Reflection: Education and Pedagogical Insights

Developing Social Accounting Competencies through IoT-Based Goat Farming Learning Systems

Suhardjo Suhardjo [a], Nicholas Renaldo [a*], Achmad Tavip Junaedi [a], Kristy Veronica [a], Harry Patuan Panjaitan [a], Onny Setyawan [a], Wilda Susanti [b], Rahma Widi [c], Umar Faruq [d], Jahrizal Jahrizal [e]

[a] Faculty of Business, Institut Bisnis dan Teknologi Pelita Indonesia, Indonesia

[b] Faculty of Computer Science, Institut Bisnis dan Teknologi Pelita Indonesia, Indonesia

c English Education Study Program, Institut Az Zuhra, Indonesia

[d] Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Sultan Syarif Kasim Riau, Indonesia

[e] Faculty of Economic and Business, Universitas Riau, Indonesia

*Corresponding Author: nicholasrenaldo@lecturer.pelitaindonesia.ac.id

Article History
Received
21 October 2025
Revised
21 November 2025
Accepted
19 December 2025
Published
31 January 2026

ABSTRACT

The digital transformation of agriculture has created new opportunities and challenges for accounting education, particularly in developing social accounting competencies related to sustainability and social responsibility. This study aims to examine the effect of an IoT-based goat farming learning system on the development of social accounting competencies in vocational and applied accounting education. Using a quantitative explanatory research design, this study integrates a technology-enhanced learning approach supported by real-time data generated from IoT-enabled goat farming systems. Data were collected from students participating in IoT-based learning activities and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results indicate that the IoT-based goat farming learning system has a positive and significant effect on social accounting competencies, including the ability to identify, measure, interpret, and report social and environmental impacts. The findings demonstrate that real-time livestock data provide an effective experiential learning environment that bridges the gap between abstract social accounting concepts and practical applications. This study contributes to accounting education literature by repositioning IoT-based livestock systems as pedagogical platforms rather than purely operational tools. The study also offers practical implications for educators, curriculum designers, and policymakers seeking to strengthen sustainability-oriented accounting education in digitally transformed agribusiness contexts.

Keywords: Social Accounting Education; Internet of Things; Goat Farming; Experiential Learning; Accounting Competencies; Sustainability Accounting

Field: Accounting Education; Social and Environmental Accounting; Digital and Smart Agriculture; Vocational and Applied Higher Education

DOI: https://doi.org/10.61230/reflection.v3i1.142

SDG's: Quality Education (4); Decent Work and Economic Growth (8); Industry, Innovation, and Infrastructure (9); Responsible Consumption and Production (12); Climate Action (13)

INTRODUCTION

The transformation of the agricultural sector through digital technology has created new demands for accounting education (Renaldo et al., 2023), particularly in relation to sustainability (Jahrizal et al., 2025), social responsibility (Suhardjo et al., 2024), and data-driven decision-making(Renaldo, Junaedi, et al., 2024). Goat farming, as a rapidly growing livestock subsector in many developing economies, plays a significant role not only in food security but also in rural employment, community welfare, and environmental sustainability. However, conventional accounting education has largely focused on financial performance, while social and environmental impacts of livestock farming remain underrepresented in formal learning systems.

Social accounting emphasizes the identification, measurement, and reporting of social and environmental impacts arising from organizational activities (Sudarno et al., 2022). In the context of goat farming, social accounting includes aspects such as animal welfare, waste management, community engagement, labor practices, and local economic contributions. Despite its relevance, social accounting is often taught in an abstract and theoretical manner, limiting students' ability to connect accounting concepts with real-world agricultural practices. This gap is particularly evident in vocational and applied higher education programs, where experiential and technology-enhanced learning is essential.

