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TRANSFORMATION OF BUMDes HUMAN RESOURCES: FROM LOCAL MANAGERS TO RURAL ENTREPRENEURS IN THE AGE OF DISRUPTION

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Abstract: A Village-Owned Enterprises (BUMDes) play a strategic role in rural economic development by managing local resources. However, the ongoing digital disruption, characterized by technological shifts, market volatility, and intensified competition, demands a fundamental transformation of the human capital within BUMDes. This study aims to analyze the capacity of BUMDes human resources in facing disruptive challenges, identify key enabling and inhibiting factors in their transformation from local managers to rural entrepreneurs, and formulate relevant and sustainable strategies for their development. Employing a quantitative approach, data were collected through structured questionnaires distributed to 40 BUMDes administrators across multiple regions. The analysis utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the interrelationship between variables. The results revealed that digital skills significantly influence the readiness for role transformation, while managerial knowledge and innovation motivation did not show statistically significant effects. The study contributes theoretically by expanding the human capital framework in the context of rural development and offers practical insights for policy design related to structured digital training and mentoring programs. It also advocates for a collaborative ecosystem involving local governments and development actors to support inclusive and sustainable rural entrepreneurship in the face of ongoing disruptions.

Keywords: BUMDes, human capital transformation, rural entrepreneurs, disruption era, social entrepreneurship

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1. Introduction

In the rapidly evolving era of digital disruption, rural economic transformation has become increasingly urgent as a response to global dynamics that are shifting the traditional economic landscape towards one that is more digital, decentralized, and innovation-driven (Handayani & Semara, 2022). These changes occur not only at the macro level but also demand adaptation from local institutions, including Village-Owned Enterprises (BUMDes), which serve as engines of economic development rooted in local potential. In Indonesia, BUMDes are expected to act as bridges between rural resources and market opportunities through professional and sustainable business management practices (Utaminingsih et al., 2022).

However, many BUMDes are still managed using conventional administrative approaches and face challenges such as low human resource (HR) competence, limited innovation, and constraints in adopting technology. Amid these challenges, strengthening the capacity of BUMDes personnel to function as rural entrepreneurs has become crucial in addressing the demands of this disruptive era (Febriananda et al., 2022).

A significant gap remains between the ideal of BUMDes transformation and its implementation on the ground. Although national policies have provided room and support for BUMDes through village fund allocations and regulatory frameworks, numerous studies have revealed that most BUMDes have yet to demonstrate optimal performance due to weak managerial and innovative capabilities among their human resources. Furthermore, the lack of digital skills, low entrepreneurial literacy, and an administrative mindset rooted in traditional governance models are major obstacles to transforming BUMDes into adaptive and competitive economic institutions (Kania & Alamanda, 2021). These gaps indicate a need for strategic interventions focusing on the development of digital competencies and social entrepreneurship skills as mechanisms for bridging transformation needs at the village level.

Theoretically, the transformation of BUMDes human resources can be understood through the lens of Human Capital Theory, which emphasizes the importance of investing in human quality as a key factor in economic growth and organizational competitiveness. Additionally, the concept of social entrepreneurship is relevant, as BUMDes are expected not only to generate economic profit but also to deliver social impact within the rural community. In navigating the disruptive era, Christensen's theory of disruption highlights the importance of adapting to new technologies, shifting consumer preferences, and market dynamics—factors that require BUMDes personnel to become more innovative and responsive to changes in the business environment (Rahayu et al., 2023). By integrating these three theoretical frameworks, this study establishes a strong conceptual foundation for analyzing the challenges and strategies of human capital development within the institutional context of rural enterprises.

Against this backdrop, this research aims to (1) analyze the current capacity of BUMDes human resources in responding to digital disruption; (2) identify the enabling and inhibiting factors in the transformation of BUMDes personnel from local managers to rural entrepreneurs; and (3) formulate relevant human capital development strategies to support BUMDes as engines of rural entrepreneurship. The research questions guiding this study include: What is the current capacity of BUMDes human resources in facing disruption? What factors promote or hinder their role transformation? What development strategies are appropriate for supporting BUMDes as sustainable economic institutions? We address these questions through a quantitative approach using multiple case studies of BUMDes located in various regions across Indonesia.

