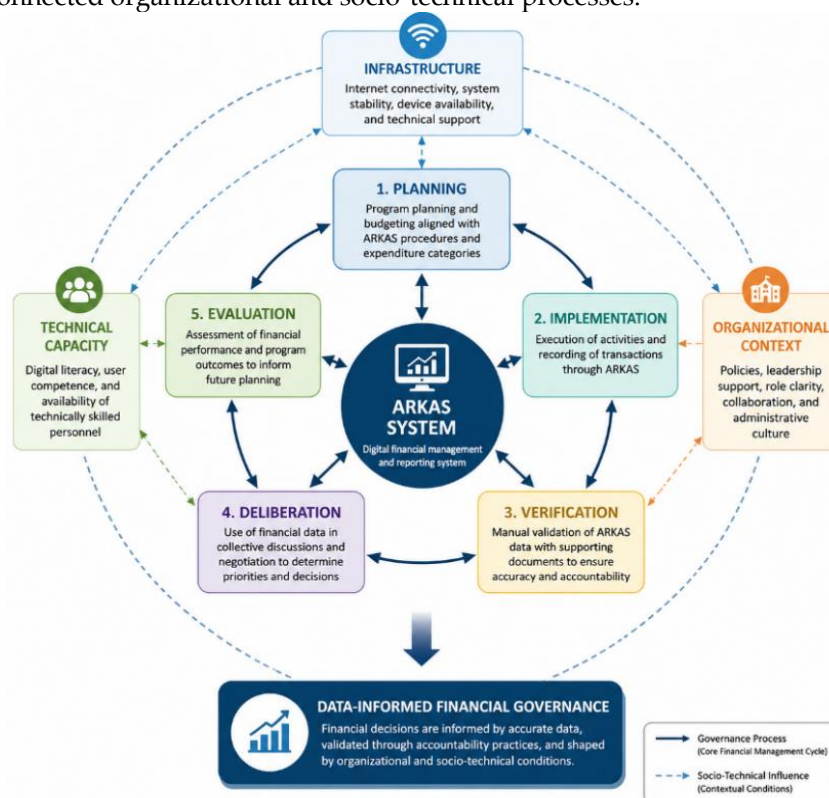


Figure 1. Negotiated Socio-Technical Model of ARKAS-Based Financial Governance

These findings indicate that the effectiveness of ARKAS-based governance depends not only on the existence of digital systems but also on infrastructure stability, organizational adaptation, and user capacity. Digital financial governance, therefore, emerges through continuous interaction between technological systems, institutional conditions, and human practices.

3.2. Discussion

This study examined how ARKAS-based financial management systems shape school financial governance practices within digitally integrated educational settings. The findings indicate that ARKAS functions not only as an administrative system for budgeting and reporting, but also as a governance infrastructure that organizes how financial data are used across planning, implementation, verification, evaluation, and deliberative processes. At the same time, the findings show that financial governance within ARKAS-based practices does not operate as a fully data-driven process. Instead, governance practices remain shaped by organizational interpretation, institutional negotiation, technical capacity, and contextual conditions. These findings support the interpretation of ARKAS-based governance as a negotiated socio-technical model of school financial governance.

3.2.1 ARKAS as a Governance Infrastructure

The findings demonstrate that ARKAS contributes to the structuring of financial governance practices within schools by integrating budgeting, reporting, monitoring, and accountability procedures into a coordinated digital system. Financial data generated through ARKAS function differently across governance processes. During planning, the system structures expenditure classification and budgeting coordination. During implementation, it supports expenditure monitoring and reporting consistency. In verification processes, financial data become objects of institutional validation, while in deliberative meetings they function as references that support organizational discussion and prioritization.

These findings extend previous studies that primarily emphasize the administrative and accountability functions of educational information systems (Gürkut et al., 2023; Sunarjo et al., 2024). The present study indicates that ARKAS also reshapes governance relationships by influencing how financial information circulates across institutional processes. In this context, ARKAS does not merely support administrative efficiency, but also reorganizes governance practices within school financial management.

At the same time, the findings suggest that the governance role of ARKAS remains connected to institutional routines and organizational interpretation. Although financial procedures become more standardized, decision-making activities continue to involve contextual adjustment and collective deliberation among school actors.

