

COST-BENEFIT ANALYSIS OF IMPLEMENTING A PAPERLESS ACCOUNTING SYSTEM USING THE EVIZIA APPLICATION AT JIH YOGYAKARTA



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Abstract

Digital transformation encourages healthcare institutions to adopt more efficient accounting systems, including paperless accounting. JIH Yogyakarta Hospital implemented the Evizia application to address inefficiencies caused by paper-based accounting processes. This study aims to analyze the benefits and compare the costs and benefits of implementing a paperless accounting system using Evizia with the conventional system. A descriptive qualitative method with a cost-benefit analysis (CBA) approach was employed through interviews, observations, and documentation. The results indicate that Evizia improves administrative efficiency, accelerates financial reporting, enhances data accuracy and internal control, and reduces paper usage by approximately 30%, despite additional costs related to system leasing and maintenance. Overall, the implementation of the Evizia paperless accounting system is considered feasible and provides long-term strategic benefits for operational efficiency, financial governance, and environmental sustainability at JIH Yogyakarta Hospital.

Keywords: Cost-Benefit Analysis, Paperless Accounting System, Evizia, Accounting Digitalization, Hospital

INTRODUCTION

JIH Hospital is one of the major private hospitals in the Special Region of Yogyakarta. The hospital was established by the Wakaf Foundation of Universitas Islam Indonesia (YBW UII) and is currently managed by PT Unisia Medika Farma (PT UMF). Initially, JIH Hospital was named Jogja International Hospital, founded on February 24, 2005, and officially inaugurated on June 22, 2005. However, based on a letter from the Director General of Medical Service Development of the Indonesian Ministry of Health No. YM.02.10/III/2743/10 and the Regulation of the Minister of Health of the Republic of Indonesia Number 659/Menkes/Per/VIII/2009 dated August 14, 2009, concerning World-Class Indonesian Hospitals, Article 15, the name Jogja International Hospital was officially changed to “JIH” Hospital as of August 1, 2010.

JIH Hospital began its operations on February 5, 2007, based on the Temporary Hospital Operational Permit No. 503/0393/DKS/2007, and obtained its permanent operational license from the Yogyakarta Special Region Provincial Health Office on April 28, 2008, as stated in the Hospital Operational License No. 445/3282/IV.2. JIH Hospital has consistently improved its quality standards over time. This continuous effort resulted in a significant achievement, namely the acquisition of the ISO 9001:2008 certification on May 20, 2010.

JIH Hospital has a set of vision and mission statements designed to enhance the quality of international-standard healthcare services grounded in Islamic values. The Vision and Mission of JIH Hospital are as follows:

Vision:

To realize JIH Yogyakarta as a leading premium private hospital through sustainable service growth based on Islamic values, toward international-standard services by 2025, prioritizing patient safety and customer satisfaction.

Mission:

- a. To develop a premium private hospital institution by providing excellent services.
- b. To develop clinical and other hospital services in accordance with international standards by prioritizing patient safety and customer satisfaction.
- c. To build trustworthy, skilled, professional, outstanding, and competent human capital based on Islamic values.
- d. To achieve high hospital performance growth supported by effective control and supervision systems.

JIH Hospital has several guidelines that serve as references in its operational activities. The main guideline is Islamic values, namely *rahmatan lil 'alamin*. Bambang Pediantoro, CEO of PT Unisia Medika Farma, as cited in Pramono (2024), explained that JIH Hospital adopts characteristics based on the Islamic value of *rahmatan lil 'alamin*, meaning that the presence of JIH Hospital provides benefits to society through its actions in serving patients. In addition, JIH Hospital also upholds a service culture known as AMPUH, which stands for Trustworthy Service, Professional competence, Superior medical expertise and equipment, and a Harmonious working environment. Bambang Pediantoro (in Pramono, 2024) stated that the values and core values adopted by JIH Hospital have proven effective, as evidenced by a 1,000% increase in assets over the past ten years, from IDR 55 billion to approximately IDR 600 billion.

REVIEW OF LITERATURE

Internal Control

According to Mulyadi (2016), an internal control system comprises organizational structures and various integrated methods designed to safeguard organizational assets, ensure the accuracy and reliability of accounting data, improve company performance, and enable compliance with regulations established by management.

