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Ummy Kalsum*
PhD (Financial Management),
Master of Management Study Program,
Institute of Economic Science
66 Kendari-Sulawesi, Kendari City, South East Sulawesi, 93111, Indonesia
ummykalsumstie66@gmail.com
ORCID ID: https://orcid.org/0009-0006-6500-0919
* Corresponding Author

Abdul Hakim
PhD (Economics),
Master of Management Study Program,
Institute of Economic Science
66 Kendari-Sulawesi, Kendari City, South East Sulawesi, 93111, Indonesia
hajiabdulhakim12@gmail.com
ORCID ID: https://orcid.org/0009-0000-0984-2229

Astriwati
PhD (Economics),
Management Study Program,
Institute of Economic Science
66 Kendari-Sulawesi, Kendari City, South East Sulawesi, 93111, Indonesia
astriwati23@gmail.com
ORCID ID: https://orcid.org/0009-0009-8948-5545

Muh. Nur
PhD (Economics),
Master of Management Study Program,
Institute of Economic Science
66 Kendari-Sulawesi, Kendari City, South East Sulawesi, 93111, Indonesia
muh.nur363@gmail.com
ORCID ID: https://orcid.org/0000-0002-6742-1331

Development of institutional financial literacy model for village-owned enterprises using the financial technology-based ADDIE method in encouraging the performance and profitability of coffee plantation products in Indonesia

Abstract. This study shows that the combination of financial literacy and financial technology is very relevant to improve institutional performance, especially in the village plantation sector such as in Rongi Village, South Buton Regency of Indonesia. In this regard we consider the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) method to be the right choice because it is structured, adaptive, and systematic in designing training programs, and provides continuous evaluation at each stage (ADDIE allows iteration and validation). FinTech integration can be conceptualized as the output of the Development and Implementation stages. The current research aims to adopt and expand the literature-based model, with a focus on Village-Owned Enterprises (BUMDes) as an institutional unit for managing coffee products in Rongi. By building institutional literacy and a simple FinTech system, it is hoped that increased transparency, operational efficiency, and profitability that can be measured empirically will be achieved.
Keywords: Institutional Financial Literacy; Village-Owned Enterprises; BUMDes; Financial Technology; FinTech

JEL Classifications: E24; E41; E64; I18; J28; J31
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1. Introduction and Brief Literature Review

Financial literacy is one of the basic literacies that must be possessed by the 21st century society. Basic literacy is needed to achieve and have a quality life, both now and in the future. Financial literacy is important because it is closely related to the goals of sustainable development. Learning financial literacy can make us as a society better at making spending, saving, and investment decisions (Osmanagic et al., 2019; Arif et al., 2025). Financial literacy is the knowledge and skills to apply an understanding of concepts and risks as well as skills to make efficient decisions about finance, both for individuals and communities, and to be able to participate in society (Dewi et al., 2024). The Organization for Economic Co-operation and Development (OECD) defines financial literacy, financial attitudes, and behaviors as three interrelated things in financial literacy. This issue of financial literacy is strengthened by research on financial literacy conducted globally (Iazzolino et al., 2019). The OECD examined cross-country levels of financial literacy in 30 countries using financial knowledge, financial attitudes, and financial behavior as a combined measure of financial literacy. Low level of financial literacy. According to the National Financial Literacy Survey conducted by the OJK, the condition of financial literacy in Indonesia is only around 38.3% (Gal et al., 2020; Halal Syah Aji, Rizqon & Hartana, 2021). This means that out of every 100 residents, only about 38 people are in the category of good literacy. Previous studies have revealed that having financial literacy can result in significant consequences on a person's financial behavior. People with low financial literacy are more likely to experience debt problems (Lusardi & Mitchell, 2014). The impact of financial literacy drives better financial inclusion, the benefits of which extend to the real economy (Goyal & Kumar, 2021; Grohmann et al., 2018).

Research on micro businesses shows that increasing financial literacy directly boosts the operational efficiency and profitability performance of BUMDes. Research by Kurniasari et al. (2024) found that FinTech adoption is a mediator in the relationship between financial literacy and the business performance of women MSMEs in Indonesia. With the advent of FinTech, recent studies show that the integration of financial technology is accelerating financial inclusion and record-keeping efficiency. Gomber et al. (2018) report that the use of FinTech simplifies the recording process and strengthens transparency in micro-enterprises. Morgan & Trinh (2019) found that in ASEAN, FinTech adoption significantly increased access to financial services. Meanwhile, Guo & Peng (2024) identified that the perception of usefulness, ease of use, and digital literacy are main predictors of FinTech adoption in rural communities.