3.2.2 From Data-Driven to Data-Informed Decision-Making

The findings further indicate that ARKAS-based governance is more appropriately understood through the perspective of data-informed rather than fully data-driven decision-making. Although financial data are systematically generated and digitally integrated, participants consistently described decision-making as a process that still depends on contextual interpretation, professional judgment, and organizational negotiation.

This interpretation aligns with Brazauskienė (2025), who argues that data-informed governance maintains the role of contextual reasoning and institutional mediation within organizational decision-making. Similarly, Means et al. (2009) emphasize that access to data alone does not guarantee effective governance outcomes without sufficient interpretive capacity among users. The present study reinforces these perspectives by showing that financial data become meaningful through deliberation and organizational interpretation rather than through automatic procedural determination.

The findings also indicate that digital systems do not eliminate interpretive governance processes. Previous studies often associate digitalization with increased rationality, objectivity, and efficiency in organizational management (Elugbaju et al., 2024; Vasuki et al., 2025). However, participants in this study repeatedly emphasized that budgeting priorities could not be determined solely through numerical indicators or expenditure categories provided by ARKAS. Instead, financial decisions continued to depend on institutional priorities, educational needs, and contextual feasibility.

These findings suggest that ARKAS-based governance reflects a negotiated form of data-informed governance in which digital financial data support organizational deliberation while remaining mediated by human interpretation and contextual judgment.

3.2.3 Hybrid Accountability and Verification

Another important finding concerns the persistence of manual verification practices despite the existence of digitally integrated reporting systems. Participants consistently reported that ARKAS-generated reports required repeated validation through receipts, expenditure records, and supporting administrative documents before approval or submission. These findings indicate that institutional trust in digital governance systems is not produced solely through technological automation.

Previous studies frequently associate financial information systems with improved transparency and accountability through procedural automation (Efunniyi et al., 2024; Widati et al., 2024). The present study, however, suggests that accountability within school financial governance continues to depend on institutional verification and human oversight. In this context, accountability operates through hybrid mechanisms combining digital coordination with manual validation procedures.

Verification practices therefore function not only as technical administrative routines but also as institutional legitimacy mechanisms. Repeated cross-checking procedures reflect organizational efforts to ensure consistency between digital records and actual financial practices. This finding supports Olatinsu and Eke (2025), who argue that accountability within digital governance systems depends not only on technological infrastructure but also on institutional control practices capable of maintaining procedural trust.

3.2.4 Socio-Technical Dependency and Capacity Gaps

The findings also demonstrate that the effectiveness of ARKAS-based governance is influenced by uneven technical competence among school actors. Although ARKAS standardizes budgeting and reporting procedures, technical expertise remains concentrated among specific personnel, particularly system operators and administrative staff. Several participants described how teachers and other school actors continued to depend on technically skilled individuals to manage synchronization procedures, input financial information, and interpret reports.

This finding suggests that digital governance may simultaneously strengthen procedural integration while producing organizational dependency on technically competent actors. Previous studies have emphasized the importance of digital literacy and technical training within educational management systems (Kurilovas, 2020; Maqbool et al., 2022). The present study extends these perspectives by showing that uneven technical competence may also influence participation and coordination within school financial governance processes.

From a broader perspective, the findings support socio-technical interpretations of digital governance. Wang et al. (2010) argue that technological systems function effectively only when supported by compatible organizational and human conditions. Similarly, the present study indicates that the effectiveness of ARKAS-based governance depends not only on technological functionality, but also on infrastructure stability, organizational adaptation, and users' interpretive capacity.

Participants repeatedly described how unstable internet connectivity, limited digital literacy, and uneven organizational adaptation affected reporting and financial coordination activities. These findings suggest that socio-technical fragility within school financial governance emerges through the interaction between digital systems, institutional conditions, and human practices rather than from technological limitations alone.

3.2.5 Implications for School Financial Governance

Based on these findings, this study proposes a negotiated socio-technical model of ARKAS-based financial governance. Within this model, financial data continuously circulate across planning, implementation, verification, evaluation, and deliberative processes; however, the meaning and influence of those data remain mediated by organizational interpretation, institutional trust, technical competence, and contextual negotiation. This conceptualization extends previous educational governance studies that have primarily focused on technological implementation and administrative efficiency rather than on the interpretive dimensions of digital governance practices.

The study contributes theoretically by extending data-informed decision-making literature through the demonstration that financial data in schools function as negotiated organizational resources rather than deterministic governance mechanisms. The study also contributes to socio-technical governance perspectives by showing how digital systems reshape institutional interaction, accountability practices, and organizational dependency within school financial governance.