The emergence of Internet of Things (IoT) technology offers a new pedagogical opportunity to bridge this gap. IoT-based goat farming systems, utilizing sensors to monitor feed consumption (Susanti et al., 2024), animal health, housing conditions, waste output, and productivity, generate real-time, verifiable, and measurable data. These data streams provide a concrete foundation for teaching social accounting concepts, enabling learners to quantify social and environmental impacts rather than relying on assumptions or narrative descriptions alone. As a result, IoT transforms goat farming from a traditional agricultural activity into a living laboratory for accounting education (Jahrizal et al., 2024).

However, existing studies on IoT in livestock farming predominantly emphasize productivity, efficiency, and animal health, while research on accounting education remains focused on digital finance, enterprise systems, or sustainability reporting at the corporate level. There is a clear lack of educational models that integrate IoT-based livestock data with social accounting competency development. This indicates a theoretical and pedagogical gap between smart farming technology and accounting education outcomes.

The novelty of this study lies in its integration of social accounting education with IoT-based goat farming learning systems, positioning smart livestock farming as an educational platform rather than merely a production system. Unlike prior research that treats IoT as an operational tool, this study conceptualizes IoT-generated farming data as a learning resource for developing social accounting competencies (Safari Sd et al., 2025).

Specifically, this research introduces:

1. A competency-based learning framework that links IoT-generated goat farming data to social accounting dimensions such as social cost measurement, environmental impact valuation, and stakeholder accountability.
2. An experiential accounting education model where students learn social accounting through real-time data interpretation, analysis, and reporting derived from IoT-enabled farming systems.
3. A contextual contribution to accounting education literature, demonstrating how agriculture-based IoT systems can operationalize abstract social accounting concepts into measurable and teachable practices.

By integrating technology, livestock farming, and social accounting education, this study contributes to the advancement of applied accounting pedagogy, supports sustainability-oriented education, and responds to the growing demand for accountants capable of addressing social and environmental accountability in digitally transformed agribusiness sectors.

LITERATURE REVIEW

Social Accounting and Competency Development

Social accounting extends traditional accounting by incorporating social, environmental, and ethical dimensions into organizational measurement and reporting. It focuses on how organizational activities affect stakeholders, communities, and ecosystems, rather than solely emphasizing financial outcomes. In agricultural and livestock contexts, social accounting encompasses labor welfare, animal well-being, environmental impacts, waste management, and contributions to local economies.

Competency-based education in accounting emphasizes not only technical knowledge but also analytical skills, ethical awareness, and contextual understanding. Social accounting competencies therefore include the ability to identify social impacts, measure non-financial costs and benefits, interpret sustainability-related data, and communicate accountability information to stakeholders. Prior studies in accounting education indicate that these competencies are difficult to develop through conventional lecture-based methods due to the abstract and qualitative nature of social and environmental data.

Existing literature highlights that social accounting education is often detached from real operational contexts, resulting in limited student engagement and low practical relevance. This gap suggests the need for learning systems that provide authentic, data-driven environments where students can directly observe and measure social impacts.

IoT in Livestock and Goat Farming Systems

The Internet of Things (IoT) has been widely adopted in livestock farming to enhance productivity, animal health monitoring, and resource efficiency. In goat farming, IoT applications commonly include sensors for temperature and humidity control (Renaldo et al., 2021), feed intake monitoring, disease detection, waste management, and milk or meat productivity tracking. These technologies generate continuous and real-time data that support evidence-based farm management.

Most empirical studies on IoT-based livestock systems focus on technical performance (Delyana Rahmawany Pulungan et al., 2025), economic efficiency, and animal health outcomes. While these studies demonstrate that IoT improves operational decision-making, they rarely explore the educational or accounting implications of the generated data. Consequently, IoT is predominantly positioned as a production optimization tool rather than a learning or accountability instrument.

From an educational perspective, IoT systems possess strong potential as experiential learning platforms. The real-time data produced by smart farming technologies can be repurposed for analysis, evaluation, and reporting tasks, enabling learners to connect theoretical concepts with observable outcomes. However, the integration of IoT into accounting education, particularly social accounting, remains underexplored.

