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Computer Based Accounting System to Improve Village Fund Financial Accountability

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ABSTRACT

This study examines the implementation of a computer-based accounting system to enhance the accountability of village fund management in Pasir Bangun Village, Southeast Aceh. Using a qualitative case study approach, data were collected through in-depth interviews, participatory observation, and document analysis from August to December 2024. The results indicate that the system significantly improved financial document completeness from 58% to 92% and reduced reporting time from 47 days to 9 days. Key findings identify three critical success factors: (1) strong village leadership, (2) tiered mentoring by district government, and (3) cultural adaptation of the system through Acehnese language interface and integration with traditional village deliberation. Major challenges include limited electricity and internet infrastructure, human resource competency gaps, and resistance from older-generation village officials. The study recommends regular training funding allocations, village technology task forces, and basic infrastructure provisions as strategic measures. These findings contribute to the literature on village government digitalization by proposing an implementation model that integrates technical, social, and cultural aspects.

Keywords: *village accounting system, financial accountability, village funds, information technology, good governance*

INTRODUCTION

Village development is one of the important pillars in realizing community welfare and economic equality in Indonesia. Since the enactment of Law Number 6 of 2014 concerning Villages, villages have been given greater authority in managing resources, including village funds sourced from the State Budget (APBN). These village funds are expected to be a catalyst for development at the local level, encourage community participation, and improve the quality of public services. However, behind the large allocation of village funds reaching billions of rupiah each year, the challenges in managing them are increasingly complex, especially related to financial accountability and transparency.

Pasir Bangun Village, Lawe Alas District, Southeast Aceh Regency, is one of the villages that receives an annual village fund allocation. The funds are used for various development programs, such as infrastructure improvements, community empowerment, and improving public services. However, based on initial observations and interviews with several related parties, several fundamental problems were found in the financial management of village funds in this village. First, the financial recording system is still done manually using a cash book and simple excel, so it is prone to errors (human error) and data manipulation. Second, the financial reporting process is often late and does not comply with the standards set by Permendagri No. 113 of 2014 concerning Village Financial Management. Third, low community participation in supervising the use of village funds due to limited access to transparent financial information.

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This problem not only occurs in Pasir Bangun Village, but has also become a national issue. The Audit Board of Indonesia (BPK) in its 2022 audit report found that 60% of villages in Indonesia still have messy financial records and do not meet government accounting standards. The weakness of the manual accounting system is one of the main causes of inefficiency and non-transparency in village fund management. On the other hand, demands to implement the principles of good governance, namely transparency, accountability, and community participation, are increasingly prominent. Village communities are now more critical and demand openness in every stage of village fund management, from planning, implementation, to accountability.

One solution that is considered effective to overcome this problem is the implementation of a computer-based accounting system. This system can not only minimize recording errors, but also speed up the reporting process and facilitate access to information for the community. Several villages in Indonesia that have implemented a computerized accounting system, such as Kismoyoso Village in Boyolali (Ismail et al., 2016), have shown significant improvements in terms of financial accountability and transparency. However, the implementation of this system did not necessarily run smoothly. Obstacles such as the lack of competent human resources (HR), limited technological infrastructure, and resistance from village officials who are accustomed to manual systems are often obstacles.

In Pasir Bangun Village, efforts to implement a computer-based accounting system have actually begun since 2021 with basic training on the use of the SISKEUDES (Village Financial System) application. However, its implementation has not been optimal due to several factors. First, the training provided is only incidental and not sustainable, so that many village officials forget or are not confident in using the application. Second, supporting infrastructure such as internet networks and computer devices are still limited. Third, there has been no intensive assistance from the district government to ensure that this system runs well.

Based on the description above, this research is important to do. This study aims to analyze how a computer-based accounting system can improve accountability in village fund management in Pasir Bangun Village. By delving deeper into the challenges and opportunities in implementing this system, it is expected to provide concrete recommendations for the village government, district government, and other related parties. In addition, this study is also expected to be a reference for other villages in Southeast Aceh that face similar problems.

Financial accountability of village funds is not only about fulfilling administrative obligations, but also about building public trust in the village government. With a transparent and accountable system, village funds can truly become a tool to achieve sustainable and inclusive development goals. Therefore, innovation in village financial management, such as the implementation of a computer-based accounting system, needs serious attention from all stakeholders.

LITERATURE REVIEW

The concept of accountability in village financial management has become a major focus in village governance reforms after the 2014 Village Law. According to Dwiyanto (2015), village financial accountability is a fundamental prerequisite for realizing good governance at the local level. In this context, Permendagri No. 113 of 2014 explicitly regulates three dimensions of accountability that must be met. First, vertical accountability which requires village heads to be accountable for financial management through periodic village deliberations (Bappenas, 2020). Second, horizontal accountability in the form of compliance with applicable laws and regulations (BPK, 2022). Third, public accountability which emphasizes openness of

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information through media that is easily accessible to the public (Information Commission, 2023).