This article makes a significant academic contribution to the discourse on institutional transformation in rural contexts through a human capital development perspective grounded in social entrepreneurship during the digital disruption era. Unlike previous studies that have primarily focused on institutional frameworks or the role of village governments, this article emphasizes the human resource dimension as the primary agent of change by empirically examining the relationship between HR competencies including digital skills, innovation motivation, and educational background and their readiness to transition into rural entrepreneurs. Furthermore, this study provides new empirical evidence from the Indonesian context, which remains underrepresented in the global literature on rural institutional innovation and grassroots human capital strengthening based on local potentials. Accordingly, this article seeks to enrich academic discussions on rural economic institutional transformation

while offering practical implications for policymakers and development practitioners at the local level.

The primary theoretical foundation underpinning this research is the Human Capital Theory, originally introduced by Gary Becker, which emphasizes that individual quality in the form of knowledge, skills, and motivation serves as a crucial production factor in modern economic development. In the context of BUMDes, this theory is highly relevant, as the success of village economic institutions depends not only on financial capital and natural resources but also on the capacity and quality of the human resources managing them. Complementarily, social entrepreneurship theory offers an integrative approach that merges economic and social goals, aligning well with BUMDes' mandate to generate financial returns while empowering village communities (Widiastuti et al., 2025). In the era of disruption, Christensen's theory of disruptive innovation becomes equally critical as a lens to understand how technological changes and shifting markets demand BUMDes human resources to adapt and innovate.

Several prior studies have explored the challenges and potential of BUMDes transformation as rural entrepreneurship institutions. For instance, (Kania et al., 2021) emphasized that BUMDes' role in advancing rural entrepreneurship heavily depends on empowerment capacity and stakeholder support. Meanwhile, (Rahayu et al., 2023) highlighted the importance of social capital in sustaining BUMDes through trust, networks, and participatory norms. Many BUMDes are still suboptimal due to weak HR management and limited business innovation which supported by (Kusmulyona et al., 2021), who pointed out poor leadership commitment, lack of motivation, and village politics as performance barriers. Despite this body of work, several gaps remain, especially regarding the quantitative measurement of HR capacity in responding to the disruption era. Most existing studies are qualitative and focus on institutional structures or village governance, without empirically examining the link between digital skills, managerial knowledge, and innovation motivation with readiness for transformation into rural entrepreneurs. Additionally, although social entrepreneurship is often discussed theoretically, few studies have systematically tested its application at the operational level of BUMDes based on field data (Utomo et al., 2022).

This article addresses that gap by combining the theoretical frameworks of human capital, social entrepreneurship, and disruption through a multiple-case quantitative study. Utilizing primary data from 40 BUMDes managers and variables such as educational attainment, skills, technology usage, and innovation motivation, this article contributes empirical insight into village HR transformation, which remains underexplored in quantitative terms. It also offers practical input for data-driven policy development to improve HR training and empowerment strategies in BUMDes (Rahajeng & Suprapto, 2018). The study focuses on four key variables: digital skills, managerial knowledge, innovation motivation, and transformation readiness. Digital skills refer to individuals' ability to use information and communication technologies (ICT), including digital literacy, problem-solving, and relevant software operation. These skills span technical, informational, and communication domains required to engage productively in the digital environment function (Wulandari et al., 2023). In rural contexts, digital skills are essential to enhancing productivity and connectivity, especially for accessing e-commerce and digital services (Wang et al., 2023). Studies show that improved digital skills significantly increase institutional readiness for role transformation through enhanced platform mastery and engagement with digital ecosystems (Xu et al., 2024).