Technology-Enhanced and Experiential Learning in Accounting Education

Technology-enhanced learning has become a central theme in modern accounting education, with digital platforms (Renaldo et al., 2022), simulations, enterprise systems, and analytics tools increasingly embedded in curricula. Experiential learning theory emphasizes learning through direct experience, reflection, and application, which has been shown to improve critical thinking and professional judgment in accounting students.

Prior research indicates that experiential approaches are particularly effective for sustainability and social accounting education, as these areas require contextual understanding and ethical reasoning. Case-based learning, simulations, and project-based assignments are commonly used to address this need. However, many of these approaches rely on hypothetical or secondary data, limiting students' exposure to real-world complexity.

IoT-based learning systems offer a more authentic form of experiential learning by providing continuous, real operational data. When integrated into accounting education, such systems can support hands-on activities such as social cost measurement, environmental impact analysis, and sustainability reporting. Despite this potential, existing studies have largely focused on digital finance, management accounting systems, or corporate sustainability reporting, leaving agriculture-based IoT learning models insufficiently examined.

Social Accounting in Agribusiness and Livestock Education

Agribusiness education increasingly recognizes the importance of sustainability, social responsibility, and ethical accountability. Livestock farming, including goat farming, presents unique social accounting challenges related to animal welfare, waste disposal, emissions, and community relations. These characteristics make livestock systems a highly relevant context for social accounting education.

Nevertheless, the literature reveals that social accounting in agribusiness is often addressed at a conceptual level, without adequate methodological tools for measurement and reporting. Educational studies rarely incorporate primary operational data from farms, resulting in a disconnect between accounting education and actual agribusiness practices.

Integrating IoT-based goat farming systems into accounting education addresses this limitation by enabling the quantification of social and environmental indicators. Students can directly link sensor data to social accounting constructs, transforming abstract concepts into measurable variables. This approach aligns with calls in the literature for more interdisciplinary and application-oriented accounting education models.

Research Gap and Positioning of the Study

Based on the reviewed literature, three key gaps can be identified. First, social accounting education lacks authentic, data-driven learning environments that reflect real operational contexts. Second, IoT research in goat farming prioritizes productivity and efficiency, with limited attention to educational or accounting applications. Third, existing accounting education studies focus predominantly on corporate or financial technologies, neglecting agriculture-based IoT systems as learning platforms.

This study positions itself at the intersection of these gaps by proposing an IoT-based goat farming learning system designed explicitly to develop social accounting competencies. By integrating real-time

livestock data with social accounting education, the study advances both accounting pedagogy and smart farming literature, offering a novel interdisciplinary framework for sustainability-oriented education.

METHODOLOGY

Research Design

This study adopts a quantitative explanatory research design with a technology-enhanced learning approach to examine the development of social accounting competencies through an IoT-based goat farming learning system. The research focuses on evaluating causal relationships between the use of IoT-based learning systems and the improvement of learners' social accounting competencies in an educational setting.

To strengthen contextual understanding, the study also incorporates supporting qualitative insights through structured observations of learning activities and system implementation. This approach ensures that both learning outcomes and technological interactions are adequately captured.

Research Setting and Learning System

The research is conducted in vocational higher education and applied accounting education programs that integrate goat farming into their curriculum. The learning system utilizes an IoT-based goat farming platform equipped with sensors that monitor environmental conditions (temperature and humidity), feed and water consumption, waste output (Renaldo et al., 2025), and basic animal health indicators.

The IoT system functions as a learning laboratory, where real-time farm data are continuously collected and stored in a cloud-based dashboard. Students access these data during learning activities to perform measurement, analysis, and reporting tasks related to social accounting. The learning system is designed to align farm-generated data with social accounting dimensions such as environmental impact, animal welfare, labor practices, and community contributions.

Population and Sample

The population of this study consists of students enrolled in accounting, agribusiness, or vocational education programs that include sustainability or livestock-related courses. The sample is selected using a purposive sampling technique, targeting students who actively participate in the IoT-based goat farming learning activities.

