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The role of human capital, innovation capability, accountability in improving performance: A mediation-moderation analysis

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**Abstract**

Research aims: This study aims to determine the effect of human capital on the performance of VOEs through innovation capability and moderated by the accountability public on VOEs in the province of Bangka Belitung and West Sumatra.

Design/Methodology/Approach: The sample consisted of 152 VOEs from West Sumatra and Bangka Belitung. Data were analyzed using SEM-PLS with SmartPLS 4.0. This quantitative study used primary data from questionnaires distributed to VOE management in both provinces.

Research findings: The results show that Human Capital has a direct impact on the performance of VOEs and their innovation capability. The Innovation Capability also has a direct effect on performance. In addition, human capital affects VOE performance through innovation capability. Public accountability can weaken the innovation capability on performance.

Theoretical contribution/Originality: This research is a development of previous research by adding public accountability as a moderating variable that can affect the quality of performance that is not present in previous studies.

Practitioner/Policy implication: This study's findings suggest that the management of VOEs can improve service quality and human resources to create innovation and performance, which is important for local governments to create a supportive environment for VOEs innovation.

Research limitation/Implication: The limitation of this research is that it only focused on VOEs in the Provinces of Bangka Belitung and West Sumatra. This research also only uses social desirability research instruments. Future research should expand the research scope, conduct research using interviews or other methods, and add other variables such as social capital and transparency.

Keywords: Human capital; Innovation Capability; Performance VOEs; Public Accountability; Social Entrepreneurship

Introduction

By maximizing local economic potential, Village Owned Enterprise (VOE) strategically position themselves to enhance community-based economic development in Indonesia (Maharani et al., 2024; Rismawati, 2024). Law No. 6 of 2014 governs, establishing a legal framework for villages to autonomously construct and operate business units aimed at enhancing community welfare, generating employment opportunities, and sustainably developing the village economy (Sakir, 2022; Sofyani, Ali, & Septiari, 2020).

Nadzirummubin (2022) reported that, in 2021, data from the Ministry of Village, Development of Disadvantaged Regions, and Transmigration revealed that Indonesia had a total of 57,273 VOs.

According to the Directorate General of Population and Civil Registration of the Ministry of Home Affairs, the number of villages in Indonesia in 2021 was 82,831 dispersed across 34 provinces. In 2019, a random sampling undertaken by the Financial Audit Agency (FAA) of the Republic of Indonesia revealed that 2,188 VOs had been founded but were non-operational, and 1,670 had yet to contribute to village revenue (Aeni, 2020; Ihsanuddin, 2019). This suggests that not all villages have VOs, and the non-operation of those may be due to poor performance.

Several factors cause village enterprises not to run well. One of them is human resources. In order to strengthen the human capital that will manage the Village-Owned Enterprises, it is necessary to have high-quality human capital. Human capital refers to the value of an organization's people, encompassing their knowledge, skills, experience, and attributes that drive productivity and success (Abbas et al., 2024). By investing in education, training, and effective management, organizations can enhance innovation, efficiency, and competitiveness (Usman et al., 2024). The caliber of Human Capital significantly impacts the efficacy of VOs (Azhari et al., 2023; Rachmawati, 2024; Septiana et al., 2023), which comprises managerial skills, technical knowledge, and the capacity to react to changes in the external environment (N. Hayati & Yulianto, 2021). We anticipate that competent Human Capital will foster innovation, ultimately boosting the overall performance of VOs (Chikmawati, 2019; Hidayat & Haryanto, 2024).

Furthermore, innovation is a crucial aspect of the operational success and sustainability of VOs (Achmad & Fadlurrohman, 2023; Azhari et al., 2023; Suriadi & Frinaldi, 2023).. It involves adapting knowledge, information, and experiences from both internal and external environments to enhance collaboration and address societal needs. Studies by Azamela et al. (2022), Lestari (2019), and Tonheiro et al. (2023) support this concept, highlighting the creation of new products and services, improved operational processes, and faster societal response. Sustainable innovation requires trained and competent Human Capital. Innovative projects can significantly contribute to local economic development and growth, creating new opportunities and boosting village development. However, public accountability is essential in the management of VOs, ensuring the efficient and transparent use of invested funds. Strict supervision and clear reporting mechanisms are essential for the success of these projects. Public accountability is key to achieving project goals effectively, providing maximum benefits to the community, and maintaining trust among stakeholders and the government. Studies by Alkadafi et al. (2021) and Zahrudin et al. (2023) supported this idea, emphasizing the importance of involving public accountability at every stage of innovative projects to maintain sustainability and integrity of development at the village level.