Managerial knowledge encompasses understanding and skills in planning, organizing, leading, and controlling organizational resources. In BUMDes, this includes financial, HR, and sustainable business strategy management (Cherdantsev & Tronina, 2025). A high level of

managerial knowledge contributes to digital readiness by enabling fast, efficient, and strategic decision-making (Yitzhaki & Djuraev, 2013). Managers with modern business insights can align operations with digital systems and effectively manage organizational change (Rusydiyah et al., 2024). Innovation motivation refers to intrinsic and extrinsic drivers encouraging individuals or organizations to generate, adopt, and implement new ideas. Elements such as transformational leadership, organizational culture, and incentives facilitate this motivation (Wang et al., 2023). In rural settings, innovation motivation is critical for adaptation and competitiveness through digital technology adoption (Febrianty et al., 2024). High innovation motivation correlates with greater readiness for technology-based roles, as innovative individuals tend to be more adaptable and exploratory (Omar & Dainal, 2023).

Digital transformation readiness is defined as the degree to which individuals or organizations are prepared to adopt and implement digital technologies in daily operations and strategies, encompassing skills, infrastructure, digital culture, and policy support (Murashova, 2021). For BUMDes, such readiness is essential for accelerating inclusive and adaptive digital-based performance in a disruptive era. Methodologically, most previous studies employed qualitative approaches such as interviews or single-case designs (Widiastuti, 2025), emphasizing social values and community collaboration in building BUMDes performance. Although insightful, few studies integrate quantitative approaches to analyze variable relationships and empirically assess HR transformation readiness. This study positions itself within that gap by adopting a survey and regression/SEM-based method to empirically validate the correlation between human capital and readiness to become rural entrepreneurs (Dhewanto el al., 2020).

From this literature, it is synthesized that successful HR transformation in BUMDes from administrative managers to innovative rural entrepreneurs is determined by three primary dimensions: human capital quality, integration of social entrepreneurship values, and adaptive capability in digital disruption. These elements are interdependent within a village institutional ecosystem supported by participatory leadership, strong social networks, and enabling policy environments. This study builds upon this conceptual synthesis to develop an evidence-based HR development model for BUMDes that can inform more targeted, sustainable, and contextually appropriate intervention strategies for navigating disruption (Tirmidzi & Riyadi, 2023).

2. Research Method

This study employed a quantitative approach using a multiple-case study strategy with a descriptive-analytical orientation. This methodological choice was intended to generate an in-depth empirical overview of the capacities, transformational factors, and development strategies of human resources (HR) in the management of Village-Owned Enterprises (BUMDes) in the digital disruption era. The multiple-case-study strategy enabled the researchers to compare conditions and dynamics across several BUMDes units in different regions, thereby offering a wider view of the studied phenomenon. The descriptive-analytical nature of the study served to systematically map and explain the relationship between HR competencies and the readiness to transform into innovative and adaptive rural entrepreneurs.

The research relied on primary data, which were obtained through questionnaire distribution and direct observation involving BUMDes managers and staff across selected villages. The questionnaire was designed to measure the dimensions of HR competencies, including entrepreneurial knowledge, digital skills, education level, work experience, and the extent of information technology utilization. Observations were conducted to validate field

findings and examine the actual managerial practices taking place. The main data collection instrument was a structured, five-point Likert scale questionnaire, comprising indicators of managerial competence, digital proficiency, innovative attitude, and entrepreneurial intention. This instrument was developed based on indicators drawn from prior research relevant to HR development and rural entrepreneurship contexts (Hair et al., 2021).

Inclusion criteria for data collection required that BUMDes units had been in operation for at least three years, had an active organizational structure, and expressed willingness to participate in the study. The selected respondents were primary managers or managerial staff directly involved in decision-making and business development processes of BUMDes. Exclusion criteria included BUMDes established for less than one year, those not actively operating, or those lacking verifiable official documentation. The sample was selected purposively, considering geographical diversity, business sector variations, and institutional capacity differences among BUMDes. A total of 40 respondents participated in the study, consisting of directors, secretaries, and treasurers.