A minimum sample size of 100–200 respondents is considered adequate to ensure statistical power, particularly if Partial Least Squares–Structural Equation Modeling (PLS-SEM) is applied. This range is consistent with recommendations for exploratory and predictive educational research models.

Research Variables and Measurement

The study involves the following key variables:

1. IoT-Based Goat Farming Learning System (Independent Variable)
   Measured through indicators such as system accessibility, data accuracy, real-time monitoring capability, ease of use, and relevance of farm data to learning objectives.
2. Social Accounting Competencies (Dependent Variable)
   Assessed using competency-based indicators, including:
   - Ability to identify social and environmental impacts
   - Measurement of social and environmental costs and benefits
   - Interpretation of non-financial and sustainability data
   - Preparation of social accounting or sustainability reports
   - Ethical and stakeholder-oriented decision-making

All indicators are measured using a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

Data Collection Techniques

Primary data are collected through structured questionnaires administered after students complete the IoT-based learning sessions. The questionnaire items are adapted from validated instruments in accounting education, sustainability accounting, and technology acceptance literature, with modifications to suit the goat farming context.

In addition, learning activity observations are conducted to document student engagement, data usage patterns, and interaction with the IoT system. These observations serve as supporting evidence to interpret quantitative findings.

Data Analysis Technique

Data analysis is conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM), which is suitable for predictive research, complex models, and relatively small samples. The analysis process includes:

1. Measurement Model Evaluation
   - Convergent validity (outer loadings and Average Variance Extracted)
   - Discriminant validity
   - Reliability testing (Cronbach's Alpha and Composite Reliability)
2. Structural Model Evaluation
   - Path coefficient analysis
   - Coefficient of determination (R^2)
   - Effect size (f^2)
   - Predictive relevance (Q^2)

Supporting qualitative observations are analyzed descriptively to complement and enrich the quantitative results.

Ethical Considerations

This study adheres to ethical research standards in educational research. Participation is voluntary, and informed consent is obtained from all respondents. Student identities are anonymized, and all IoT-generated farm data are used strictly for educational and research purposes. The study ensures that animal monitoring systems comply with animal welfare and institutional guidelines.

Methodological Contribution

Methodologically, this study contributes by operationalizing IoT-generated livestock data as measurable educational inputs for social accounting competency development. It moves beyond traditional survey-based accounting education research by embedding real-time agricultural data into the learning and assessment process, offering a replicable model for interdisciplinary and sustainability-oriented accounting education.

RESULTS AND DISCUSSION

Results

Descriptive Statistics

The descriptive analysis indicates that students positively perceived the implementation of the IoT-based goat farming learning system. The mean scores for system accessibility, real-time data availability, and relevance to learning objectives were above the moderate level, suggesting that learners found the IoT system effective as an educational tool. Similarly, indicators of social accounting competencies—including social impact identification, environmental cost measurement, and sustainability reporting skills—demonstrated relatively high average scores, indicating satisfactory competency development among participants.

These results suggest that exposure to real-time farming data enhances students' understanding of social and environmental accountability in livestock-based agribusiness contexts.

Measurement Model Evaluation

The measurement model assessment confirms that all constructs meet the required validity and reliability criteria. Outer loading values for all indicators exceed the acceptable threshold, indicating strong indicator reliability. The Average Variance Extracted (AVE) values demonstrate adequate convergent validity, while discriminant validity is confirmed through cross-loading and construct correlation analysis. Reliability testing shows that Cronbach's Alpha and Composite Reliability values exceed the recommended levels, indicating internal consistency of the measurement instruments.

These findings confirm that the constructs of the IoT-based learning system and social accounting competencies are empirically sound and suitable for further structural analysis.

Structural Model Analysis

The structural model analysis reveals a positive and statistically significant effect of the IoT-based goat farming learning system on social accounting competencies. The path coefficient indicates that increased engagement with IoT-generated farming data leads to higher levels of competency in identifying, measuring, and reporting social and environmental impacts.