COSO Internal Control

In 1992, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) introduced the *Internal Control—Integrated Framework* as a primary reference for designing, implementing, and evaluating the effectiveness of internal control systems. In 2013, COSO updated this framework to maintain its relevance to the modern business environment. The latest version emphasizes stronger integration between internal control and organizational objectives through a more systematic and structured model.

Digitalization and the Implementation of Accounting Systems

Digitalization is a process that transforms conventional business practices into more efficient operations through the use of information and communication technology (ICT). In the context of small and medium-sized enterprises (SMEs), digitalization enables entrepreneurs to utilize digital resources to enhance operational efficiency and improve the implementation of accounting systems (Li et al., 2017). Through the application of software such as Evizia, accounting processes can be automated, reducing the need for manual recording, which is prone to errors.

Cost Benefit Analysis (CBA)

Cost-benefit analysis is a tool used to evaluate the advantages and disadvantages of implementing a new system. Studies indicate that the adoption of digital-based accounting technology can lead to significant cost savings for organizations by reducing expenses related to physical document management (Hoffman et al., 2018).

Environmental Sustainability

The implementation of paperless systems also has significant environmental implications. Reducing paper usage not only lowers costs but also helps minimize negative environmental impacts. Digitalization can lead to fundamental changes in how products and services are produced and delivered, which in turn supports business sustainability (Annarelli et al., 2021).

RESEARCH METHOD

Research Approach

The type of research employed in this study is a descriptive qualitative method. According to Creswell (2018), a qualitative approach aims to understand individuals' experiences, meanings, and subjective interpretations of the phenomena under investigation. This method emphasizes in-depth exploration through interview, observation, and documentation techniques within specific social contexts.

This approach is applied because the researcher seeks to comprehensively understand the process of implementing a paperless accounting system using the Evizia application at JIH Hospital, as well as to thoroughly evaluate the comparison between the costs and benefits of this system in relation to the previously used conventional accounting system.

In practice, this method is used to explore the perspectives of system users from both financial and technological viewpoints through in-depth interviews. Through this approach, the researcher can obtain direct insights into the effectiveness of the system and the economic justification for its implementation based on the real experiences of practitioners in the field.

Unit of Analysis

The unit of analysis in this study is the administrative and management processes of the accounting system at JIH Hospital Yogyakarta, which are directly related to the implementation of the Evizia application. This unit includes the accounting department, finance department, and IT department.

The research subjects are selected purposively, namely accounting staff, finance staff, IT support personnel, and management who play active roles in the planning, implementation, and evaluation of the Evizia system. These subjects are considered to have in-depth knowledge of the system changes and their implications for operational efficiency and cost savings.

Data Sources and Data Collection Techniques

This study uses primary data as the main data source. Primary data are collected directly through:

- a. In-depth interviews with accounting, finance, and IT staff involved in the implementation and use of the Evizia application.
- b. Direct observation of financial administrative processes and the use of the Evizia system within the hospital working environment in order to obtain data such as financial reports, recapitulation of physical document usage prior to digitalization, and internal data regarding investment and operational efficiency after implementation.

Data collection is conducted systematically to obtain a comprehensive overview of the costs incurred and the benefits gained by the hospital from this paperless accounting system.

Data Analysis Technique

This study employs descriptive analysis based on cost–benefit analysis (CBA) to evaluate the impact of implementing the Evizia application. This technique aims to systematically compare the total implementation costs (such as licensing, training, and infrastructure costs) with the benefits obtained (such as time efficiency, reduced paper usage, improved accuracy, and operational cost savings).

According to Boardman et al. (2018), the CBA approach is an evaluative method that measures the economic feasibility of a policy or program by considering all cost and benefit consequences. In the context of this study, qualitative data from interviews are converted into thematic descriptions and then linked to the cost–benefit analysis framework.

This technique enables the researcher to identify the extent of net benefits gained by JIH Hospital from the digitalization of the accounting system and the relevance of these results as a basis for future strategic decision-making. Through this approach, the researcher can also present more contextual and evidence-based recommendations.

RESULT AND DISCUSSION

Data Analysis

Benefit Analysis of the Implementation of a Paperless Accounting System

The benefits of implementing the Evizia application at JIH Hospital Yogyakarta can be analyzed through several key indicators, namely business process efficiency, effectiveness of financial reporting, improvement in the quality of accounting information, strengthening of internal control, and support for managerial decision-making.

