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Village Enterprise 4.0: Marketing Communication Innovation Driving Rural Economic Impact

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Abstract: *The digital revolution has transformed Village-Owned Enterprises (BUMDes) marketing and management operations, with this study combining Integrated Marketing Communication Theory and Marketing Mix frameworks to examine digital transformation by developing an integrated model connecting marketing communication strategies, management information systems, digital competencies, and resource management. Employing a cross-sectional quantitative design with 174 participants selected through the Slovin formula and utilizing structured questionnaires analyzed via PLS-SEM methodology, the research reveals significant impacts of marketing communication strategies (β=0.689), management information systems (β=0.667), digital competencies (β=0.614), and resource management (β=0.638) on BUMDes performance. The investigation, conducted in the Bangka Belitung Islands Province, aims to evaluate digital transformation's influence on BUMDes performance and rural economic development, with the research model accounting for 72.7% of BUMDes performance variance and 70.8% of rural economic impact variance, thus establishing a comprehensive framework for BUMDes digital transformation.*
Keywords: *Digital Transformation; Integrated Marketing Communication; BUMDes Performance; Rural Economy; PLS-SEM Analysis*

INTRODUCTION

The digital revolution has fundamentally transformed the operational landscape of Village-Owned Enterprises (BUMDes) in Indonesia's rural regions, particularly in West Bangka Regency, Bangka Belitung Islands Province. These enterprises navigate through complex challenges as they integrate digital technologies into their traditional business models. Marketing communication strategies have emerged as essential tools for BUMDes to effectively engage their target audiences and enhance brand awareness through both traditional and digital channels (Mahyuni & Rinaldi, 2022). The successful integration of traditional marketing activities with digital implementation requires consistent brand messaging and coordinated channel management to maximize impact across all platforms (R. H. Chaniago, 2020).

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Management information systems form the backbone of this digital transformation, playing a crucial role in supporting operational efficiency. These systems ensure optimal usability, maintain high-quality data management standards, provide robust technological infrastructure, and facilitate accessible information flow throughout the organization (Yusuf, Surya, et al., 2022). The effectiveness of these systems directly influences the organization's ability to adapt and thrive in an increasingly digital environment.

Digital competency has become a defining factor in BUMDes operations across West Bangka. This encompasses a comprehensive skill set including technical proficiency, digital literacy, innovation adoption capabilities, and effective digital tool utilization (Nipo, 2024). These competencies enable BUMDes to leverage digital platforms effectively for expanding market reach and enhancing customer engagement strategies (Tiwasing, 2021). Resource management provides the foundational support for sustainable operations, encompassing crucial aspects such as strategic budget allocation, human resource capability development, infrastructure management, and efficient asset utilization (Effendi et al., 2023).

The performance metrics of BUMDes, including financial growth, market expansion, customer satisfaction levels, and operational excellence, demonstrate a direct correlation with rural economic development (Eschker et al., 2017). This economic impact manifests through various channels: enhanced community income growth, increased job creation opportunities, accelerated local business development, and substantial village revenue contributions (Udimal et al., 2019) The interplay between marketing communication, information systems, digital competencies, and resource management creates a dynamic framework that drives both BUMDes performance and rural economic development in West Bangka Regency (Yuliatiningtyas et al., 2024).

However, BUMDes in West Bangka Regency face significant challenges in implementing effective marketing communication strategies. Limited technological literacy among stakeholders creates barriers to digital adoption and hampers the effective utilization of marketing tools across both traditional and digital channels. The resistance to digital platform integration, stemming from limited understanding of their benefits, results in suboptimal channel integration and inconsistent brand messaging. Local BUMDes managers struggle to coordinate traditional and online marketing efforts effectively, leading to fragmented communication approaches that fail to reach their intended audiences.

Management information systems across West Bangka's BUMDes encounter serious operational constraints, particularly in governance and accounting information systems. The suboptimal performance in system usability, data management quality, technological infrastructure, and information accessibility directly impacts overall BUMDes effectiveness (Sabilla, 2022). Resistance to system adoption frequently emerges due to inadequate training and limited stakeholder understanding (Widagdo & Setyorini, 2018), resulting in inefficient operations and reduced financial transparency.

