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Implementation ICoFR on Internal Control of Electricity Sales Revenue PLN UP3 Malang

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ABSTRACT	INFO ARTIKEL
<p>This study aims to determine the quality of electricity sales revenue reports by utilizing or implementing internal control information technology, namely ICoFR (Internal Control over Financial Reporting). The results of the control report will be used as a control document for internal audits at the company PT PLN (Persero) UID Jatim UP3 Malang. This research is designed using a qualitative approach, specifically the case study method, because it allows researchers to conduct an in-depth investigation of the phenomenon of ICoFR technology implementation. Research data collection was carried out by interviews and field observations. Data analysis techniques were carried out interactively and descriptively. The results showed that the implementation of ICoFR technology carried out by PT PLN (Persero) UID Jatim UP3 Malang provided controlled and reliable sales revenue report documents. The impact of income reports can be compared and monitored, and it is easy to determine the type of grouping.</p> <p>© 2025 Kantor Jurnal dan Publikasi UPI</p>	<p>Article History: <i>Submitted/Received 6 June 2025</i> <i>First Revised 10 June 2025</i> <i>Accepted 17 June 2025</i> <i>First Available online 1 August 2025</i> <i>Publication Date 7 August 2025</i></p> <p>Keyword: <i>Case Study; Electricity Sales Revenue; ICoFR; and Internal Control</i></p>

1. INTRODUCTION

The implementation of technology in business is a manifestation of the utilization of developments and advances in the current digital era. The digital era has brought about many significant changes for the wider community and has influenced various activities (Amalia & Sawitri, 2024). One of the influences of technological developments is that it helps humans by providing convenience and speed in various aspects of activities (RJ et al., 2021). Although technological developments have a positive impact, other effects are felt, namely the ability to adapt and adjust quickly to technological developments in all aspects, including accounting (Okinaldi & Aziza, 2024). In the field of accounting, financial reports are crucial because they contain information about a company's performance in carrying out business processes (Muazah et al., 2024). Therefore, a company needs an integrated tool or system that leverages technology to support financial reporting management. The technology used is expected to generate reliable and informative financial reports for internal company use.

PT Perusahaan Listrik Negara (Persero) is one of the State-Owned Enterprises (SOEs) operating as an electricity provider. Electricity is an essential need for community activities, including household, office, or other public sector activities. The sale of electricity to the community requires recording and financial reporting to determine the amount of revenue received by the company from electricity sales to customers. The electricity sales transaction recording system at PT PLN (Persero) utilizes SAP (System Application and Product in data processing) information technology with the aim of minimizing the risk of errors in recording and journalizing. Electricity sales revenue reports are compiled by the marketing and finance divisions with the aim of comparing revenue results and as a form of internal control for the company.

Internal control is crucial for fulfilling both the supervisory and control functions of financial statements (Jamaludin, 2021). PT PLN (Persero) implements internal control policies by adopting ICoFR (Internal Control over Financial Reporting) technology in accordance with COSO (Committee of Sponsoring Organizations of The Treadway Commission) standards. COSO is an international organization that provides a framework for internal control guidelines so that the results are in accordance with international standards (Permana et al., 2023). The implementation of this policy has a positive impact on financial reports with more reliable results and high credibility. Thus, the company's objectives can be achieved, and business processes can be ensured to run effectively (Rumahorbo & Dewayanto, 2024).

Previous studies conducted by Pontoh et al. (2021); Silalahi et al. (2022); Permana et al. (2023); and Okinaldi et al. (2024) have extensively discussed the implementation of accounting information systems and technology in internal auditing. The implementation of information technology in internal auditing activities provides efficiency and effectiveness in audit report results. In addition to having better quality, financial reports also minimize the risk of errors, thereby impacting the quality of management decisions. However, previous studies conducted by Pontoh et al. (2021); Silalahi et al. (2022); Permana et al. (2023); and Okinaldi et al. (2024) have not yet discussed the implementation of ICoFR technology for internal control of electricity sales revenue reports at PT PLN (Persero) UID Jatim UP3 Malang. Therefore, this research is worthwhile because it discusses internal control technology, namely ICoFR, for internal control of electricity sales revenue reports at PT PLN (Persero) UID Jatim UP3 Malang.