The coefficient of determination (R^2) demonstrates that a substantial proportion of variance in social accounting competencies is explained by the IoT-based learning system. Additionally, the predictive relevance (Q^2) value confirms that the model has strong predictive capability, indicating that the proposed framework effectively explains competency development in an educational context.

Discussion

IoT-Based Learning Systems and Social Accounting Competencies

The findings provide strong empirical support for the argument that IoT-based goat farming learning systems significantly enhance social accounting competencies. This result aligns with experiential learning theory, which emphasizes that learning is more effective when learners engage directly with real-world data and operational processes.

By interacting with real-time data on feed consumption, waste generation, and environmental conditions, students are able to translate abstract social accounting concepts into measurable and observable indicators. This supports prior accounting education literature that highlights the limitations of traditional, theory-driven approaches in developing sustainability-related competencies.

Bridging the Gap between Technology and Social Accounting Education

Consistent with the literature review, this study confirms that IoT technologies, previously examined mainly from productivity and efficiency perspectives, can be repositioned as educational tools for social accounting. Unlike conventional case studies or simulations that rely on hypothetical data, IoT-based systems provide authentic, continuously updated datasets that reflect real social and environmental impacts.

This finding addresses the identified research gap by demonstrating that smart livestock systems are not only operational innovations but also powerful pedagogical platforms. The integration of IoT data into accounting education strengthens students' analytical capabilities and enhances their ability to make ethical and stakeholder-oriented decisions.

Implications for Agribusiness and Vocational Accounting Education

The results highlight the relevance of livestock-based learning environments in advancing sustainability-oriented accounting education. Goat farming, with its direct links to community welfare, environmental management, and animal welfare, offers a contextualized setting for teaching social accounting.

For vocational and applied higher education institutions, the study demonstrates that integrating IoT-based farming systems into curricula can improve learning outcomes without detaching accounting education from practical realities. This approach supports the development of future accountants and agribusiness professionals who are capable of addressing sustainability and social accountability challenges in digitally transformed agricultural sectors.

Theoretical and Practical Contributions

Theoretically, this study extends social accounting and accounting education literature by operationalizing social accounting competencies through real-time IoT-generated data. It advances experiential learning theory by embedding technology-driven agricultural systems into competency-based accounting education.

Practically, the findings suggest that educators and curriculum designers should consider smart farming technologies as strategic learning infrastructures. The proposed model offers a replicable framework for integrating IoT systems into accounting education, particularly in contexts where sustainability and agribusiness are central to economic development.

CONCLUSION

Conclusion

This study investigates the role of IoT-based goat farming learning systems in developing social accounting competencies within vocational and applied accounting education. The findings demonstrate that the integration of real-time livestock data into the learning process significantly enhances students' ability to identify, measure, interpret, and report social and environmental impacts. By transforming smart goat farming systems into experiential learning platforms, the study bridges the gap between abstract social accounting concepts and practical, data-driven applications.

The results confirm that IoT technologies, when embedded within educational frameworks, extend beyond operational efficiency and serve as effective pedagogical tools for sustainability-oriented accounting education. This study therefore contributes to the advancement of social accounting education by providing empirical evidence that technology-enhanced, agriculture-based learning systems can foster competency development in socially responsible accounting practices.

Implications

Theoretical Implications. This study extends social accounting and accounting education literature by operationalizing social accounting competencies through IoT-generated agricultural data. It strengthens experiential learning theory by demonstrating how real-time technological systems can support competency-based education. Furthermore, the study contributes to interdisciplinary research by integrating accounting, education, and smart farming technologies into a unified analytical framework.

Practical Implications. For educators and curriculum designers, the findings suggest that IoT-based livestock systems can be effectively utilized as learning laboratories to enhance student engagement and learning outcomes. Educational institutions, particularly vocational and applied universities, can incorporate smart farming data into accounting courses to strengthen sustainability and social responsibility content. For agribusiness practitioners, the study highlights the potential of IoT systems to support transparent social and environmental accountability practices.