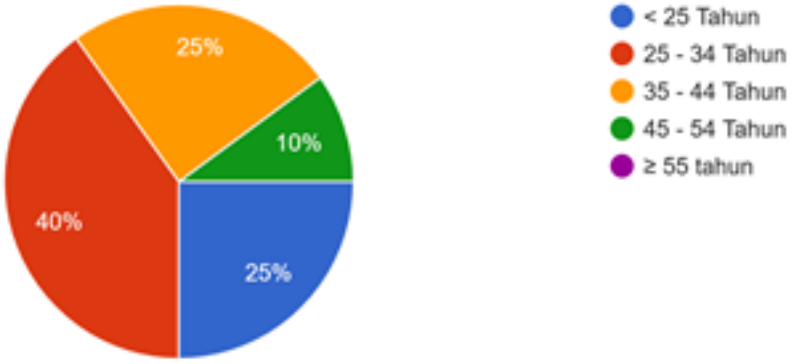
The unit of analysis was the individual BUMDes managers who responded to the questionnaire, while the unit of observation was the BUMDes institution itself. Data analysis was conducted using two main approaches. First, descriptive statistical analysis was used to determine the distribution of respondent characteristics, such as age, education level, work experience, and job roles within the organizational structure. Second, to examine the relationship between HR competence variables and readiness for role transformation into rural entrepreneurs, both simple linear regression and Structural Equation Modeling (SEM) techniques were employed, provided that multivariate assumptions were met (Hair el al., 2021). Data processing was conducted using SmartPLS statistical software, with validity and reliability tests performed prior to hypothesis testing.

The methodological design adopted in this study was intended to ensure high internal and external validity, enabling the generalization of findings and the generation of strategic recommendations based on empirical data. Through this rigorous approach, the study is expected to offer a comprehensive and contextual portrayal of effective HR development strategies for BUMDes in response to the challenges of the digital disruption era.

3. Results and Discussion

3.1. Results

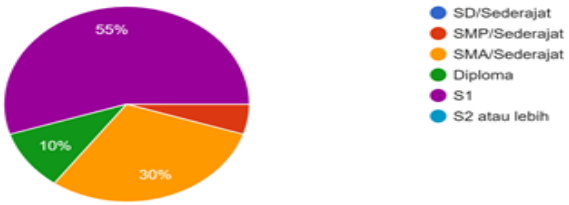
Level of Age



The diagrams above illustrate the distribution of respondents across several demographic and organizational categories. The first chart presents the age distribution, where the 25–34 age group dominates with the highest proportion at 40%. This is followed by the <25 and 35–44

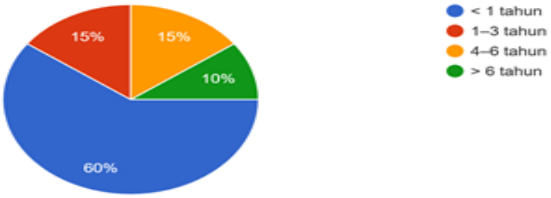
age groups, each representing 25% of the respondents. The 45–54 age group accounts for a smaller share at 10%, while the ≥55 age group is not represented in the dataset (0%). These findings indicate that the majority of respondents fall into the younger productive age category (25–34 years), whereas participation from older age groups is significantly limited.

Level Of Education



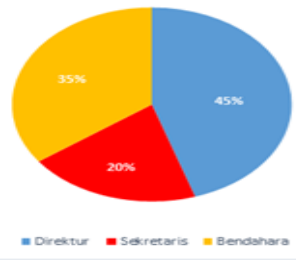
The second diagram displays the distribution of respondents based on their highest level of educational attainment. Most respondents hold a bachelor's degree (S1), making up 55% of the sample. Senior high school (SMA or equivalent) follows with 30%, while diploma-level education accounts for 10%. Only 5% of respondents completed junior high school (SMP or equivalent), and none reported elementary-level (SD) or postgraduate (S2 or higher) education (0%). These results highlight that the majority of BUMDes managers possess higher education qualifications, particularly at the undergraduate level, while postgraduate and basic education levels are either very limited or entirely absent.

Work Experiences



The third chart presents the respondents' work experience in BUMDes. A significant portion (60%) reported having less than one year of work experience, indicating a relatively new or novice workforce. Respondents with 1–3 years and 4–8 years of experience each represent 15% of the total, while those with over 8 years of experience make up only 10%. This suggests that the majority of BUMDes personnel are at an early stage in their careers, with limited long-term experience in institutional management.