The performance of VOs is affected by multiple factors, including individual, psychological, and organizational elements (Agunggunanto et al., 2016; Zahrosa et al., 2021). These firms are essential for community management and delivering services

that fulfill their expectations. Nonetheless, certain entities continue to exhibit inadequate performance in execution, resulting in inferior services. Research indicates that these firms are anticipated to be the principal catalysts of the village economy, necessitating enhancements in performance. This anticipation is founded on the research conducted by (Majid et al., 2023; Wahyudin & MM, 2021).

Numerous studies on the efficacy of VOEs reveal several performance-related issues, including insufficient support from village leaders (Aeni, 2020; Ana & Ga, 2021; Asmawanti et al., 2022), limited community engagement stemming from a lack of information transparency (Haryaningsih et al., 2022; Sari & Fuadi, 2022), erroneous financial reporting (Ana & Ga, 2021; Haeruddin & Mariana, 2021; Haryadi, 2023), inadequate management of village resources (Abdullah et al., 2024; Dunggio, 2020; Sinarwati & Prayudi, 2021), constraints in village capital investment (Aprilia, Daryono, Najmudin, & Heryawan, 2022; Palupi, 2021), subpar quality of Human Capital (Christy et al., 2020; Gusni, 2020; Kharisma & Hardjati, 2024), community skepticism towards managers (Fauzan, 2024; Saputra, 2021; D. Setiawan, 2021), and a deficiency in innovation within business operations. The research of Aprilia et al. (2022), Palupi (2021), and Yacob et al. (2021) underscored many challenges concerning the efficacy of VOEs. These issues include low support from village heads, minimal community participation due to a lack of information transparency, inaccurate financial reporting, limited ability to manage village potential, low quality of Human Capital, community distrust towards managers, and a lack of innovation in business operations. Previous research indicates that the performance of VOEs is a critical element in management (Arindhawati & Utami, 2020; D. Setiawan, 2021).

A key criterion for exceptional success is the capacity to enhance the village's primary revenue. Village Original Revenue can be generated from multiple factors, including company performance, asset outcomes, self-sufficiency and engagement, and collaborative efforts. According to Gusni (2020), Mulianingsih (2022), and Syahara et al. (2024), these characteristics can contribute significantly to Village's Original Revenue. VOE can function as a crucial service provider for the community, offering essential services such as clean water, sanitation, energy, and transportation, particularly in regions that are challenging for other institutions or companies to access. Prasetya (2020), Raharjo (2021a), and Rahman et al. (2022) assert that VOE is pivotal in delivering critical services to the village community, especially in regions that are difficult for other institutions or enterprises to access. Moreover, VOE brings positive impacts by creating new employment opportunities for village inhabitants, whether through production activities, services, or the administration of existing enterprises (Suhendi, 2023; Tama & Yanuardi, 2013). This contributes to lowering the unemployment rate in the community by enhancing Human Capital and augmenting household income (Rismawati, 2024; Silsabila et al., 2024). Syarifah et al. (2020) and Basri et al. (2021) both affirm the substantial and favorable influence of Human Capital on performance in VOEs. Nonetheless, Mardoni et al. (2021) found that VOEs performance is not influenced by human capital since it depends on government and community support.

These studies show inconsistencies regarding the impact of Human Capital on performance. This indicates the presence of a research gap that requires further investigation. Therefore, the author added innovation capability as a mediating variable. Based on stewardship theory, VOE, as stewards, are obligated to manage in accordance with the needs of the principal (Ariski & Asy'ari, 2022; Febriyanti et al., 2023). Good Human Capital will tend to work as best as possible and collaboratively to achieve sustainability and the welfare of the village community (Azhari et al., 2023; Hartati, Amirulloh, & Munandar, 2023). Good Human Capital will also increase community trust and enhance the overall capacity and performance of VOEs (Asmawanti et al., 2022; Mulianingsih, 2022).