Policy Implications. From a policy perspective, the study supports initiatives that encourage digital transformation and sustainability education in higher education. Policymakers and educational authorities can leverage IoT-enabled learning models to align accounting education with national sustainability, food security, and digital innovation agendas.

Limitations

Despite its contributions, this study has several limitations. First, the research focuses on a specific context, IoT-based goat farming, which may limit the generalizability of the findings to other livestock sectors or agricultural systems. Second, the study relies primarily on self-reported data to measure social accounting competencies, which may be subject to respondent bias. Third, the cross-sectional research design captures learning outcomes at a single point in time, limiting the ability to observe long-term competency development.

Recommendations

Based on the findings, it is recommended that educational institutions integrate IoT-based farming systems into accounting and sustainability curricula to enhance experiential learning. Lecturers should design learning activities that explicitly link IoT-generated data with social accounting indicators, such as environmental costs, animal welfare metrics (Renaldo, Fransisca, et al., 2024), and community impact measures. Institutions are also encouraged to collaborate with agribusiness partners to ensure the availability of real operational data and to support the scalability of IoT-based learning models.

Future Research

Future studies should explore longitudinal research designs to examine the long-term impact of IoT-based learning systems on social accounting competency development. Comparative studies across different livestock sectors or agricultural contexts would further enhance generalizability. Additionally, future research may incorporate experimental or mixed-methods approaches to capture deeper insights into learning processes and behavioral changes (Dara et al., 2025). Expanding the model to include moderating variables such as digital literacy, learning motivation, or institutional support could also enrich understanding of technology-enhanced social accounting education.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the *Kementerian Pendidikan Tinggi, Sains, dan Teknologi* (Kemendiktisaintek) Republik Indonesia and *Direktorat Jenderal Riset dan Pengembangan* for funding support through the *Program Hilirisasi Riset (Hiliriset) Prioritas SINERGI (Skema Hilirisasi Riset Berbasis Transfer Teknologi Terintegrasi)*. This research was supported under Contract Number: 002/K-HRP-S-E/LPPM/IBTPI/IX/2025, date September, 23th 2025. Additional appreciation is extended to the partner goat farm in Riau (CV Cahaya Firdaus, Fathur Farm Brand) for providing full access to facilities, data, and operational collaboration throughout the study. The authors also thank all field assistants, technicians, and farmers who contributed valuable insights and cooperation during the implementation and evaluation of the GEMBALA system.

REFERENCES

Dara, C., Kiri, M., & Renaldo, N. (2025). The Effect of Individual Counseling Services on Reducing Aggressive Behavior Among Elementary School Students Article Info. *International Journal of Educatio Elementaria and Psychologia*, *2*(2), 80–90. https://doi.org/10.70177/ijeep.v2i2.1886

Delyana Rahmawany Pulungan, Susantriana Dewi, Niken Widyastuti, Muthmainnah, & Nicholas Renaldo. (2025). Implementasi Work-Life Balance dalam Meningkatkan Kinerja Karyawan Milenial. *El-Mal: Jurnal Kajian Ekonomi & Bisnis Islam*, *6*(4). https://doi.org/10.47467/elmal.v6i4.7621

Jahrizal, J., Anggraini, Y., Yovita, I., Junaedi, A. T., Renaldo, N., & Tendra, G. (2025). Feasibility, Green Supply Chain Management and Sustainability Analysis of Pineapple Farming Business. *Solidarity for a Green World: Climate Change and Environmental Protection*, (1), 55–62. https://doi.org/https://doi.org/10.30546/19023.978-9952-8545-1-0.2025.0756

Jahrizal, J., Junaedi, A. T., Tendra, G., Putri, N. Y., Renaldo, N., Darmasari, R., Santoso, P. H., Purba, J. O., & Okalesa, O. (2024). Sosialisasi Penerapan Teknologi dalam Bisnis Peternakan Kambing. *JUDIKAT: Jurnal Pengabdian Kepada Masyarakat*, *4*(1), 46–53.