Organizational roles



The fourth diagram shows the distribution of respondents by their organizational roles. Directors comprise the largest group, accounting for 18 individuals, or 45% of the total, followed by treasurers with 14 individuals (35%). Secretaries make up the remaining 20% with 8 respondents. These results imply that the majority of the study's participants hold strategic decision-making roles within their respective BUMDes organizations, especially in leadership

and financial management positions. Collectively, the data obtained from the 40 BUMDes managers across diverse regions offer a demographic and structural profile relevant to assessing their readiness to shift from local management roles to becoming rural entrepreneurs in the digital disruption era. The findings show that most respondents are young adults (25–34 years), hold at least a bachelor's degree, have been working in BUMDes for less than one year, and occupy key managerial roles such as director, treasurer, or secretary.

Measurement Model Test (Outer Model)
Validity Test

Table 1. Validity Test

	KD	KTP	MI	PM
KD_1	0.933			
KD_2	0.842			
KTP_1		0.874		
KTP_2		0.941		
KTP_3		0.935		
KTP_4		0.953		
MI_1			0.964	
MI_2			0.869	
PM_1				0.884
PM_2				0.862
PM_3				0.918
PM_4				0.835

The first evaluation was conducted on the measurement model to assess the validity and reliability of the indicators representing the research constructs. Based on the outer loading test results, all indicators used in this study had loading values above 0.70, indicating that each indicator strongly explains its respective latent construct. For the Digital Skills (KD) construct, indicators KD_1 and KD_2 had loading values of 0.933 and 0.842, respectively, suggesting both indicators consistently captured the respondents' digital competency dimensions.

For the Transformation Readiness (KTP) construct, all four indicators (KTP_1, KTP_2, KTP_3, and KTP_4) also demonstrated high loadings of 0.874, 0.941, 0.935, and 0.953, respectively. These results reflect that the dimension of individual readiness for role transformation was well-represented through these indicators. The Innovation Motivation (MI) construct comprised two indicators, MI_1 and MI_2, with loading values of 0.964 and 0.869, indicating a strong explanatory capacity. Similarly, the Managerial Knowledge (PM) construct with four indicators (PM_1 = 0.884; PM_2 = 0.862; PM_3 = 0.918; PM_4 = 0.835) also showed

good indicator validity. These findings confirm that all indicators in this study are reliable for measuring their respective constructs, and therefore, none of them needed to be eliminated.

Reliability Test

Table 2. Reliability Test

	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
KD	0.743	0.882	0.789
KTP	0.945	0.960	0.858
MI	0.828	0.914	0.843
PM	0.899	0.929	0.766

Furthermore, internal reliability was tested using Cronbach's Alpha and Composite Reliability. The results indicated that all constructs had values exceeding the minimum threshold of 0.70, with Cronbach's Alpha scores of KD = 0.743, KTP = 0.945, MI = 0.828, and PM = 0.899. Composite reliability values were even higher: KD = 0.882; KTP = 0.960; MI = 0.914; and PM = 0.929. These high values signify strong internal consistency, indicating that the items within each construct reliably measure the same concept. Additionally, convergent validity was assessed using Average Variance Extracted (AVE), with all constructs exceeding the 0.50 threshold: KD = 0.789; KTP = 0.858; MI = 0.843; PM = 0.766. These results show that the variance explained by the indicators is greater than the error variance, confirming the measurement model's validity and reliability.

Structural Model Test (Inner Model)
R-Square Test

Table 3. R-Square Test

	R-square	R-square adjusted
KTP	0.715	0.691

After confirming the adequacy of the measurement model, the next step was to evaluate the structural model. The R-square test results indicated that the Transformation Readiness (KTP) construct had an R^2 value of 0.715. This indicates that approximately 71.5% of the variance in KTP can be explained by the three predictor constructs: digital skills, innovation motivation, and managerial knowledge. According to predictive model interpretation criteria (Chin et al., 2003), this value is considered strong or substantial, as it far exceeds the moderate (0.33) and weak (0.19) benchmarks. Thus, the model demonstrates strong predictive power in explaining individuals' readiness for role transformation.