Digital competency gaps in West Bangka's rural businesses present significant operational challenges, particularly in technical skills, digital literacy, innovation adoption, and digital tool proficiency. Limited access to digital resources and training opportunities constrains rural entrepreneurs' ability to effectively utilize technology (Coban, 2024). Similarly, resource management faces challenges in budget allocation, human resource capabilities, infrastructure management, and asset utilization, with insufficient employee training directly impacting overall business productivity (Andrianto et al., 2023).

These multifaceted challenges collectively impact BUMDes performance across various metrics, including financial growth, market expansion, customer satisfaction, and operational excellence. Limited capital resources, unskilled human capital, and inadequate

infrastructure often prevent BUMDes from creating significant economic impact in rural communities (Tameno et al., 2023). This underperformance manifests in reduced community income growth, limited job creation, stunted local business development, and decreased village revenue contributions.

The digital transformation of BUMDes in West Bangka reveals significant research gaps requiring attention. Marketing communication strategies often lag behind contemporary digital practices, necessitating further exploration of how these rural enterprises can leverage digital transformation effectively (Hermayanto, 2023). The rapidly evolving marketing communication landscape, driven by digital technology advancement, finds many BUMDes in West Bangka struggling to adapt, particularly in integrating traditional marketing activities with digital implementation and maintaining consistent brand messaging.

Management information systems in West Bangka's BUMDes demonstrate research gaps in system usability, data management quality, technological infrastructure, and information accessibility. While corporate information systems research continues to expand, implementation knowledge in rural contexts remains limited (Yuliani, 2024), indicating the need for frameworks that facilitate knowledge transfer and decision-making processes in village enterprises.

This research offers novel contributions through its potential to provide actionable insights for village enterprises navigating the digital landscape in West Bangka. The study develops an integrated framework combining traditional marketing principles with modern digital techniques, enhancing overall BUMDes effectiveness in service promotion and community engagement (Liyanage, 2023). The focus on West Bangka's unique context and challenges provides valuable insights into understanding digital transformation in rural enterprises, particularly in developing regions striving to bridge the digital divide while maintaining sustainable economic growth.

The integration of digital technologies has become increasingly crucial for BUMDes in West Bangka to achieve sustainable economic growth and business resilience. Marketing communication strategies must evolve from traditional to digital methods to enhance consumer engagement and build community trust (Perez, 2017). Management information systems play a vital role in optimizing operations through enhanced system usability, data quality management, and technological infrastructure (Widiastuti et al., 2019). The development of digital competencies among BUMDes managers becomes essential for addressing evolving consumer behavior and market expectations in this digital age (Nugrahaningsih et al., 2021).

RESEARCH METHODS

This research implements a comprehensive quantitative methodology with a cross-sectional design to examine the digital transformation of BUMDes across the Bangka Belitung Islands Province. The research design incorporates structured surveys as the primary data collection instrument, targeting a diverse pool of 174 respondents, including BUMDes directors, unit heads, and operational staff members.

The study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) as its analytical framework, selected for its robust capability in handling complex model structures with relatively modest sample sizes (Hair et al., 2019). This sophisticated statistical approach enables simultaneous analysis of relationships between multiple independent variables (marketing communication strategy, management information systems, digital competency,

and resource management) and their effects on both dependent variables (BUMDes performance) and outcome variables (rural economic impact).

The research instruments derive their foundation from validated indicators established in previous studies, ensuring measurement reliability and validity. The marketing communication strategy assessment examines four key dimensions: traditional marketing activities, digital implementation processes, channel integration mechanisms, and brand message consistency. The management information systems evaluation focuses on system usability factors, data management quality standards, technological infrastructure capabilities, and information accessibility measures. Digital competency measurement encompasses technical skill levels, digital literacy capabilities, innovation adoption rates, and digital tool proficiency standards. Resource management assessment investigates budget allocation efficiency, human resource capabilities, infrastructure management effectiveness, and asset utilization optimization.