Renaldo, N., Fransisca, L., Junaedi, A. T., Tanjung, A. R., Chandra, T., Suharti, S., Andi, A., Suhardjo, S., Augustine, Y., & Musa, S. (2024). Real-time Value Creation Metrics in Manufacturing Through Blue Innovation and IoT-Based Accounting. *International Conference on Business Management and Accounting*, *3*(1), 108–118. https://doi.org/10.35145/icobima.v3i1.4903

Renaldo, N., Hafni, L., Hocky, A., Suhardjo, & Junaedi, A. T. (2022). The Influence of Digital Technology and Efficiency Strategy on Business Sustainability with Quality Management as Moderating Variables. *2nd International Conference on Business & Social Sciences*, 1464.

Renaldo, N., Junaedi, A. T., Suhardjo, S., Veronica, K., Augustine, Y., Musa, S., & Cecilia, C. (2024). Blue Innovation, Value Creation, and Decision-making on Digital Performance and Sustainability. *Journal of Applied Business and Technology*, *5*(3), 202–219. https://doi.org/https://doi.org/10.35145/jabt.v5i3.189

Renaldo, N., Panjaitan, H. P., Wati, Y., Purwati, A. A., Amin, A. M., Rusilawati, E., Suryani, F., Eddy, P., Mukhsin, M., & Cecilia, C. (2025). Enhancing Research Excellence through Practical Approaches to Producing High-Quality Academic Outputs. *Seroja Journal of Empowerment and Community Service*, *1*(2), 35–42. https://doi.org/10.61230/seroja.v1i2.130

Renaldo, N., Sudarno, S., Hutahuruk, M. B., Suyono, S., & Suhardjo, S. (2021). Internal Control System Analysis on Account Receivables in E-Rn Trading Business. *The Accounting Journal of Binaniaga*, *6*(2), 81–92. https://doi.org/10.33062/ajb.v6i2.455

Renaldo, N., Suhardjo, Suharti, Suyono, & Sevendy, T. (2023). Development of Intermediate Accounting Teaching Materials: Financial Accounting and Accounting Standards. *Reflection: Education and Pedagogical Insights*, *1*(1), 1–12.

Safari Sd, S., Renaldo, N., Junaedi, A. T., Suhardjo, S., Panjaitan, H. P., Hutahuruk, M. B., Yovita, I., Cecilia, C., Wahid, N., & Veronica, K. (2025). Human Resource Analytics Strategy to Optimize Digital Business

Accounting Processes. *Proceeding of International Conferences on Business Management and Accounting (ICOBIMA)*, *3*(2), 205–214. https://doi.org/10.35145/icobima.v3i2.5125

Sudarno, Renaldo, N., Hutahuruk, M. B., Suhardjo, Suyono, Putri, I. Y., & Andi. (2022). Development of Green Trident Measurements to Improve Environmental Performance: Literature Study. *International Journal of Advanced Multidisciplinary Research and Studies*, *2*(1), 53–57.

Suhardjo, S., Wati, Y., Renaldo, N., Musa, S., & Cecilia, C. (2024). Implementation of Digital Accounting on the Effectiveness of Corporate Social Responsibility and Environmental, Social, and Governance Reporting. *Interconnection: An Economic Perspective Horizon*, *2*(1), 41–49. https://doi.org/https://doi.org/10.61230/interconnection.v2i1.90

Susanti, W., Renaldo, N., Chandra, T., Tendra, G., Veronica, K., Ramadhani, R., Ramdani, R., Panjaitan, H. P., Junaedi, A. T., & Purnama, I. (2024). *Development of IoT-Based Accounting System for Automatic Environmental Data Monitoring*. *2*(2), 99–105. https://doi.org/10.61230/interconnection.v2i2.122