The purpose of this study is to determine the quality of internal control documents and the benefits of implementing the ICoFR website for PT PLN (Persero) UID Jatim UP3 Malang. Before

the introduction of ICoFR, the company's internal control process was limited by internal control documents that did not meet international standards. This research also provides benefits to readers, as technology plays a crucial role in the digital era for large companies in conducting internal control, ensuring reliable results and supporting informed decision-making. Additionally, this research also benefits the company because the technology created and implemented to simplify the internal control process will yield optimal results.

Based on the background description above, the questions for this research are formulated as follows: (1) How is ICoFR technology used in producing internal control documents for electricity sales revenue reports? (2) What are the benefits of implementing ICoFR technology in the internal control of electricity sales revenue reports?

ICoFR Technology

Technology is a tool that has been created and will continue to evolve to meet human needs (Erma Zulhijjah & Lutfiyana, 2022). Information technology was developed as a means of accessing information services, comprising two key components: hardware, which serves as the operating system, and software, which provides storage, protection, transmission, and reception of information from various sources (Hadi & Ashlah, 2023). The presence of technology plays a crucial role in various fields, particularly in the accounting sector. Technology plays an important role in producing accurate, reliable, and high-quality financial report information for company management planning and decision-making (Shofa et al., 2022). High-quality financial reports are inseparable from internal controls in preventing errors and maintaining the accuracy of reports.

Based on the 2023 Annual Report of PT PLN (Persero), the company uses the COSO organizational standards in an effort to improve the transparency and accountability of transactions (N. W. Putri & Harahap, 2024). Therefore, a subsidiary of PT PLN (Persero) created a technology called ICoFR to assist in the internal control process of the company's financial statements. ICoFR is designed following the framework and guidelines to meet the financial reporting criteria set by the international organization COSO to meet international financial reporting reliability standards in the areas of control environment, risk assessment, information and communication, and control and monitoring activities to achieve effective business operations (Rumahorbo & Dewayanto, 2024).

Internal Control

Internal control is an activity related to following a procedure to evaluate, improve, and enhance the effectiveness and efficiency of financial management (N. W. Putri & Harahap, 2024). Effective, reliable, and transparent company financial reports serve as a reference for decision-making. However, in practice, financial report management still does not produce accurate information and cannot be used as a reference for decision-making. Therefore, testing and review are needed to find misstatements in the reports (Hermawan & Yuliarini, 2023). If there are errors and inconsistencies with business procedures, evaluation and improvement must be carried out until financial statements that are believed to be accurate are produced.

Misstatements in financial statements cause a decline in the effectiveness of financial statements, which affects the perspective of stakeholders in assessing a company's performance (Listya et al., 2023). In addition, the organizational structure is also included in the company's internal control system, which has the trust to achieve and maintain the company's operational

activities. Thus, internal control over financial statements is necessary to produce control documents that will be used as a reference for the audit process.

Electricity Sales Revenue

Electricity sales revenue is an obligation that must be paid by customers for the use of electricity that has been sold by the company to customers (Silalahi et al., 2022). PT PLN (Persero) is a large company engaged in the provision of electricity services to customers, which is divided into several business areas. In the electricity distribution business sector, electricity sales revenue is generated when electricity is distributed and used by the public over a one-month period (Rianto et al., 2024). Following this, PT PLN (Persero) will bill customers for the electricity they have used over the one-month period. Customers who have made payments will be recorded by the company as revenue from electricity sales services to customers (Jamaludin, 2021).

The revenue received by PT PLN (Persero) distribution units from the settlement of customer obligations will be reinvested in the procurement and purchase of electricity to be sold or redistributed to customers (Rianto et al., 2024). The revenue recognition process in the financial statements will be recorded in groups according to their classification, with items in the financial statements such as assets, liabilities, equity, revenue, expenses, profits, and losses (Rianto et al., 2024).