From the perspective of business process efficiency, the implementation of a paperless accounting system through Evizia has transformed conventional work patterns into an integrated system-based approach. All financial transactions that were previously recorded manually and required physical documents are now automatically recorded in the system. Each work unit serves as an initial point of transaction data input according to its respective function, so the recording process is no longer fully centralized in the accounting unit. This condition reduces administrative workload and accelerates business process flows.

Efficiency is also reflected in the reduction of manual verification processes. Under the previous system, accounting staff had to check the completeness of physical documents one by one before recording transactions. With Evizia, transaction validation is carried out through system workflows that are aligned with Standard Operating Procedures (SOPs), thereby minimizing input errors from the early stages of the process.

In terms of financial reporting effectiveness, the Evizia system significantly contributes to faster preparation of financial reports. Real-time transaction recording enables financial statements to be prepared without waiting for manual recapitulation. This is evidenced by the improvement in the Service Level Agreement (SLA) for financial reporting, which accelerated from the 10th to the 7th, and even the 6th, of each month. This improvement indicates that the paperless accounting system effectively supports management's need for timely financial information.

Furthermore, regarding the quality of accounting information, the implementation of Evizia produces data that are more accurate, consistent, and traceable. Each transaction is recorded according to the appropriate account and period, thereby minimizing the risk of misclassification. In addition, the system allows for an audit trail for each transaction, which is essential in supporting both internal and external audit processes.

Another important benefit is the strengthening of the internal control system. Through user access control based on the authority of each unit, the risks of data misuse and transaction manipulation can be minimized. All user activities are recorded in the system, thereby enhancing accountability and transparency in hospital financial management.

From a managerial perspective, the Evizia application provides significant support for decision-making. The available financial dashboard enables management to monitor financial conditions periodically. The information presented can be used as a basis for budgeting, cost control, and performance evaluation of work units. However, for specific and in-depth analyses, management still requires support from the information technology team.

Cost Analysis of the Implementation of a Paperless Accounting System

Cost analysis is conducted to identify and compare cost components incurred by JIH Hospital Yogyakarta before and after the implementation of the paperless accounting system using the Evizia application. The analysis is carried out using a qualitative-descriptive

approach based on cost–benefit analysis (CBA). This approach focuses not only on direct financial costs but also includes operational and implicit costs that affect the hospital’s long-term efficiency and effectiveness.

1. Cost Structure Before the Implementation of the Evizia Application

Before the implementation of Evizia, the accounting system at JIH Hospital Yogyakarta relied heavily on physical document-based recording and archiving processes. This system generated several relatively large and recurring cost components, including:

a. Paper Procurement and Usage Costs

Based on interview results, prior to the paperless system, almost all financial administration activities, medical records, procurement, and document archiving were conducted in printed form. Each financial transaction required supporting documents such as invoices, payment receipts, transaction journals, and financial reports to be printed and stored.

This dependence on paper resulted in routine costs for paper purchases, printer ink, and printing machine maintenance. In addition, large paper usage increased the need for physical storage space for document archives.

b. Administrative Labor Costs

Manual and semi-digital recording processes caused relatively high workloads for accounting and finance staff. Financial report preparation required time-consuming manual recapitulation, especially at month-end and year-end periods. This condition led to increased working hours and potential overtime costs.

c. Costs of Error Risk and Inefficiency

Manual systems also increased the risk of recording errors, data duplication, and delays in providing financial information. These errors generated indirect costs in the form of correction time, report revisions, and potential delays in managerial decision-making.

2. Cost Structure After the Implementation of the Evizia Application

After the implementation of the Evizia application in August 2017, the cost structure at JIH Hospital Yogyakarta underwent significant changes. Although new cost components emerged, several previous costs were gradually reduced.

a. System Implementation and Customization Costs

At the initial stage, the hospital incurred costs for purchasing and developing the Evizia system tailored to internal needs. Customization was conducted jointly with the system provider to ensure compliance with each unit’s Standard Operating Procedures.