From a practical perspective, the findings suggest that strengthening digital financial governance requires more than the implementation of integrated information systems alone. Schools also require support for data literacy development, technical capacity building, organizational coordination, and infrastructure stability. Without these supporting conditions, digital governance systems may continue to produce uneven participation and technical dependency despite increased procedural standardization.

This study is limited by its focus on a single school context, which may limit transferability across broader educational settings. Nevertheless, the study provides an interpretive understanding of how ARKAS-based governance operates within everyday school financial management practices. Future research could examine similar governance dynamics across multiple institutional contexts, educational levels, and regional settings. Further studies may also explore how digital financial governance systems influence organizational participation, accountability relationships, and policy implementation within broader educational digital transformation agendas.

4. CONCLUSION

This study examined how ARKAS-based financial management systems shape school financial governance and decision-making practices. The findings show that ARKAS supports the coordination of planning, implementation, verification, evaluation, and deliberation through digitally integrated procedures. However, financial governance is not fully data-driven, as financial data are still interpreted, verified, and negotiated by school actors within specific organizational and contextual conditions. Thus, ARKAS functions not as an autonomous decision-making tool but as a socio-technical system in which data support planning, accountability, and deliberative decision-making.

Theoretically, this study contributes to the literature on data-informed decision-making and socio-technical governance by proposing a negotiated socio-technical model of ARKAS-based financial governance. Practically, the findings suggest that effective ARKAS implementation requires not only digital system adoption but also stronger data literacy, technical capacity, organizational coordination, institutional verification, and infrastructure stability. Since this study was limited to a single school context, future research should examine ARKAS-based financial governance across diverse schools, regions, and institutional settings to better understand variations in accountability practices, decision-making processes, and socio-technical conditions.

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REFERENCES

- Aina, A. Y., & Bipath, K. (2020). School financial management: Insights for decision making in public primary schools. *South African Journal of Education*, 40(4), 1–9. <https://doi.org/10.15700/saje.v40n4a1756>
- Batubara, E. D., Nursidin, M., Sijauta, D., Ventiany, D., & Hasan, T. (2025). Improving BOS fund accountability through ARKAS, internal control and strengthened by transparency. *Jurnal Reviu Akuntansi dan Keuangan*, 15(4). <https://doi.org/10.22219/jrak.v15i4.42217>
- Baxter, P., & Jack, S. (2015). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544–559. <https://doi.org/10.46743/2160-3715/2008.1573>
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27–40. <https://doi.org/10.3316/QRJ0902027>
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328–352. <https://doi.org/10.1080/14780887.2020.1769238>
- Brazauskienė, E. (2025). Educational decision-making in digital education: A conceptual review of data-driven, data-based, and data-informed approaches. *Revista de Pedagogie Digitala*, 4(1), 63–72. <https://doi.org/10.61071/RPD.2562>
- Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, 56(3), 1391–1412. <https://doi.org/10.1007/s11135-021-01182-y>
- Datnow, A. (2020). The role of teachers in educational reform: A 20-year perspective. *Journal of Educational Change*, 21(3), 431–441. <https://doi.org/10.1007/s10833-020-09372-5>
- Efunniyi, C. P., Abbulimen, A. O., Obiki-Osafiele, A. N., Osundare, O. S., Agu, E. E., & Adeniran, I. A. (2024). Strengthening corporate governance and financial compliance: Enhancing accountability and transparency. *Finance & Accounting Research Journal*, 6(8), 1597–1616. <https://doi.org/10.51594/farj.v6i8.1509>
- Elugbaju, W. K., Okeke, N. I., & Alabi, O. A. (2024). Conceptual framework for enhancing decision-making in higher education through data-driven governance. *Global Journal of Advanced Research and Reviews*, 2(2), 16–30. <https://doi.org/10.58175/gjarr.2024.2.2.0055>
- Erstad, O., Gilje, Ø., Gudmundsdottir, G. B., Wagstaffe, R. B., Kumpulainen, K., Viberg, O., ... & Howard, S. (2023). *Datafication in and of Education—a literature review*. Agile EDU.
- Fernandes, V. (2021). Exploring leadership influence within data-informed decision-making practices in Australian independent schools. *Studia Paedagogica*, 26(4), 139–159. <https://doi.org/10.5817/SP2021-4-6>
- Gaftandzhieva, S., Hussain, S., Hilcenko, S., Doneva, R., & Boykova, K. (2023). Data-driven Decision Making in Higher Education Institutions: State-of-play. *International Journal of Advanced Computer Science and Applications*, 14(6). <https://doi.org/10.14569/IJACSA.2023.0140642>
- Gammelgaard, B. (2017). Editorial: the qualitative case study. *The International Journal of Logistics Management*, 28(4), 910–913. <https://doi.org/10.1108/IJLM-09-2017-0231>
- Gaspar, M. R., Gabriel, J. P., Manuel, M. B., Ladrillo, D. S., Gabriel, E. R., & Gabriel, A. G. (2022). Transparency and accountability of managing school financial resources. *Journal of Public Administration and Governance*, 12(2), 102. <https://doi.org/10.5296/jpag.v12i2.20146>
- Gürkut, C., Nat, M., & Tatlısu, N. B. (2023). Digital transformation and educational governance: The role of information systems in institutional accountability. *Education and Information Technologies*, 28(9), 11673–11691. <https://doi.org/10.1007/s10639-023-11615-4>
- Ismatuzzaeni, I., Wahyudin, I., Khumayah, S., & Wulandari, S. (2024). Implementation of the school budget and activity plan (ARKAS) application policy in realizing good governance at the Kempek Cirebon typical junior high school. *Journal of Economics, Technology & Business (JETBIS)*, 3(5). <https://doi.org/10.57185/jetbis.v3i5.110>