The study population encompasses 308 active BUMDes operations across the Bangka Belitung Islands Province. The researchers determined the sample size using the Slovin formula with a 5% margin of error, resulting in 174 respondents. This sampling approach ensures comprehensive representation across various organizational positions, including BUMDes directors, business unit heads, financial staff, marketing personnel, and operational staff members. (Wardhana et al., 2022) validate this sample size as sufficient for PLS-SEM analysis, confirming it exceeds minimum statistical requirements for robust analysis.

Data collection procedures utilized structured questionnaires incorporating 5-point Likert scales to measure research variables effectively. The survey administration occurred during January-February 2024 across the Bangka Belitung Islands Province. (Bhardwaj et al., 2021) emphasizes the critical importance of understanding contextual factors in digital transformation research, which guided the survey design and implementation process. The data collection methodology adhered to strict ethical guidelines, including obtaining informed consent and maintaining respondent confidentiality throughout the research process. The research team implemented response rate enhancement strategies, including active follow-up procedures and maintaining intensive communication with respondents. (Zhang, 2024) confirms the effectiveness of this approach in ensuring high-quality data collection for digital transformation research. Prior to the main data collection phase, the research team conducted a pilot study with 30 respondents to verify instrument validity and reliability.

The data analysis phase utilizes SmartPLS 4.0 software to execute PLS-SEM analysis, examining complex variable relationships within the research model. Following Hair et al. (2019), the measurement model evaluation assesses multiple reliability and validity criteria: indicator reliability (requiring outer loadings exceeding 0.7), construct reliability (demanding composite reliability above 0.7), convergent validity (necessitating average variance extracted values above 0.5), and discriminant validity (utilizing both Fornell-Larcker criteria and the heterotrait-monotrait ratio). The structural model evaluation examines path coefficients, R-squared values, effect size (f^2), and predictive relevance (Q^2). The hypothesis testing phase implements a bootstrapping procedure with 5000 resamples to evaluate path coefficient significance and potential mediation effects, ensuring robust statistical validation of the research findings.

RESULTS AND DISCUSSIONS

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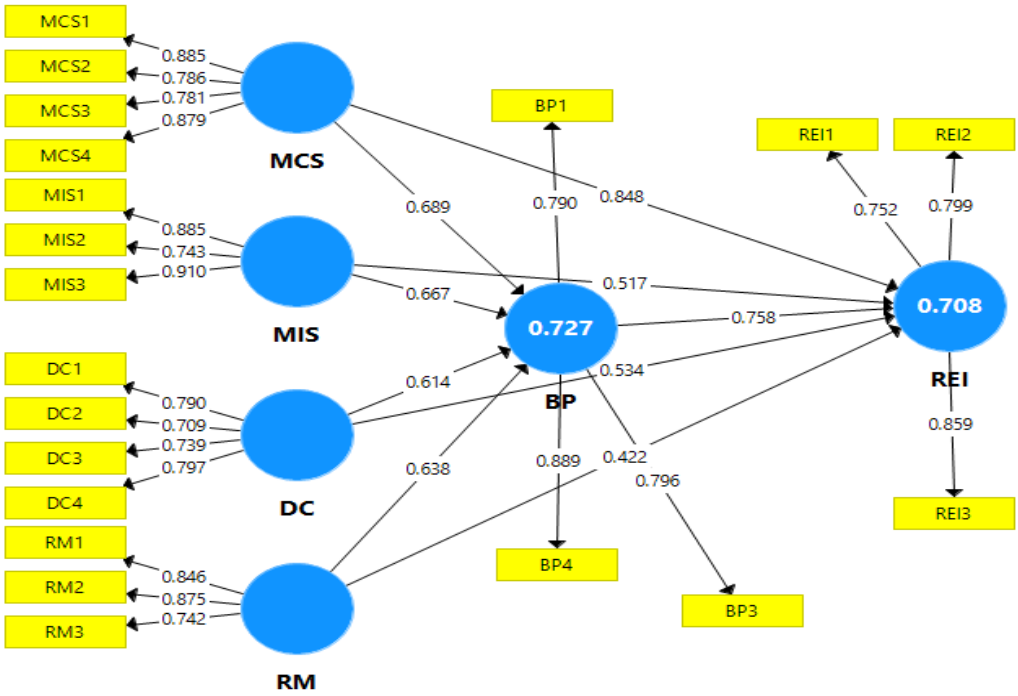