This research enhances the understanding of managing VOEs, focusing on Human Capital, innovation, and public accountability. It contributes to the Resource-Based View (RBV) and Stewardship Theory, emphasizing the importance of internal resources for sustainable competitive advantages. The findings also support the role of managers as responsible community servants. The research offers insights for VOEs managers, helping them design adaptive human resource development strategies, measurable innovation, and public accountability. This will enhance performance and optimize economic and social benefits for the village community.

Literature Review and Hypotheses Development

Resource Based View Theory (RBV)

The Resource Based View Theory (RBV) is a competitive advantage theory developed by Wernfelt in 1984 (Azmi & Harti, 2021; Rengkung, 2015). It emphasizes that an organization's competitive advantage is achieved through alignment with society's needs and desires and unique characteristics in its products and services (Lestari, 2019; Rengkung, 2015; Suriadi & Frinaldi, 2023). The RBV theory suggests that an organization's strength is supported by good resources and a strategically integrated resource management system. VOEs can maintain their competitive advantage by implementing social innovations, which have five characteristics: addressing social issues, creating collaborative relationships, enhancing welfare capacity, and sustainability (Ade et al., 2021; Effendi et al., 2022; Salwa & Nasution, 2024). By addressing these criteria, VOEs can create new products and resources that can benefit the village community, improving overall performance and maximizing economic and social impact. Furthermore, the variable in this study, such as Innovation capability, is compatible with the RBV theory, which emphasizes that exploiting unique and valuable resources, such as local innovativeness, can enhance the competitive advantage and long-term performance of these enterprises.

Stewardship Theory

Stewardship Theory is a management approach where managers are motivated to achieve organizational goals without individual support (Christy et al., 2020; Rismawati,

2024). This theory explains how managers act in accordance with the principal's desires, ensuring their behavior does not deviate from the organization. In this case, the head of the VOE becomes the most important person in the administration. He focuses on improving the economic well-being of the community and managing resources (Kurniawan & Wea, 2022; I. Rosidah et al., 2023). The theory emphasizes transparency and accountability in organizational management, requiring VOE managers to provide honest and transparent reporting to village owners or stakeholders about performance, fund usage, and strategic decisions. This approach ensures that the organization's goals are met and that their behavior does not deviate from the organization's objectives.

Human Capital on the Performance of Village-Owned Enterprises

Risk perception refers to the cognitive process by which humans subjectively evaluate and make decisions on the assessment of risk and the level of uncertainty involved (Yanushkevich et al., 2020). The phenomenon of risk perception seeks to elucidate the process by which individuals assess and appraise a scenario or event that carries inherent risks. Perceptions of risk are formed from experiences generated through many factors that form the basis of decision-making that has the potential for loss (Wu et al., 2021). This appraisal is influenced by a combination of instinctual and intricate decision-making processes, as well as personal knowledge and information gained from other sources such as various media outlets.

Quality Human Capital is considered an important factor in improving operational effectiveness and achieving organizational goals (Choi & Chang, 2020; Dewi & Suparno, 2022). The ability of VOEs to collaborate with other entities, including other VOEs, local communities, local governments, and business partners, has a significant impact on performance improvement (Effendi et al., 2022; Saputra, 2021). VOEs managed with competent Human Capital are not only able to achieve their organizational goals, which are to improve the economy and solve social problems in the community, but also to promote the sustainability of the organization (Christy et al., 2020; Hidayat & Haryanto, 2024).

Thus, it emphasizes that dedicated Human Capital will work optimally and collaboratively to achieve the welfare of the village community. (Ramadhania & Novianty, 2020; D. Setiawan, 2021). Moreover, good Human Capital can build community trust, strengthen the internal capacity of the organization, and encourage better performance of the VOEs (Christy et al., 2020; Prayogi, 2019). Based on this, the researcher concludes the hypothesis as follows:

H₁: Human Capital has a positive effect on the performance of Village-Owned Enterprises.