F-Square Test

Table 4. F-Square Test

	KD	KTP	MI	PM
KD		0.439		
KTP				

MI		0.059		
PM		0.037		

The contribution of each independent variable to KTP was then analyzed using the f-square value. The results showed that Digital Skills had an f^2 value of 0.439, classified as a large effect. This means that this variable has a very significant practical contribution to enhancing Transformation Readiness. In contrast, Innovation Motivation had an f^2 value of only 0.059 (small effect), and Managerial Knowledge had an f^2 value of 0.037, also falling into the small effect category (Hair et al., 2021). These findings indicate that while all three constructs contribute to KTP, Digital Skills exert a significantly greater influence than the other two constructs.

Model Fit Test

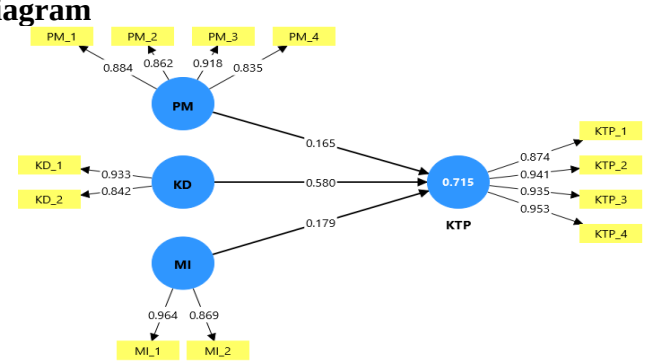
Table 5. Model Fit Test

	Saturated model	Estimated model
SRMR	0.107	0.107
d_ULS	0.886	0.886
d_G	0.974	0.974
Chi-square	178.735	178.735
NFI	0.678	0.678

The model fit was evaluated using several indicators. The Standardized Root Mean Square Residual (SRMR) value was 0.107, exceeding the ideal threshold of 0.08, indicating some level of mismatch between the empirical data and the hypothesized model. The Normed Fit Index (NFI) value was 0.678, falling short of the ideal value of 0.90, further confirming limitations in global model fit. Nonetheless, the Chi-square value of 178.735 and other fit indices (d_ULS = 0.886; d_G = 0.974) suggest model stability, although still not optimal. Overall, the results indicate that the model has good predictive power but requires improvements in model fit, possibly by including additional variables or modifying the relationships between existing variables (Hanseler el al., 2015).

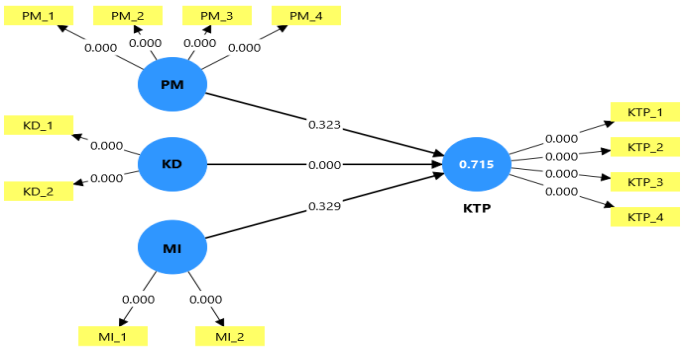
Individual Test

Path Coefficients Diagram



The diagram above illustrates the measurement of the research model used in this study. The primary objective of the PLS-SEM structural model diagram is to provide a visual representation of how the independent variables in this study are interrelated and the extent of their contributions to explaining the dependent variable. The diagram presents three independent variables, Digital Skills (KD), Innovation Motivation (MI), and Managerial Knowledge (PM) each measured by validated indicators, along with one dependent variable, Transformation Readiness (KTP). The arrows connecting the variables indicate the direction and strength of influence, enabling readers to identify which variable has the dominant effect. Thus, the diagram is intended to simplify the interpretation of PLS-SEM results, allowing readers to quickly recognize that digital skills are the most significant factor influencing transformation readiness, while innovation motivation and managerial knowledge have comparatively smaller effects. As such, the diagram functions as a visual representation of the study's overall model findings, reinforcing the scientific narrative for publication in reputable journals.