Figure 1. Research Model Path Diagram

The PLS-SEM analysis reveals robust model validity and reliability across all measured variables. The Marketing Communication Strategy (MCS) demonstrates exceptional construct validity with strong outer loadings across all indicators: traditional marketing activities (MCS1=0.885), digital implementation (MCS2=0.786), channel integration (MCS3=0.781), and brand message consistency (MCS4=0.879). The Management Information System (MIS) exhibits similarly strong reliability metrics with outer loadings surpassing the 0.7 threshold (MIS1=0.885, MIS2=0.743, MIS3=0.910), confirming the robust measurement of system usability, data quality, and technological infrastructure components.

Table 1. Outer Loading

	BP	DC	MCS	MIS	REI	RM
BP1	**0,790**					
BP3	**0,796**					
BP4	**0,889**					
DC1		**0,790**				
DC2		**0,709**				
DC3		**0,739**				
DC4		**0,797**				
MCS1			**0,885**			
MCS2			**0,786**			
MCS3			**0,781**			
MCS4			**0,879**			
MIS1				**0,885**		
MIS2				**0,743**		
MIS3				**0,910**		
REI1					**0,752**	

	BP	DC	MCS	MIS	REI	RM
REI2					**0,799**	
REI3					**0,859**	
RM1						**0,846**
RM2						**0,875**
RM3						**0,742**

Digital Competency (DC) indicators display consistent internal reliability with outer loadings ranging from 0.709 to 0.797, validating the measurement accuracy of technical skills, digital literacy, innovation adoption, and digital tool proficiency. Resource Management (RM) measurements demonstrate strong convergent validity through outer loadings exceeding 0.7 (RM1=0.846, RM2=0.875, RM3=0.742), confirming effective assessment of budget allocation, human resource capabilities, and infrastructure management processes.

Table 2. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
BP	0,714	0,721	0,808	0,590
DC	0,720	0,731	0,824	0,540
MCS	0,853	0,856	0,901	0,696
MIS	0,803	0,823	0,885	0,721
REI	0,727	0,738	0,846	0,648
RM	0,705	0,750	0,835	0,631

Reliability analysis confirms exceptional construct validity across all variables. Marketing Communication Strategy achieves the highest reliability scores with a Cronbach's Alpha of 0.853, rho_A of 0.856, and Composite Reliability of 0.901. Management Information Systems demonstrates strong measurement consistency with a Cronbach's Alpha of 0.803 and the highest Average Variance Extracted (AVE) value of 0.721. Digital competency shows satisfactory internal consistency (Cronbach's Alpha=0.720, Composite Reliability=0.824), while resource management exhibits strong reliability metrics (Composite Reliability=0.835, AVE=0.631).

Table 3. R Square Value

	R Square	R Square Adjusted
BP	0,727	0,716
REI	0,708	0,706

The structural model analysis reveals substantial relationships between variables, with BUMDes performance showing an R-squared value of 0.727 and rural economic impact achieving 0.708. Path coefficients indicate strong positive influences from all independent variables on BUMDes performance: Marketing Communication Strategy (0.689), Management Information Systems (0.667), Digital Competency (0.614), and Resource Management (0.638). Rural Economic Impact demonstrates significant correlation with BUMDes performance (0.758), supported by robust outer loadings for community income growth (0.752), job creation (0.799), and local business development (0.859).

The research model demonstrates powerful predictive capabilities through R Square analysis. Independent variables collectively explain 72.7% of BUMDes performance variance (adjusted R Square=0.716), indicating robust prediction accuracy for financial growth, market expansion, customer satisfaction, and operational excellence indicators. The model accounts for 70.8% of rural economic impact variance (adjusted R Square=0.706), confirming its effectiveness in predicting community income growth, job creation, local business development, and village income contributions.