The development of information technology has driven a significant transformation in the village government accounting system. Based on a comprehensive study by BPKP (2021), there are striking differences between manual and computerized systems in various aspects. The manual system that is still used in 65 percent of villages in Indonesia has a recording accuracy rate of only around 65 percent, with a financial report preparation time of 30 to 60 days. In contrast, the computerized system that has been implemented in 35 percent of villages shows an accuracy rate of up to 95 percent with a reporting time shortened to 7-14 days (Ismail et al., 2016). BPS data (2023) reveals that the operational costs of the manual system range from IDR 3-5 million per year, while the computerized system requires a larger initial investment of around IDR 7-10 million per year.

However, the positive impact of the computerized system can be seen from the increase in community participation in village financial supervision from 25 percent to 65 percent (Independent Survey, 2023). An in-depth case study in Kismoyoso Village by Ismail et al. (2016) revealed that the implementation of a computer-based accounting system succeeded in reducing arithmetic errors by 85 percent, accelerating the preparation of financial reports by 70 percent, and increasing community participation in supervision by 40 percent.

The adoption of technology-based accounting systems in village government faces various complex obstacles. Based on the Technology Acceptance Model (TAM) framework developed by Davis (1989), there are three main categories of obstacles. First, technical obstacles in the form of limited infrastructure where 35 percent of villages in Indonesia have not been reached by the 4G internet network (Kemenkominfo, 2023) and on average each village only has two computers (BPS, 2023). Second, limited human resources where only 18 percent of village officials have adequate competence in utilizing information technology based on the SISKEUDES training evaluation (2022).

In-depth interviews with village officials (2023) revealed resistance to changing the system from manual to digital due to habit factors and discomfort with new technology. Third, institutional constraints in the form of the absence of specific regulations on village accounting technology standards in Permendesa No. 7/2021 and minimal assistance with a ratio of only one assistant for 15 villages (PMD Service, 2023). This condition is exacerbated by the disparity in fiscal capacity between villages where villages in disadvantaged areas such as Southeast Aceh have limited budgets for technology investment.

This study integrates three main theoretical frameworks to analyze the implementation of computer-based accounting systems in villages. First, the Theory of Planned Behavior (Ajzen, 1991) is used to analyze the behavioral factors of village officials including attitudes towards technology, perceptions of behavioral control, and subjective environmental norms. Second, the Technology-Organization-Environment Framework (Tornatzky & Fleischer, 1990) is used to evaluate village technological readiness, village government organizational capacity, and external environmental support. Third, Good governance Theory (UNDP, 1997) is the basis for assessing the principles of transparency, accountability, and community participation in village financial management. The integration of these three theories is expected to provide a comprehensive analysis of the dynamics of the implementation of computerized accounting systems at the village level, while identifying critical factors that influence its success. This theoretical framework is also relevant to the specific context of Pasir Bangun Village which has unique geographic, social, and economic characteristics in the Southeast Aceh region.

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PREVIOUS STUDIES

Several previous studies have discussed various aspects related to the village accounting and financial management system. The following is a synthesis of previous studies that are relevant to this study:

Research by Suryanto and Rahim (2018) in 15 villages in East Java revealed that the level of village financial accountability is positively correlated (r=0.72) with the human development index. This study found that villages with computerized reporting systems showed a 35% increase in transparency compared to villages that still used manual systems. However, this study was limited to the East Java region and did not examine the inhibiting factors for technology implementation.

Wijaya et al. (2020) conducted action research in 5 villages in Bali by implementing a modified SISKEUDES system. The results showed a 68% increase in the timeliness of reporting, but faced major obstacles in the form of resistance from the older generation of village officials (45% of respondents). This study provides valuable insights but is limited to the Balinese cultural context which has special characteristics.

A comparative study by Nasution and Pratama (2021) in 10 villages in North Sumatra identified 3 main inhibiting factors: (1) internet infrastructure (57% of villages), (2) human resource capacity (62% of officials), and (3) budget support (only 28% of the Village Budget is allocated for technology). This study used regression analysis with an R^2 of 0.58 but did not discuss specific solutions for each obstacle.

Ismail et al.'s (2016) 3-year longitudinal study in Kismoyoso Village showed that the computerized system was able to reduce recording errors from 23% to 4% and shorten reporting time from 45 days to 12 days. However, this study did not measure the long-term impact on community participation.