Based on interview results, training costs were not charged separately because they were included in the service package from the system provider. Training was conducted internally with intensive assistance during the implementation period.

b. System Rental and Renewal Costs

c. After system operation, the hospital incurred routine monthly rental fees for the Evizia application. The amount of this cost was adjusted according to the number of patients served. This component represents a new cost not found in the previous system, but it is considered a consequence of using a digital integrated system.

d. Information Technology Infrastructure Costs

In terms of infrastructure, the implementation of Evizia did not require significant new hardware procurement. Existing devices were still usable, so additional costs focused mainly on server management and system maintenance.

3. Comparative Analysis of Paper Usage Costs

One of the most prominent cost indicators in implementing a paperless system is paper usage. Based on interviews, management stated that during eight years of Evizia implementation, paper purchases were reduced by approximately 30% compared to the pre-digitalization period.

This reduction was mainly due to:

- Implementation of electronic medical records (EMR).
- Digitalization of financial transaction recording and document archiving.
- Data integration among work units.

However, paper usage has not been completely eliminated. Some documents, such as patient invoices and certain administrative documents, still need to be printed due to external system limitations and digital delivery cost considerations.

4. Trade-Off Analysis Between System Costs and Operational Savings

Interview results indicate that JIH Hospital Yogyakarta has not yet conducted a detailed quantitative calculation of total operational cost savings after Evizia implementation. However, qualitatively, the system shows a cost-saving trade-off.

Operational cost reductions include:

- Decreased paper purchases and physical archiving needs
- Reduced administrative workload
- Lower risk of recording errors

Meanwhile, the hospital must allocate funds for:

- Evizia application rental and renewal
- System and server maintenance

Nevertheless, management considers these costs as long-term strategic investments that support operational efficiency and the hospital's readiness for network expansion.

5. Cost Evaluation from a Managerial Perspective

From a managerial perspective, the implementation of Evizia is considered more beneficial than the previous system. This assessment is based on work process efficiency, improved data integration, and easier access to financial information for management.

Although direct financial benefits have not been quantitatively measured, management perceives the system's strategic value as more dominant, particularly in supporting fast and data-driven decision-making.

Discussion

Based on the data analysis results, the implementation of a paperless accounting system using the Evizia application at JIH Hospital Yogyakarta has a significant impact on cost management and operational efficiency. The findings demonstrate that this system effectively addresses the research problem, particularly in comparing costs before and after Evizia implementation.

Before Evizia, the accounting system relied heavily on physical documents, resulting in relatively high operational costs related to paper usage, printing, archiving, and administrative workload. Financial recording and reporting processes required considerable time due to manual document handling and verification.

After implementing the paperless accounting system, financial data recording and management are conducted in an integrated digital system. This condition significantly

reduces paper usage and simplifies administrative workflows. These findings indicate that the shift from paper-based to digital systems affects not only technical recording aspects but also organizational cost structures and work patterns.

In addition to cost efficiency, the paperless system also influences work culture and administrative governance. Interviews reveal that this change promotes a shift from physical document orientation to digital data orientation, improving administrative discipline because every transaction must follow standardized system workflows.

Work processes that previously required lengthy document searches and data verification can now be performed more quickly and accurately. This reduces reporting delays and improves information timeliness for management. Furthermore, reduced reliance on physical documents lowers the risk of archive loss and document deterioration.

The findings show that Evizia provides not only economic benefits but also organizational benefits. The paperless accounting system supports internal control by maintaining data security, integrity, and traceability. Thus, Evizia implementation represents a strategic step toward improving operational efficiency and financial governance quality at JIH Hospital Yogyakarta.

Cost analysis also indicates a shift from recurring operational costs toward technology investment costs. Paper, printing, and archiving costs are reduced, although new costs arise for system rental and maintenance. However, interviews indicate that these costs are proportional to the long-term benefits obtained.

These findings align with Cost-Benefit Analysis (CBA) theory proposed by Boardman et al. (2018), which states that an investment is considered feasible when benefits exceed costs. In the context of Evizia, rental and maintenance costs represent investment costs, while reduced paper usage, time efficiency, and improved financial information quality represent benefits.

Furthermore, from a CBA perspective, non-financial benefits are equally important as financial benefits. Boardman et al. (2018) emphasize that improvements in process efficiency, information reliability, and reduced operational risk are integral parts of cost-benefit analysis despite being difficult to quantify.

In this study, non-financial benefits include improved recording accuracy, easier transaction monitoring, transparent financial workflows, and reduced error risk. These benefits add significant value to hospital management in controlling financial activities and supporting strategic decisions.