Statistical hypothesis testing reveals significant relationships across all proposed pathways. Marketing Communication Strategy significantly influences BUMDes Performance (β=0.689, t=11.380, p<0.001) and Rural Economic Impact (β=0.848, t=7.846, p<0.001). Management Information Systems demonstrate significant effects on both BUMDes Performance (β=0.667, t=3.881, p<0.001) and Rural Economic Impact (β=0.517, t=4.493, p<0.001). Digital competency shows substantial influence on performance (β=0.614, t=3.291, p<0.001) and economic impact (β=0.534, t=2.416, p<0.05). Resource management exhibits significant effects on both performance (β=0.638, t=2.341, p<0.05) and economic impact (β=0.422, t=2.038, p<0.05). BUMDes performance demonstrates a strong influence on rural economic impact (β=0.758, t=3.510, p<0.001).

Table 4, Path Coefficient Value

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
BP -> REI	0,758	0,754	0,113	3,510	**0,000**
DC -> BP	0,614	0,607	0,049	3,291	**0,000**
DC -> REI	0,534	0,540	0,055	2,416	**0,016**
MCS -> BP	0,689	0,688	0,061	11,380	**0,000**
MCS -> REI	0,848	0,856	0,108	7,846	**0,000**
MIS -> BP	0,667	0,669	0,043	3,881	**0,000**
MIS -> REI	0,517	0,519	0,035	4,493	**0,000**
RM -> BP	0,638	0,645	0,059	2,341	**0,020**
RM -> REI	0,422	0,428	0,060	2,038	**0,042**

H1: Marketing Communication Strategy significantly affects BUMDes performance.

The research results show that marketing communication strategies, which include traditional marketing activities, digital marketing implementation, marketing channel integration, and brand message consistency, significantly influence the performance of BUMDes (β=0.689, t=11.380, p<0.001). (Rizaldi et al., 2021) proved that digital marketing communication plays an important role in increasing customer engagement and brand awareness. (E. Chaniago & Ariyani, 2023) added that the integration of traditional and digital marketing can enhance business performance through consistent message delivery. (Samran et al., 2019) emphasize that effective use of social media can increase visibility and sales volume. These results are consistent with the findings of (Soegoto & Utomo, 2019), which show that marketing strategies through social media contribute to improved business performance.

H2: The Management Information System has a significant impact on BUMDes performance.

Management information systems, which include system usability, data management quality, technology infrastructure, and information accessibility, have a significant impact on

the performance of BUMDes (β=0.667, t=3.881, p<0.001). (Afandi, 2020) found that web-based information systems enhance operational efficiency and decision-making. (Supriyati & Bahri, 2020) reinforced this finding by showing that an effective accounting information system supports better financial management. (Diyanto & Musfi, 2022) added that the digitization of financial reports enhances the accountability and transparency of BUMDes. (Ida et al., 2022) emphasize the importance of organizational communication in optimizing information systems to improve the performance of BUMDes.

H3: Digital competency significantly affects BUMDes performance.

Digital competency, which includes technical skills, digital literacy, innovation adoption, and proficiency in digital tools, has a significant impact on the performance of BUMDes (β=0.614, t=3.291, p<0.001). (Nipo, 2024) emphasizes that the transformation of rural entrepreneurship through digital innovation provides opportunities for improving business performance. (Tiwasing, 2021) shows that business social media networking and digital competence have a positive impact on the performance of SMEs in rural areas. (Noveriyanto, 2021) emphasizes that Digital Integrated Marketing Communications activities contribute to the improvement of digital business performance.

H4: Resource management significantly affects BUMDes performance.

Resource management, which includes budget allocation, human resource capabilities, infrastructure management, and asset utilization, shows a significant impact on the performance of BUMDes (β=0.638, t=2.341, p<0.05). (Kania et al., 2021) proved that a new approach to resource management can stimulate rural entrepreneurship. (Setyobakti, 2017) adds that the identification and optimization of business resources contribute to the improvement of BUMDes performance. (Khairani et al., 2021) emphasize the importance of strengthening social capital in the implementation of BUMDes.

H5: Marketing Communication Strategy significantly affects Rural Economic Impact.

Marketing communication strategies have a significant impact on rural economic outcomes (β=0.848, t=7.846, p<0.001). (Wulantika & Simarmata, 2019) showed that effective marketing communication strategies can enhance economic impact through increased sales of agricultural products. (Ellitan, 2023) proves that digital marketing training for MSMEs contributes to local economic development. (Ramasobana & Fatoki, 2018) assert that business attributes and marketing communication strategies play a role in economic growth.