Human Capital on the Innovation Capability

Innovation is not only determined by technology and funding but also heavily relies on the potential, skills, and creativity of individuals within the organization (Christy et al., 2020; Destiana, 2023; Kasmawanto, 2024). The right Human Capital in VOs will produce relevant competencies, which ultimately support better intellectual development and innovation (AlQershi et al., 2022; Hidayat & Haryanto, 2024). The presence of creative human capital has been proven to encourage the emergence of new innovative ideas (K. Hayati, 2021; Rohman et al., 2023). The managers of VOs who possess awareness and readiness to adapt play an important role in creating innovative solutions and responding quickly to environmental changes (Purbadharmaja et al., 2024; Umar et al., 2023). Effective human resource management also enables VOs to collaborate with external parties, thereby creating new products and services that have the potential to boost the village's economy (H. C. B. Setiawan, 2020; Widiastuti et al., 2019). This finding supports the Resource-Based View (RBV) theory, which emphasizes that competitive advantage can be achieved through unique and hard-to-imitate knowledge and skills (Amelia, 2022; Pande et al., 2024). Thus, the managers of VOs who play a role in fostering innovation can encourage more innovative and competitive management (Nurhidayat, 2021; D. Rosidah et al., 2024; Sopanah et al., 2023). Based on these findings, this study proposes the hypothesis:

H₂: Human Capital has a positive effect on innovation capability

Innovation Capability on the Performance of VOs

Innovation capability has proven to have a significant impact on the performance of VOs (Acosta-Prado et al., 2020; Nurhidayat, 2021). Innovation enables VOs to face challenges, enhance competitiveness, and develop new products and services that are relevant to community needs (Aljuboori et al., 2021; Mattajang, 2023; H. C. B. Setiawan, 2020). The performance of VOs is measured based on financial and non-financial aspects, where innovation contributes to the improvement of the quality and uniqueness of the products and services offered. (Aljuboori et al., 2021; Mattajang, 2023; H. C. B. Setiawan, 2020; Supriyadi & Zaharuddin, 2023). This finding supports the Stewardship Theory, which emphasizes that VOs act as adaptive stewards, capable of maximizing opportunities and minimizing risks for the welfare of the community (Kurniawan & Wea, 2022; Somiartha et al., 2024; Supriyadi & Zaharuddin, 2023; Syahara et al., 2024).

H₃: Innovation capability has a positive effect on the performance of VOs

Human Capital on the performance of VOs through innovation capability

Human Capital play a crucial role in enhancing the performance of VOs through innovation capability, which includes good skills and expertise (A. S. Fatimah, 2021;

Mardatillah, 2021), high motivation and creativity (Aprillia et al., 2021; Ariski & Asy'ari, 2022), effective collaboration and teamwork (Adawiyah, 2018; Amir & Wahida, 2023; Lazuardiah et al., 2020), good change management (Darmaileny et al., 2022; Kasmawanto, 2024), relevant education and training (Aprillia et al., 2021; Darmaileny et al., 2022; A. S. Fatimah, 2021), community involvement (Ajayanti, 2023; Amir & Wahida, 2023), as well as government support and access to resources (Haryadi, 2023; Iddris, 2019; Sukarman & Rohim, 2022). By considering these aspects, innovative capable Human Capital can become the main driver in improving the performance of VOs and fostering economic growth at the local level (Markhamah et al., 2021). The Stewardship Theory and Resource-Based View (RBV) support the idea that trustworthy and innovative Human Capital can create competitive advantages and sustainable growth in VOs (Alkadafi et al., 2021; Solihat & Julia, 2022). Focusing on innovative human resource management makes VOs superior and difficult for competitors to imitate (Salwa & Nasution, 2024; D. Setiawan, 2021; H. C. B. Setiawan, 2020).

H₄: Human Capital has a positive impact on the performance of village-owned enterprises through innovation capabilities.