- Kim, M., Sharman, R., Cook-Cottone, C. P., Rao, H. R., & Upadhyaya, S. J. (2012). Assessing roles of people, technology and structure in emergency management systems: A public sector perspective. *Behaviour & Information Technology*, 31(12), 1147–1160. <https://doi.org/10.1080/0144929X.2010.510209>
- Knight, B. (2013). Delegated financial management and school effectiveness. In *School-based management and school effectiveness* (pp. 114–141). Routledge. <https://doi.org/10.4324/9781315824727>
- Kraft-Terry, S. D., & Brown, J. (2023). Data-informed planning and decision-making. In *Academic advising administration* (pp. 181–194). Routledge.
- Kurilovas, E. (2020). On data-driven decision-making for quality education. *Computers in Human Behavior*, 107, 105774. <https://doi.org/10.1016/j.chb.2018.11.003>
- Lange, A., & Breiter, A. (2008). Bringing order into chaos: Building an integrated school management information system—A case study from Germany. In *Information technology in educational management* (pp. 1–14). Springer. https://doi.org/10.1007/978-0-387-93847-9_1
- Lee, C., Camburn, E. M., & Sebastian, J. (2025). School context, school leaders' data-informed decision making, and student achievement: Evidence from Florida. *School Effectiveness and School Improvement*, 36(1), 45–70. <https://doi.org/10.1080/09243453.2024.2436889>
- Lee, S. M., Kim, K., Paulson, P., & Park, H. (2008). Developing a socio-technical framework for business-IT alignment. *Industrial Management & Data Systems*, 108(9), 1167–1181. <https://doi.org/10.1108/02635570810914874>
- Legemaate, M., Grol, R., Huisman, J., Oolbekkink-Marchand, H., & Nieuwenhuis, L. (2022). Enhancing a quality culture in higher education from a socio-technical systems design perspective. *Quality in Higher Education*, 28(3), 345–359. <https://doi.org/10.1080/13538322.2021.1945524>
- Maqbool, S., Afzal Mahmood, S., & Nighat Iqbal, A. (2022). A study on training needs of data driven decision making for public sector secondary school administrators. *Research Journal of Social Sciences & Economics Review*, 3, 2707–9015. [https://doi.org/10.36902/rjsser-vol3-iss1-2022\(7-17\)](https://doi.org/10.36902/rjsser-vol3-iss1-2022(7-17))
- Maqbool, S., Khan, N. Z. A., & Khan, S. A. (2022). Digital literacy and educational management systems: Challenges and implications for educational governance. *Education and Information Technologies*, 27(6), 8471–8488. <https://doi.org/10.1007/s10639-022-10964-4>
- Means, B., Padilla, C., DeBarger, A., & Bakia, M. (2009). *Implementing data-informed decision making in schools: Teacher access, supports and use*. U.S. Department of Education.
- Nwoko, V. O., & Ogar, J. O. (2024). Data-driven decision-making approach for effective management of higher education in Nigeria. *Journal of Association of Educational Management and Policy Practitioners*, 6(1), 313–320. <https://journals.aemapp.org/index.php/JAEMAPP/article/view/309>
- Olatinsu, O., & Eke, C. (2025). Audit trails, financial transparency, and internal control effectiveness in public financial management systems. *International Journal of Research in Management*, 7(1), 1352–1363. <https://doi.org/10.33545/26648792.2025.v7.i1n.556>
- Paul, H. J. (2021). *Utilisation of educational management information system (EMIS) for enhancing effective school management: A case study of schools of excellence in Nyarugenge District, Rwanda* [Master's thesis, University of Rwanda]. <http://repository.out.ac.tz/2894/>
- Ratner, H., & Gad, C. (2019). Data warehousing organization: Infrastructural experimentation with educational governance. *Organization*, 26(4), 537–552. <https://doi.org/10.1177/1350508418808233>
- Sebidi, S. D. (2023). Financial management decision-making of school finance committees in public primary schools in Mpumalanga province, South Africa. *South African Journal of Education*, 43(3), 1–8. <https://doi.org/10.15700/saje.v43n3a2268>
- Shen, J., Ma, X., Cooley, V. E., & Burt, W. L. (2016). Mediating effects of school process on the relationship between principals' data-informed decision-making and student achievement. *International Journal of Leadership in Education*, 19(4), 373–401. <https://doi.org/10.1080/13603124.2014.986208>
- Sofi, N., Niam, M. A. K., Assa'adah, M. Z., Zahra, D. S. A., Putri, D. A., Sari, W. W., & Rohman, N. (2025). Implementasi akuntabilitas manajemen berbasis sekolah dalam pengelolaan keuangan di