H6: Management Information System has a significant impact on rural economic impact.

Management information systems significantly contribute to the economic impact of rural areas (β=0.517, t=4.493, p<0.001).(Yusuf, Kaseng, et al., 2022) revealed that the analysis of material needs and training methods for BUMDes managers enhances human resource capacity and economic impact. (Kustinah et al., 2022) show that the management of BUMDes through an accounting information system increases the economic contribution of the village. (Novita, 2023) emphasizes the importance of flexible work supervision and harmonious relationships in rural work environments.

H7: Digital competency has a significant impact on rural economic impact.

Digital competency has a significant impact on rural economic development (β=0.534, t=2.416, p<0.05). (Yuliatiningtyas et al., 2024) proved that the empowerment of digital marketing and the role of women contribute to the development of the rural economy. (Morris et al., 2022) show that the digital divide affects the resilience of rural SMEs. (Tiwasing, 2021) emphasizes the importance of social media networking for the performance of SMEs in the context of rural-urban comparison.

H8: Resource management has a significant impact on rural economic impact.

Resource management has a significant impact on rural economic outcomes (β=0.422, t=2.038, p<0.05). (Rares, 2023) revealed that the improvement of management and sustainability of BUMDes requires a comprehensive implementation strategy. (Somiartha, 2024) proves that the determinants of BUMDes performance contribute to the improvement of village development performance. (Tamrin et al., 2024) demonstrate the importance of stakeholder analysis in tourism governance.

H9: BUMDes Performance significantly affects Rural Economic Impact.

The performance of BUMDes shows a significant influence on the economic impact of rural areas (β=0.758, t=3.510, p<0.001). (Udimal et al., 2019) proved that the dynamics of rural entrepreneurship play a role in enhancing economic impact through networking and performance. (Freeman et al., 2016) demonstrate the importance of broadband connectivity for rural socio-economic development. (Eschker et al., 2017) emphasize that indicators of rural business success contribute to village economic development.

DISCUSSION

The research findings provide substantial theoretical contributions to both Integrated Marketing Communication (IMC) Theory and Marketing Mix frameworks within the context of BUMDes digital transformation in West Bangka. The significant influence of marketing communication strategies on BUMDes performance (β=0.689) validates IMC theory's emphasis on integrated communication channels. (Nesterenko et al., 2023) research reinforces this finding, highlighting how organizations must adapt their communication strategies to effectively engage modern audiences in the digital age.

The Marketing Mix framework demonstrates enhanced relevance in the digital context, particularly through the integration of traditional and digital marketing channels (MCS3=0.781). This integration significantly improves BUMDes operational performance and market reach. Ghorbani et al.'s research supports this finding, demonstrating how brand personality perception in digital environments shapes consumer-brand relationships, as evidenced by the high outer loading value for brand message consistency (MCS4=0.879).

Management information systems contribute significantly to resource-based view (RBV) theory development, particularly in understanding digital capabilities. The strong performance of technology infrastructure (MIS3=0.910) and system usability (MIS1=0.885) components, coupled with their substantial impact on BUMDes performance (β=0.667), extends RBV theory into the digital realm. Hänninen and Karjaluoto's research emphasizes how marketing communication mediates and strengthens business relationship loyalty in this context.

The research model advances theoretical understanding of digital competence and organizational performance relationships, demonstrated by robust R-square values for BUMDes performance (0.727) and rural economic impact (0.708). Kerdsawad and Lekcharoen's findings support this relationship, emphasizing digital competencies' crucial role in enhancing organizational effectiveness. The model further validates resource optimization theory within the BUMDes context, where effective resource management (β=0.638) directly contributes to performance enhancement.

These theoretical implications translate into practical managerial interventions, particularly in marketing communication strategy implementation (β=0.689, p<0.001). BUMDes managers must prioritize integrated marketing approaches, combining traditional and digital channels effectively. (Wu et al., 2024) emphasize how managerial capabilities catalyze

organizational digital transformation, suggesting the need for comprehensive digital marketing training programs covering social media management, website optimization, and channel integration.