2. METHODOLOGY

This study was designed using a case study method with a qualitative approach. The case study method is an empirical approach used to seek knowledge in various fields (Nur'aini, 2020). Specifically, case studies are used to investigate a real-life event in depth that has not yet been proven to be true in one or more individuals (Nugraha & Wirjolukito, 2019). The researcher used the case study method because this research specifically focuses on exploring a phenomenon in the field of contemporary accounting in real life by explaining its causes and effects (Johnstone, 2024). Thus, the use of case studies will enable the researcher to obtain in-depth and relevant information on this phenomenon.

A qualitative approach is an approach that specifically explores ways to enhance and develop engagement with a phenomenon based on the actual experiences of individuals or groups related to a particular issue (Aschauer & Quick, 2023). The qualitative approach was chosen because it can describe a research phenomenon that occurs comprehensively with data collection that is text-based mainly, making the qualitative approach more relevant (Nugraha & Wirjolukito, 2019). Thus, qualitative research is capable of interpreting answers to the research questions in this study with meaningful insights (Corsi & Arru, 2020).

Data collection in this study used the interview method by asking questions and recording the informants' answers, assisted by handwritten notes and audio recordings to gather information from the informants (Ferretti et al., 2024; Guo et al., 2024). In addition, the researcher also used the observation method for in-depth investigation to obtain a clear picture related to the addition of research information sources (Jamil et al., 2022; Saleh et al., 2021). The data used in this study from data collection are primary and secondary data. Primary data are data obtained directly from research informants through a series of structured question-and-answer processes with one relevant informant, namely the Team Leader (TL) of the Finance and Accounting Division of PT PLN (Persero) UID Jatim UP3 Malang. The researcher directly practised data processing to be used as support for inputting data into the ICoFR website, enabling the researcher to

understand the procedures for creating internal control documents. Secondary data was obtained from the PT PLN (Persero) website, such as documentation of electricity sales revenue reports, annual financial reports for 2022 and 2023, Good Corporate Governance (GCG) guidelines, PT PLN (Persero) board regulations, and Ministry of State-Owned Enterprises regulations. Secondary data sources facilitated the researcher's understanding of primary data and provided broader knowledge related to the research issues.

The data analysis used in this study employs interactive analysis and qualitative descriptive analysis techniques developed by Miles and Huberman. Interactive analysis is an ongoing process until the collected information reaches its maximum point (Izzalqurny et al., 2022). Meanwhile, qualitative descriptive analysis is a method to describe specific issues so that the information obtained is clear and specific (Izzalqurny et al., 2022). The research data obtained will be further processed by sorting and organizing the research data to facilitate analysis and summarizing the raw data results so that the scope of information obtained is relevant to the research topic, namely the quality of the documents or products of the internal control of PT PLN (Persero) UID Jatim UP3 Malang's electricity sales revenue reports, which will be forwarded to the internal audit process.

3. RESULT AND DISCUSSION

Research findings based on interview results show that PT PLN (Persero) UID Jatim UP3 Malang compiles and manages electricity sales revenue reports based on data from two divisions, namely the marketing division and the finance division. The management and recording of electricity sales revenue data aims to ensure consistency in the recording of revenue obtained and to control electricity sales revenue reports. Subsequently, the financial reports are processed into control documents or audit process attachments. Previously, the procedures and results of control documents did not meet the established standards and frameworks. This was due to obstacles in the data collection process for electricity sales revenue, which relied on hard-copy documents. Once collected, the documents were processed into revenue control products. If this process continues, it will result in the risk of errors and unreliable financial documents.

PT PLN (Persero) UID Jatim UP3 Malang uses a quarterly period (every three months) for internal control management of electricity sales revenue reports. The quarterly period is used because it provides a proportional timeframe for performance assessment and evaluation. With the ICoFR technology, the process of managing revenue reports has become more reliable. The transformation of PT PLN (Persero)'s internal control system, which is integrated with the system, facilitates the processing of data collected over a three-month period.