The results of Faisal's (2022) research in 5 villages in Aceh Besar found that geographical and cultural factors influence the application of technology with a path coefficient of 0.42 in the SEM model. This study provides an important basis for research in Aceh but has not touched on the aspects of computer-based accounting in depth.

Table 1. Synthesis of Previous Studies

Researcher (Year)	Location	Key Findings	Limitations
The Last Supper (2018)	East Java	Correlation between accountability and development (r=0.72)	Limited area
Wijaya et al. (2020)	Bali	68% increase in punctuality	Specific cultural context
The Last Supper (2021)	North Sumatra	3 main inhibiting factors	No discussion of solutions
Ismail et al. (2016)	Central Java	19% error reduction	No measure of participation
Faisal (2022)	Great Aceh	Geographical influence (path 0.42)	Not accounting specific

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Based on the previous studies above, there are several gaps that are the focus of this research:

1. There has been no comprehensive research that integrates technical, human resource and institutional aspects in the context of Southeast Aceh.
2. The need for studies that measure the impact of the system on community participation quantitatively
3. There has been no in-depth evaluation of effective mentoring models for remote villages.

RESEARCH METHODS

This study uses a qualitative approach with an exploratory case study design to examine the implementation of a computer-based accounting system in Pasir Bangun Village. The qualitative approach was chosen because it is able to reveal the complexity of social phenomena in depth, especially in understanding the interaction between technology, institutions, and accounting practices at the village level. Case studies as a research strategy allow researchers to maintain the holistic and meaningful characteristics of real-life events, while accommodating the unique context of Pasir Bangun Village.

The research location was determined in Pasir Bangun Village, Lawe Alas District, Southeast Aceh Regency with strategic considerations. This village represents the characteristics of underdeveloped villages in Indonesia with a village development index of 45.2 according to BPS Southeast Aceh 2023 data, which is below the national average. The selection of this location was also based on the fact that the village is in a transition period from a manual accounting system to a computerized system, thus providing an opportunity to observe the adaptation process directly. The research period was carried out for four months from August to December 2024, covering a complete cycle of preparing village financial reports.

Data collection was conducted through multi-methods to ensure the depth and validity of the findings. Primary data were obtained through in-depth interviews with fifteen purposively selected key informants, including the Village Head, Village Treasurer, BPD members, and community leaders. Semi-structured interviews focused on five main dimensions: understanding of the accounting system, implementation process, technical and non-technical constraints, impact on accountability, and expectations for system improvement. Participatory observation was conducted during the financial report preparation process to capture real practices in the field. In addition, a Focus Group Discussion (FGD) was conducted with eight participants representing various community groups to obtain more diverse perspectives.

Secondary data were collected through an in-depth study of official documents, including the village financial reports for the last three years (2021-2023), village development planning documents, village meeting minutes, and various regulations related to village financial management. Analysis of these documents is important for triangulating with primary data and understanding the historical development of the accounting system in the village.

The data analysis process follows the Miles and Huberman interactive model which includes three main stages. The data reduction stage is carried out through verbatim transcription of interviews, thematic coding with the help of NVivo 12 software, and data categorization based on five main themes that have been determined. The data presentation stage includes the creation of a system comparison matrix before and after implementation, an accounting process flow diagram, and a theme network to visualize the relationship between concepts. The verification stage involves triangulation of data sources (interviews,

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observations, and documents), member checking with key informants, and peer review with other researchers to ensure the validity of the findings.

The ethical aspects of the study were strictly maintained through the application of basic principles. Informed consent was obtained from all participants after they understood the purpose and procedures of the study. Anonymity was guaranteed for informants who requested confidentiality, especially when discussing sensitive issues. The confidentiality of village document data was also protected by only using data that was relevant for academic purposes. This study has obtained official permission from the local village government and the research ethics committee.

RESULTS AND DISCUSSION

The implementation process of a computer-based accounting system in Pasir Bangun Village took place in three critical stages that reflect the complexity of technology adoption in rural areas. The preparation stage (March-April 2024) was marked by 20 hours of intensive training for five village officials, which according to the Theory of Planned Behavior (Ajzen, 1991) succeeded in forming a positive attitude towards technology in the younger generation, although the older generation still showed resistance. The preparation of basic infrastructure such as two computers, a printer, and an internet network is real evidence of the technological aspect in the Technology-Organization-Environment Framework (Tornatzky & Fleischer, 1990), despite the limitations of electricity which sometimes goes out.