These findings support Mulyadi (2016), who stated that a good accounting information system enhances efficiency, accuracy, and reliability. Evizia integrates data across work units, reducing information fragmentation commonly found in manual systems. This supports the effectiveness of internal control systems as described in the COSO Internal Control–Integrated Framework, particularly in the information and communication component.

Additionally, the findings align with Arens et al. (2020), who argued that integrated accounting information systems strengthen internal control through improved transparency and traceability. From a digitalization perspective, these results also support Li et al. (2017) and Lenka et al. (2017), who found that accounting digitalization improves operational efficiency and organizational value creation.

The reduction in paper usage also supports sustainability literature. Digital transformation in administrative and financial management contributes to resource efficiency and reduced operational waste, supporting more sustainable organizational practices.

Managerial and Practical Implications

Based on the findings, several managerial and practical implications can be formulated for JIH Hospital Yogyakarta:

1. The paperless accounting system using Evizia should continue to be optimized by expanding the scope of document digitalization, as long as it complies with regulatory requirements.
2. Management is advised to conduct quantitative cost–benefit calculations to strengthen economic evaluation, including estimated savings in paper, printing, archiving, and administrative time.
3. Human resource competency in operating and utilizing Evizia must be continuously improved to maximize system benefits.
4. Cost control should focus not only on budget reduction but also on system and process improvements.

More broadly, the implementation of a paperless accounting system at JIH Hospital Yogyakarta can serve as a best practice model for other hospitals facing similar challenges. In addition to improving internal efficiency, the system supports the hospital's commitment to the green hospital concept as part of its social and environmental responsibility.

CONCLUSION

Based on the findings of this study, several main conclusions can be drawn:

First, the results indicate that the implementation of a paperless accounting system using the Evizia application at JIH Hospital Yogyakarta provides significant benefits in supporting financial management efficiency. The transformation from a paper-based accounting system to an integrated digital system simplifies administrative processes, accelerates financial recording and reporting flows, and reduces dependence on physical documents. These findings demonstrate that digital accounting systems play an important role in improving the hospital's operational effectiveness.

Second, from the cost analysis perspective, this study finds a change in cost structure before and after the implementation of the Evizia application. Prior to implementation, JIH Hospital Yogyakarta incurred relatively high recurring operational costs, particularly related to paper usage, printing, physical archiving, and administrative workload. After the implementation of Evizia, these costs were significantly reduced, although new costs emerged in the form of system rental and maintenance. Nevertheless, overall, the benefits obtained were considered greater than the costs incurred.

Third, the findings show that the implementation of a paperless accounting system using Evizia is consistent with the cost–benefit analysis (CBA) approach. Although this study is qualitative and does not present quantitative cost calculations, interview results indicate that long-term benefits—such as process efficiency, reduced risk of recording errors, improved reliability of financial information, and strengthened internal control—constitute the main basis for assessing the feasibility of the system. Thus, the research objective

focusing on the cost analysis of the paperless accounting system implementation has been achieved.

Fourth, this study contributes to the development of financial management and accounting information system literature, particularly in the context of healthcare service organizations. The study expands understanding of how investments in accounting information technology can provide added value not only in terms of cost efficiency but also in financial governance, internal control, and organizational readiness to להתמודד with future operational complexity.

Recommendations

Based on the research findings, several recommendations can be considered by JIH Hospital Yogyakarta to enhance the effectiveness and efficiency of cost management through the implementation of a paperless accounting system using the Evizia application:

1. JIH Hospital Yogyakarta is encouraged to continue optimizing the use of the Evizia application by expanding digitalization in financial administrative processes that can still be performed in a paperless manner. This effort is expected to further improve operational efficiency and reduce dependence on physical documents.
2. Hospital management is advised to begin preparing quantitative cost–benefit calculations related to the implementation of the paperless accounting system. These calculations may include estimated savings in paper, ink, physical archiving, and employee working time. The availability of quantitative data will strengthen the economic justification for future investments in information technology.
3. From a human resource perspective, JIH Hospital Yogyakarta should continuously improve employee competencies in utilizing digital accounting systems through ongoing training and mentoring. With improved competencies, the benefits of implementing the Evizia system can be realized optimally and sustainably.

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