The implementation of ICoFR by PT PLN (Persero) UID Jatim UP3 Malang aims to produce effective and reliable internal control products. The steps in the procedure for processing raw data to obtain internal control documents for income and electricity sales reports are as follows:

1. Collecting raw data to be managed into control products for electricity sales income. There are three supporting applications used by PT PLN (Persero) UID Jatim UP3 Malang to collect raw data on electricity sales, namely:
 - a. ACMT (Integrated Meter Record Application or *Aplikasi Catat Meter Terpadu*) and AMR (Automatic Meter Reading) Data

These two applications are centrally managed applications that display the results of electricity meter readings (electricity usage) belonging to customers. Due to the large

number of customers of PT PLN (Persero) UID Jatim UP3 Malang, it is not possible to calculate customer electricity usage manually. Therefore, the recording of electricity consumption in kWh is done through a system where both customers and staff can update data digitally.

- b. AP2T (Centralized Customer Service Application or *Aplikasi Pelayanan Pelanggan Terpusat*) Data

AP2T is a centralized application system developed as a web-based application that covers all business and administrative processes for PLN customers. The AP2T application is used by the company to verify and calculate customer electricity usage results, which are then converted into customer electricity bills. Once paid, these become revenue for PT PLN (Persero) UID Jatim UP3 Malang.

- c. SAP Data

The SAP (System Application and Product in Data Processing) application is a financial reporting application used to record receipts or revenues and receivables from customer bills to PT PLN (Persero) UID Jatim UP3 Malang.

2. Managing raw electricity sales data to generate electricity sales revenue reports, also known as internal control documents. The steps involved are as follows:

- a. There are officers who record the final kWh meter readings of customers by manually collecting data at the customer's location and/or automatically reading the final kWh meter readings of customers through the ACMT and AMR applications.
- b. The final meter reading is compared with the initial reading to determine the customer's electricity consumption. Each month, the customer's kWh meter reading shows changes in electricity consumption. The meter usage data is verified and calculated using the AP2T.
- c. After verification, the AP2T application also calculates the electricity tariff applied to the customer. This calculation is based on the customer's electricity usage at the last kWh meter reading, multiplied by the Basic Electricity Tariff (BET) set by the central government. After the calculation is completed, the customer's electricity bill for that month will be generated. This electricity bill then becomes the revenue for PT PLN (Persero) UID Jatim UP3 Malang.
- d. The next step is to perform accounting recording integrated with the system. Accounting recording for this electricity bill is done using the SAP application. This accounting recording will generate an accounting journal that serves as evidence of the transaction between the customer and PT PLN (Persero) UID Jatim UP3 Malang.
- e. Then, upload the documents to the ICoFR application. There are separate places for uploading documents based on the following:
 1. Revenue securing and recording
 2. Safeguarding and recording of inventory materials
 3. Safeguarding and recording fixed assets and ATTB
 4. Safeguarding and recording financial flows and budgets

3. Upload internal control documents to the ICoFR PT PLN (Persero) website. The attached documents uploaded include the following:

- a. AP2T data, containing stand meter data and calculation of the amount of customer electricity tariffs.
- b. Hard Close or Reconciliation Data containing a comparison of electricity sales data from the SAP application or data done by the finance and accounting division with data done by the marketing / commercial division.

- c. Prepaid balance contains data on the total amount of electricity sales revenue received by PT PLN (Persero) UID East Java UP3 Malang every quarter.
 - d. The balance of Prepaid Receipts contains data on the accounting recording of PT PLN (Persero) UID Jatim UP3 Malang's prepaid receipts using the recording application SAP.
 - e. Balance of Revenue contains data that shows the nominal results of electricity sales revenue received by PT PLN (Persero) UID Jatim UP3 Malang and how to journal it in the SAP application.
4. After the documents are uploaded, they will be checked and verified by the assistant manager of finance and accounting and the UP3 manager.
 5. The final result obtained from internal control is a certificate signed by the UP3 Manager as the head of PT PLN (Persero) UID Jatim UP3 Malang. This certificate or minutes contains detailed explanations that the electricity sales revenue documents uploaded as control documents are effective or ineffective.
 6. If the document is ineffective, it is necessary to re-examine the error in uploading the control document.
 7. If the control document is effective, the internal control document is now valid and can be forwarded as a control product or attachment for the internal audit process.