A meta-analysis by Frees et al. (2024) proves that financial literacy training has a positive impact on the overall financial health of the community. Research by Aristei & Gallo (2025) adds that digital literacy also strengthens the use of modern financial solutions even though non-users still play an important role. Baveja & Verma (2024) show that financial literacy is a major predictor of capital market engagement among retail investors. Especially in Indonesia, a study by Thomas et al. (2024) on financial literacy and capital market participation shows that financial literacy and FinTech encourage financial inclusion among students, although the gap between demographics is still quite high. Abate et al. (2023) also concluded that digital finance improves access to capital and reporting of micro and small enterprises, including in rural Asia. Meanwhile, Gomber et al. (2018) reported that social capital and digital literacy strengthen the financial decision-making of BUMDes in the local plantation sector.

Increasing the institutional capacity of Village-Owned Enterprises (BUMDes) is a strategic step in realizing village economic independence, especially in areas with agribusiness potential such as Rongi Village, South Buton Regency of Indonesia. As managers of coffee plantation products, BUMDes need a good financial literacy system to increase transparency, accountability, and profitability. However, field data shows a low understanding of institutional finance and a lack of financial technology use at the village level. In designing capacity building interventions, the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model is very suitable. ADDIE has been shown to be effective in various studies of local needs-based training development (Branch, 2009). This model allows adaptation to field conditions and evaluation-based reinforcement. In the context of institutional capacity building, the ADDIE method was chosen as a systematic and participatory instructional design approach. Therefore, this study aims to design an ADDIE-based institutional financial literacy model and FinTech to support BUMDes in Rongi in increasing the profitability of coffee plantation businesses and overall institutional performance.

2. Method

This research uses a mixed method approach with the ADDIE model development design consisting of five stages: Analysis, Design, Development, Implementation, and Evaluation. Data Collection Techniques are as follows:

1. In-Depth Interview: Involving 10 resource persons (3 BUMDes managers, 4 coffee farmers, and 3 village officials). The findings show low understanding of financial statements and reluctance to use the application.
2. Field Observation: Conducted for 4 weeks, including recording of bookkeeping practices and manual transactions that are not well documented.
3. Document Study: Reviewing the financial statements of BUMDes for 2022-2023. It was found that the income and balance sheet statements were not compiled systematically, with manual cash recording.
4. Focus Group Discussion (FGD): Attended by 15 participants (managers, farmers, village officials), aimed at the initial validation of training modules and prototypes of Android-based digital recording applications.

2.1. ADDIE Procedure:

1. Analysis: Analysis of needs through interviews, literature studies, and observations. Significant gaps were found in basic financial capabilities and technology adoption.
2. Design: Designed FinTech-based training modules and practical curriculum (cash report modules, digital simulations).
3. Development: Simple LMS development and Android-based note-taking app.
4. Implementation: Module trials to BUMDes administrators and direct training through a 3-day workshop.
5. Evaluation: Evaluation was conducted using pre-posttests, FGDs, and participant narrative reflection.

3. Result

3.1. Results of Qualitative Analysis

1. Lack of understanding of financial statements (cash flow, balance sheet).
2. Resistance to technology, despite post-training interest.
3. The support of local actors greatly influences success of implementation.
4. High demand for practice- and application-based training.

Qualitative analysis was carried out using a thematic approach. This process includes five main stages:

1. Open Coding: Interview transcript data, observations, and FGDs were entered into NVivo and labeled according to key keywords, such as «financial record-keeping», «difficulty accessing technology», and «digital literacy».
2. Axial Coding: The initial codes were grouped into thematic categories, such as conventional financial practices, fintech training needs, and reliance on village apparatus.
3. Thematic Development: From the results of the grouping, five main themes were obtained:
   a) Low understanding of digital financial record-keeping.
   b) Lack of app-based financial training.
   c) The non-involvement of younger generation in management of BUMDes.
   d) Limited fintech infrastructure.
   e) Difficulty in systematically evaluating financial performance.
   f) Interpretation and Narrative: Each theme is analyzed in depth to understand the root causes and opportunities for intervention through the ADDIE approach.
4. Validation of Thematic Outcomes: Validation was carried out through triangulation of sources (document data, interviews, and observations), as well as peer-checking with village economic experts.

3.2. Quantitative Analysis Results

As presented in Table 1, an increase in FinTech adoption score of 1 point contributed to an increase in profitability by 0.48 points. These results were significant at α = 0.01 and the model passed the normality, linearity, and multicollinearity tests.