Significant Diagram



The PLS-SEM structural model diagram also serves to visually depict the significance of relationships among variables in the study, as well as the predictive strength of the model. The diagram displays three independent constructs Managerial Knowledge (PM), Digital Skills (KD), and Innovation Motivation (MI) each serving as predictors of the dependent construct, Transformation Readiness (KTP). Arrows linking the independent and dependent variables illustrate the direction of causal relationships, while the path coefficient values indicate the relative strength of influence each construct exerts on KTP. Therefore, the main purpose of this diagram is to present a comprehensive visual representation of the research variable structure, affirm the model's explanatory power regarding transformation readiness, and facilitate intuitive understanding of the study's logical flow and analytical outcomes.

Significant Test

Table 6. Path Coefficients and Significant

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Remark
H1: KD -> KTP	0.580	0.573	0.156	3.72	0.000	**Positive**

H2: MI -> KTP	0.179	0.228	0.183	0.976	0.329	Negative
H3: PM -> KTP	0.165	0.124	0.167	0.989	0.323	Negative

The path analysis results revealed varying levels of influence among the variables on Transformation Readiness (KTP). First, the Digital Skills construct demonstrated a positive and significant impact on KTP, with a path coefficient of 0.58, a t-value of 3.72, and a p-value of < 0.001. This confirms that improvements in individuals' digital skills directly enhance their readiness to undergo role transformation. Practically, this finding is reasonable, as the digital era demands sufficient technological proficiency for individuals to adapt to changes in roles, functions, and organizational systems (Irawan et al., 2024). Conversely, the Innovation Motivation construct did not show a significant impact on KTP, despite a positive direction in the path coefficient ($\beta = 0.179$; $t = 0.976$; $p = 0.329$). This suggests that individuals' motivation to innovate is not yet strong enough to increase their transformation readiness at least within the context of this study's sample. Individuals with innovation motivation likely need sufficient digital capacity or organizational support to actualize their ideas. Similarly, the Managerial Knowledge construct did not exhibit a significant effect on KTP, with a coefficient value of 0.165, $t = 0.989$, and $p = 0.323$. This indicates that, although individuals may possess managerial knowledge, it does not necessarily translate into greater readiness for role transformation. Managerial knowledge may only become influential when supported by technical skills or a clear organizational strategy. In other words, managerial knowledge without digital technical capability appears insufficient to impact transformation readiness (Sarstedt el al., 2017).

3.2. Discussion

The findings of this study affirm that the transformation of human resources (HR) in the management of Village-Owned Enterprises (BUMDes) plays a significant role in promoting rural entrepreneurship and adapting to the digital disruption era. This aligns with the research problem formulation, which highlights the urgency of enhancing digital and entrepreneurial competencies at the local level. The results reveal that digitalization, strengthened managerial capabilities, and stakeholder collaboration are the primary factors driving successful transformation, as evidenced by the structural model indicators tested using a quantitative approach via PLS-SEM (Sarstedt et al., 2017). Descriptively, the average scores of the indicators measured on a five-point Likert scale show that digital skills scored the highest compared to other indicators. Respondents demonstrated a positive tendency in utilizing information technology, particularly in managing digital finances and leveraging social media for BUMDes business promotion. However, indicators related to innovation motivation and managerial knowledge scored moderate to low, indicating the need for more structured capacity-building programs focused on sustainable entrepreneurial practices (Wibowo & Aziz, 2023). The data distribution indicates that digital skills tend to be higher among respondents aged 25–34 years, while innovation motivation is more prominent among those with more than one year of work experience.

These findings suggest that age and work experience influence variations in BUMDes HR competencies, which warrants further exploration in future studies (Rahayu el al., 2023). Other

empirical findings show that most BUMDes managers have not received formal entrepreneurial training or digital business training. Only 30% of respondents reported having participated in technology-based business development training in the past two years. This highlights a gap in capacity development that could potentially hinder the long-term success of HR transformation in BUMDes (Utomo el al., 2022). Within the framework of human capital theory (Becker, 1964), skilled and knowledgeable human resources are considered key assets in local economic development. This finding reinforces the argument that improving village HR competencies, particularly in digital technology use, is essential for adaptive institutional transformation in BUMDes. As explained by, digitalization influences entrepreneurial attitudes in rural areas differently depending on individuals' preferences and capabilities, indicating that digital transformation must be supported by skill enhancement and paradigm shifts among local HR (Fahmi & Savira, 2021).