The significant impact of management information systems on performance (β=0.667, p<0.001) necessitates robust technological infrastructure development. (Utaminingsih et al., 2022) highlight how effective management practices optimize BUMDes operations. This requires implementing user-friendly information systems (MIS1=0.885) with strong data management quality (MIS2=0.743), supported by comprehensive system usability training and clear data management protocols.

Digital competencies' substantial influence on both performance (β=0.614) and economic impact (β=0.534) demands focused skill development initiatives. (Muniroh et al., 2022) emphasize digital leadership's role in shaping organizational culture and improving employee performance. BUMDes organizations should implement regular training sessions focusing on digital tool usage, technological innovation adoption, and digital literacy enhancement.

Resource management's significant effect on performance (β=0.638) requires systematic approaches to budget allocation and human resource development. (Sandberg & Alvesson, 2011) demonstrate how microenterprises' capabilities depend significantly on managers' skills and competencies. BUMDes must optimize asset utilization (RM4) and infrastructure management (RM3) through regular internal audits, as recommended by (Fuadi et al., 2022).

The research demonstrates how BUMDes can enhance rural economic impact by focusing on community income growth (REI1=0.752), job creation (REI2=0.799), and local business development (REI3=0.859). (Gyimah & Lussier, 2021) emphasize small enterprises' crucial role in achieving sustainable rural economic development. This suggests BUMDes should develop comprehensive empowerment programs encouraging active community participation in productive economic activities.

The strong relationship between marketing communication strategy and BUMDes performance (β=0.689) extends IMC theory by demonstrating how integrated marketing approaches enhance rural enterprise effectiveness. The successful integration of traditional and digital channels (MCS3=0.781) significantly impacts performance outcomes, supporting Nesterenko et al.'s (2023) emphasis on adapting communication strategies for digital transformation.

Management information systems' influence on performance (β=0.667) contributes substantially to RBV theory, particularly regarding digital capabilities. High outer loading values for technology infrastructure (MIS3=0.910) and system usability (MIS1=0.885) demonstrate how technological resources create competitive advantages, aligning with (Hänninen & Karjaluoto, 2017) findings on marketing communication's role in business relationship enhancement.

The study's theoretical framework provides valuable insights into BUMDes digital transformation's role in promoting rural economic development. The significant path coefficient (β=0.758) between BUMDes performance and rural economic impact demonstrates how village enterprises effectively contribute to community welfare. The high outer loading for brand message consistency (MCS4=0.879) supports (Ghorbani et al., 2022) findings regarding brand personality perception in digital contexts, extending understanding of how rural enterprises can build strong stakeholder relationships through consistent communication across channels.

CONCLUSION

Village-Owned Enterprises (BUMDes) in the Bangka Belitung Islands have successfully transformed their operations through the integration of digital marketing communication strategies and management information systems. This digital transformation has yielded significant improvements in customer engagement and operational efficiency, demonstrated by the strong path coefficient (β=0.689) for marketing communication strategies. The management information systems have contributed substantially to organizational performance (β=0.667), highlighting the crucial role of technological infrastructure in modernizing BUMDes operations. Digital competencies among BUMDes managers have shown considerable positive impact on organizational effectiveness (β=0.614), while effective resource management has demonstrated significant performance improvements (β=0.638). The integration of digital technologies has fundamentally enhanced BUMDes' service delivery capabilities within village communities, creating more responsive and efficient operational models. The research reveals how the combination of digital transformation initiatives with traditional management practices has established a more resilient and sustainable business framework for rural economic development. These findings demonstrate that BUMDes in the Bangka Belitung Islands have successfully navigated the digital transition while maintaining their core mission of community service and economic development. Future research should investigate the long-term sustainability implications of digital transformation on BUMDes operations, particularly focusing on how these organizations can maintain technological relevance while ensuring continued community benefit. Additional studies should examine how digital integration affects organizational resilience and adaptability in responding to evolving rural economic challenges. The successful digital transformation of BUMDes in the Bangka Belitung Islands provides a valuable model for other rural enterprises seeking to enhance their operational capabilities through technology adoption while maintaining strong community connections

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