The implementation of the system had a transformative impact on the three pillars of good governance (UNDP, 1997). Transparency increased drastically with completeness of documents increasing from 58% to 92%, while reporting time decreased from 47 days to only 9 days. The accountability aspect is reflected in the decrease in audit findings from 15 to only 3 items. The most striking is the increase in community participation from 23 to 67 people in monitoring activities, which is inseparable from the integration of the system with the local tradition of village deliberation. This finding strengthens the research of Ismail et al. (2016) but with the added value of a multiplicative effect on the collective social capital of the community.

Technology adoption patterns among village officials show complex dynamics. Attitudes towards technology vary greatly by generation, with young operators (aged 20-35 years) showing 80% higher acceptance than those over 50 years of age. Perceptions of behavioral control are hampered by limited competence, with only 40% of operators (2 out of 5 people) able to master advanced features. Subjective environmental norms are evident in the strong influence of the Village Head as a role model, as expressed in the statement: "If Pak Keuchik uses it, we must follow" (Village Secretary). This phenomenon is in accordance with Faisal's (2022) findings on the hierarchical culture of Acehnese society.

The implementation of the system faces four major interrelated challenges. First, infrastructure limitations include not only internet networks but also fluctuations in electricity supply. Second, the gap in human resource competency creates dependence on a few skilled operators. Third, cultural resistance from older groups who are still comfortable with manual systems. Fourth, the absence of a legal umbrella at the village level to regulate the digitalization of administration. The solutions that emerge are contextual, such as the use of Acehnese in the application interface and collaboration with dayah (traditional Islamic boarding schools) as alternative training centers.

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Table 2. Results and Discussion

Aspect	Empirical Findings	Theoretical Analysis	Implications
1. Attitudes Towards Technology (TPB)	• Younger generation is more open (80% adoption) • Older generation is resistant (only 20% adoption)	• Attitude is influenced by digital literacy • The perception of benefits is not evenly distributed (Ajzen, 1991)	• The need for differentiated training based on age groups • Demonstration of concrete benefits
2. Technology Readiness (TOE)	• User-friendliness is more important than advanced features	Compatibility of technology with local needs (Tornatzky & Fleischer, 1990)	• Cultural context-based application development • Prioritize ease of use
3. Transparency (Good governance)	• Document completeness increased from 58% → 92% • Reporting time reduced from 47 → 9 days	Rapid access to information promotes accountability (UNDP, 1997)	• Standardization of report formats • Real-time publication in the village office
4. Community Participation	• Supervision participants increased from 23 → 67 people • Integration with the tradition of deliberation	Subjective norms (TPB) and collectivism values strengthen participation	• Involve traditional figures in socialization • Use the village deliberation forum for reporting
5. Constraint	• 60% of officers struggle with advanced features • Power outage	Interaction of technological and organizational factors in the TOE Framework	• Multi-level training with intensive mentoring • Provision of village generators

This study provides three strategic insights. First, successful technology adoption in villages requires a holistic approach that combines technical, social, and cultural aspects. Second, the role of local leadership is a more effective catalyst than top-down regulation. Third, integration with local wisdom (such as Deliberation) can accelerate the acceptance of new systems. This finding also corrects the common assumption that the main obstacle is only infrastructure, whereas psychosocial and institutional factors are equally crucial.

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For village governments, these findings emphasize the importance of sustainable funding allocation for training and system maintenance. For local governments, the provision of basic infrastructure must be accompanied by the development of a more intensive mentoring model (ideally 1 mentor for a maximum of 5 villages). Theoretically, this study enriches the literature by showing how the TPB and TOE Frameworks interact in the context of village communities that are thick with collectivism and tradition values. The integration of the three theoretical frameworks successfully reveals that digital transformation at the village level is not just a technical problem, but a complex socio-technical process.

CONCLUSION AND SUGGESTIONS

This study shows that the implementation of a computer-based accounting system in Pasir Bangun Village has succeeded in significantly increasing the accountability of village fund management. The main findings revealed that this system was able to increase the completeness of financial documents from 58% to 92%, and shorten the reporting time from 47 days to only 9 days. The success of the implementation cannot be separated from three key factors: strong village head leadership, tiered assistance from the district government, and adaptation of the system to local culture through the use of the Acehnese language and integration with the village deliberation tradition. However, the study also identified several major challenges, including limited electricity and internet infrastructure, gaps in human resource competencies among village officials, and resistance from older age groups to system changes.

Based on these findings, this study recommends several strategic steps. For village governments, the allocation of a minimum of 20 hours of periodic training budget per year for system operators is an urgent need, as well as the formation of a village technology team involving the younger generation and traditional leaders. Local governments need to increase the intensity of mentoring with an ideal ratio of one mentor for five villages, accompanied by the provision of basic infrastructure such as generators and a stable internet network. At a broader policy level, this study recommends the development of an integrated platform that integrates this system with the Ministry of Villages' Siskeudes NextGen.

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