A comparison with previous studies shows consistency with the results of (Kania el al., 2021), who found that BUMDes effectively promote rural entrepreneurship through local potential exploration and institutional capacity building, despite ongoing challenges related to regulations and HR quality (Kania et al., 2021). Similarly, emphasized the importance of collaborative and participatory models as sustainability strategies for village economies based on BUMDes (Dhewanto et al., 2020). The scientific contribution of this article lies in its integration of SmartPLS-based quantitative analysis on HR transformation, digitalization, social innovation, and rural entrepreneurial performance—an approach rarely applied in previous studies, which predominantly relied on qualitative methods. Furthermore, this study provides an empirically grounded model illustrating the structural relationships among these variables, thereby enriching theoretical understanding in the field of rural entrepreneurship and local institutional management.

The limitations of this study include its geographically restricted scope and a purely quantitative approach that lacks deep exploration of qualitative dimensions such as organizational culture and individual motivation. As noted by, socio-political factors and community participation dynamics also influence the effectiveness of BUMDes in building village resilience (Kusmulyono et al., 2021). Therefore, future studies should adopt mixed methods to explore contextual factors more comprehensively. The practical implications of these findings include the need for structured and sustainable HR training policies for BUMDes, along with intensive mentoring in digital and managerial literacy. Village governments and relevant ministries are expected to build supportive ecosystems for BUMDes, including adaptive regulations and adequate technological infrastructure. This aligns with (Widiastuti et al., 2025), who argue that social entrepreneurship values must be strategically integrated into BUMDes governance to achieve socio-economic sustainability.

5. Conclusion

This study found that the transformation of human resources (HR) in Village-Owned Enterprises (BUMDes) from the role of local managers to village entrepreneurs in the era of disruption is highly influenced by the level of digital skills. Meanwhile, innovation motivation and managerial knowledge did not show a significant effect in the constructed statistical model. These findings suggest that HR readiness for transformation is inseparable from technological proficiency, particularly in the context of increasingly digitized rural business management. On the other hand, although motivational and cognitive aspects remain important, both require more structured reinforcement to make a tangible contribution to role transformation readiness. The data also indicates that age and work experience backgrounds influence the variation in

digital competencies among BUMDes managers, which ultimately affects the long-term transformative potential of village institutions.

The theoretical contribution of this article lies in strengthening the human capital perspective in the context of rural entrepreneurship by adding the digital dimension as a key determinant of HR role transformation amid technological disruption. Practically, this article provides empirical evidence that the success of BUMDes transformation heavily relies on human capacity investment, particularly in adaptive and applicable digitalization. These findings enrich the discourse on rural economic development based on local institutions by positioning HR quality as a central variable that determines the direction and resilience of future village innovation.

The implications of this research demonstrate the importance of developing more focused and sustainable digital-based training and mentoring policies for BUMDes HR. Village governments, training institutions, and other supporting actors must build a learning ecosystem that integrates technological literacy, social entrepreneurship, and institutional governance. Future research may expand the geographical scope and combine quantitative approaches with qualitative analysis to explore the social, cultural, and political dimensions that also influence rural HR transformation readiness in a more comprehensive manner. Recommendations for future research include further exploration of digitalization dynamics in BUMDes management through the lens of capability theory, as suggested by (Fahmi & Savira., 2021), and longitudinal studies to assess the long-term impact of HR transformation on rural entrepreneurship success. also recommend integrating Qur'anic empowerment principles into rural social entrepreneurship models as a potentially holistic approach worth deeper examination (Tirmidzi & Riyadi, 2023). In conclusion, this discussion demonstrates that HR transformation in BUMDes is not only theoretically relevant but also practically urgent to prepare villages for digital era challenges and to enhance local economic resilience in a sustainable manner.

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