Table 1:
Simple Linear Regression

Variable X	FinTech Adoption
Variable Y	Profitability of BUMDes
R^2	0.42
Regression coefficient (B)	0.48, $p < 0.01$

Source: Authors' own findings

3.3. Linear Regression Results

Regression Assumptions Tested:

1. Residual Normality: The Kolmogorov-Smirnov test showed $p > 0.05$, which means that the residual is normally distributed.
2. Linearity: Scatterplots show a random residual distribution pattern around the zero line.
3. Multicollinearity: VIF < 5 and Tolerance > 0.2 indicate no multicollinearity.
4. Homoskedasticity: The Glejser test showed $p > 0.05$, indicating a constant residual variance.

3.4. Simple Linear Regression Results

Model: The Influence of ADDIE's Financial Literacy Model on Increasing the Profitability of BUMDes ($Y = a + bX$) is presented in Table 2.

Table 2:
Linear Regression Model

Variable	Coefficient	T-Statistics	Sig.	R^2
Intercept	2.215	3.87	0.001	
ADDIE Model	0.534	5.32	0.000	0.668

Source: Authors' own findings

The regression coefficient shows that every single unit increase in the implementation of the ADDIE model will increase profitability by 0.534 units (in the financial performance index). The R^2 value of 66.8% indicates that the ADDIE model is able to explain the variation in profitability significantly. The fintech-based ADDIE model has been statistically proven to have a positive and significant impact on the profitability of BUMDes in the management of coffee plantation products.

3.5. ADDIE Procedure Flowchart

Procedure flowcharts are essential in ADDIE (Analyze, Design, Develop, Implement, and Evaluate) model-based research because:

a. Provide systematic visualization: Simplify the research stages in a structured manner.
b. Facilitate cross-team communication: Both researchers, policy makers, and trainees can understand the flow of activities.
c. Avoid redundancy & step mistakes: Ensure no stages are skipped or stacked.
d. Helps with evaluation: Flowcharts make it easy to track the progress and effectiveness of each stage of ADDIE implementation.

In Figure 1, is shown a flowchart of the procedure in this study.

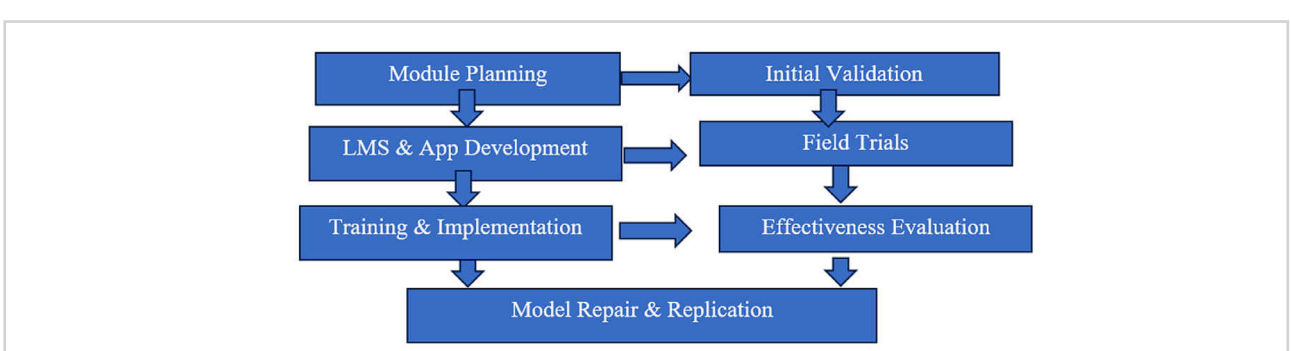

Figure 1:
Flowchart of the research procedure
Source: Authors' own compilation

Each stage is supported by data collection techniques: interviews, FGDs, observations, and documents. Qualitative and quantitative analyses were carried out for validation and impact measurement.

4. Conclusion

Based on the results of the research, it can be concluded that the application of the FinTech-based ADDIE model has proven to be effective in improving the understanding and practice of institutional financial literacy of BUMDes. The integration of technology into the village financial management process also makes a significant contribution to increasing organizational profitability. In addition, the results of social validation show a high level of acceptance from stakeholders for the training and use of the digital applications developed. Practically, these findings imply that local governments and universities can establish strategic cooperation in developing similar training programs to strengthen village financial management capacity. It is also suggested that there be a special budget allocation to support the strengthening of financial digitalization at the village level. Furthermore, this model has the potential to be replicated in other village agribusiness sectors, so that it can expand its positive impact on the local economy.

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