- SD Negeri 1 Tanjung. *Jurnal Pendidikan Sains dan Teknologi Terapan*, 2(3), 275–279. <https://jurnal.kopusingdo.com/index.php/jpst/article/view/1081>
- Soncin, M., & Cannistrà, M. (2022). Data analytics in education: Are schools on the long and winding road? *Qualitative Research in Accounting & Management*, 19(3), 286–304. <https://doi.org/10.1108/QRAM-04-2021-0058>
- Sunarjo, R. A., Chakim, M. H. R., Maulana, S., & Fitriani, G. (2024). Management of educational institutions through information systems for enhanced efficiency and decision-making. *International Transactions on Education Technology (ITEE)*, 3(1), 47–61. <https://doi.org/10.33050/itee.v3i1.670>
- Syarif, M., & Wahdiat, I. S. (2024). Implementation of the school budget activity plan application (ARKAS) and the bos fund management information system on the accountability of bos financial reporting in education entities in Cirebon city. *Return : Study of Management, Economic and Bussines*, 3(9), 704–713. <https://doi.org/10.57096/return.v3i10.258>
- Vasuki, M., Marttinson Boakye, M., Nettey, T., & Abshana Begam, M. (2025). Data-driven governance in higher education: Applying advanced statistical models to guide policy, leadership, and institutional reform. *International Journal of Current Research and Modern Education*, 10(2), 118–127. <https://doi.org/10.5281/zenodo.17909862>
- Wang, J., Solan, D., & Ghods, A. (2010). Distance learning success – a perspective from socio-technical systems theory. *Behaviour & Information Technology*, 29(3), 321–329. <https://doi.org/10.1080/01449290903544645>
- Widati, S., Setyawan, W., & Riyanah, S. (2024). School Operational Assistance Fund (BOS) accounting information system as an internal control tool. *Is The Best Accounting Information Systems and Information Technology Business Enterprise This Is Link for OJS Us*, 8(2), 151–165. <https://doi.org/10.34010/aisthebest.v8i2.11611>
- Young, C., McNamara, G., Brown, M., & O'Hara, J. (2018). Adopting and adapting: School leaders in the age of data-informed decision making. *Educational Assessment, Evaluation and Accountability*, 30(2), 133–158. <https://doi.org/10.1007/s11092-018-9278-4>
- Yusuf, S. B., Harbau, M. I., Musa, I. M., & Alkasim, K. (2024). Managing school finance for administrative effectiveness in Nigeria secondary schools. *Journal of Association of Educational Management and Policy Practitioners*, 2(1), 20–20. <https://journals.aemapp.org/index.php/JAEMAPP/article/view/39>