Based on the findings of this study, the implementation of ICoFR technology has a positive impact and improves the effectiveness of internal control over electricity sales revenue reports for PT PLN (Persero) UID Jatim UP3 Malang. ICoFR technology is capable of generating control document attachments to support the internal audit process in accordance with the framework and procedures established by the international organization COSO. The results of this study are also in line with other studies conducted by Pontoh et al. (2021) and Permana et al. (2023), who found that internal controls based on COSO and SAP software are compatible and interconnected. This reinforces the notion that control documents uploaded to ICoFR can be evaluated and deemed effective based on the completeness of the documents and the results of inspections conducted by PT PLN (Persero) management within a business unit based on electricity sales revenue reports.

Previous research by Okinaldi et al. (2024) on technology implementation explains that the use of technology to assist internal control processes in companies significantly influences the effectiveness and efficiency of report reliability. Thus, the implementation of ICoFR technology at PT PLN (Persero) UID Jatim UP3 Malang aligns with current digital trends in the accounting field. Another previous study aligns with the research conducted by Silalahi et al. (2022) regarding the analysis of accounting information systems used in electricity revenue by implementing accounting information systems in the form of applications, such as ACMT, AMR, AP2T, and SAP, which are interconnected for easy access to data related to electricity sales in real-time, ensuring the accuracy of the data used by the company.

The renewal in this study that is not in line with previous research is the procedure or procedure carried out by PT PLN (Persero) UID Jatim UP3 Malang in using ICoFR technology, which has more complex procedures in producing effective documents for internal control. In addition, the use of a quarterly period in the preparation of control documents by PT PLN (Persero) UID Jatim UP3 Malang has a positive impact on more accurate internal control results because there is a comparison of data every quarter in one year of making revenue reports. Thus, the results of the electricity sales revenue report, which functions as an internal audit, will be more reliable and accountable for its fairness.

The implementation of ICoFR technology is a response taken by PT PLN (Persero) to transform business processes within the company. As a company engaged in the largest provider and distribution of electrical energy in Indonesia, inclusive and sustainable changes are needed in all business fields to improve the quality of performance, especially in the field of accounting in terms of managing and controlling financial reports in accordance with procedures and stages in order to produce quality financial reports.

4. CONCLUSION

Based on the results of the analysis and discussion above, the researcher concludes that the implementation of ICoFR technology has a significant impact on the results of the internal control product of the electricity sales revenue report. Internal control transformation that is integrated with the technology system provides quality results in internal control to be more optimal than before. Incoming sales financial reports from various divisions are easier to compare with reports belonging to the finance and accounting divisions. This comparison is made to check or cross-check by adjusting the nominal income received by PT PLN (Persero) UID Jatim UP3 Malang for electricity sales to customers.

In the process of implementing ICoFR technology, controlling product documents is easier to classify. The software has grouped financial reports according to the required components and criteria. Thus, to control electricity sales revenue reports or other reports can be done thoroughly. This also provides ease of access because documents have been classified according to their type. Thus, the results of this study indicate that the utilization of ICoFR technology on the results of internal control of electricity sales revenue reports at PT PLN (Persero) UID Jatim UP3 Malang is going well. The results of internal management and control documents are more controlled, transparent, and can be trusted by stakeholders.

The implication of this research is to provide a theoretical description of how the implementation and benefits of the technology used by PT PLN (Persero) in conducting internal control on electricity sales revenue reports. The limitations of this research only focus on one company, namely PT PLN (Persero) UID Jatim UP3 Malang, so it cannot be used as a comparison for other companies with different characteristics. Suggestions for future researchers are a) conduct exploration related to the impact or factors that affect internal control and b) conduct further analysis related to internal audit procedures after the internal control document has been declared effective by company leaders.

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