Public accountability Strengthens the Relationship between Innovation Capabilities and the Performance of VOs

Accountability, which includes responsibility and openness in decision-making, plays an important role in improving organizational performance, including VOs (Amerieska et al., 2021; Gaffur & Shaw, 2021; Kurniawan & Wea, 2022). Public accountability not only encourages transparency but also builds stakeholder trust, reduces the risk of fraud, and supports honest management in accordance with Stewardship Theory (Mizrahi & Minchuk, 2019; Syahara et al., 2024). The implementation of public accountability in VOs can enhance community participation, strengthen innovation, and accelerate local economic growth (Aeni, 2020; Ana & Ga, 2021; Widiastuti et al., 2019). Research results show that higher accountability improves organizational performance, encourages collaboration with external parties, and accelerates the development of unique products and services tailored to the village's potential (Haeruddin & Mariana, 2021; Rahmawati, Rasidah, & Yuliastina, 2020). Thus, public accountability directly contributes to the effectiveness of VOs, supports innovation, and strengthens community welfare through transparent and responsible management.

H₅: Accountability strengthens the relationship between innovation capability and the performance of Village Owned Enterprises.

Based on the ideas, a research model was developed and is depicted in Figure 1.

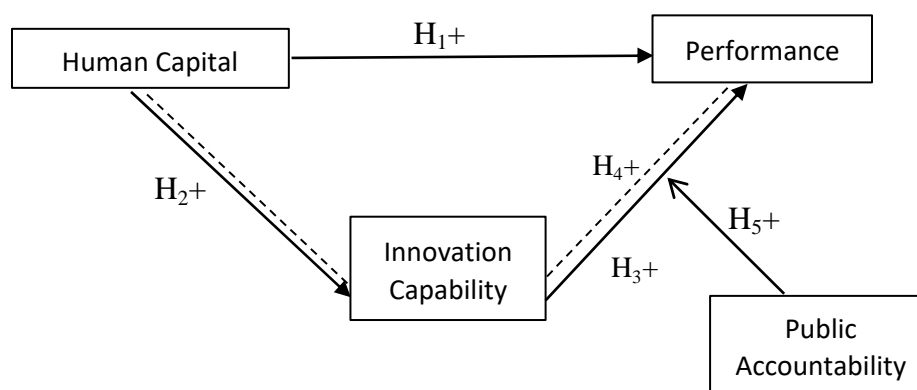


Figure 1 Research Model

Research Method

This study used a quantitative research technique with a questionnaire survey and the purposive sampling method, with the criterion of VOE that has been established for more than one year. G* Power was used to conduct the sample measurement. G Power supports sample size and power calculations for various statistical methods because it has an effect size calculator and graphical options that facilitate researchers in visualizing the calculation results (Chaokromthong & Sintao, 2021; Kang, 2021). Based on the G*Power calculations, it was concluded that a minimum sample size of 77 samples is required. Therefore, for a sample size of 152 Management Village-Owned Enterprises, representing all villages in the Bangka Belitung Islands Province and West Sumatra that have VOEs.

Quantitative data was collected through a questionnaire survey with respondents including the Chairperson, Treasurer, and Secretary of the VOEs. The independent variable in this study is Human Capital. The human capital variable is measured using a questionnaire developed by Syarifah et al. (2020) consisting of 8 items. Each question is measured using a 1-5 Likert scale. The higher the score, the higher the human capital is in the management of VOEs. The mediating variable in this study, Innovation Capability, is measured using a questionnaire developed by Easmon, Kastner, Blankson, and Mahmoud (2019), and the moderating variable, Public Accountability, by Tran, Nguyen, and Hoang (2021), which consists of 8 items. The dependent variable in this study is the performance of VOEs, measured based on Government Regulation Number 11 of 2021 and through online discussions as well as input from 5 VOEs practitioners. The questionnaire consists of 8 items.

The data analysis method in this study uses SEM-PLS measurement. Partial Least Square (PLS) is an advanced analysis method often referred to as soft modeling, where PLS does not consider various OLS (Ordinary Least Squares) assumptions, such as the data being tested must be normally distributed, the absence of multicollinearity issues among

exogenous variables, and a large sample size (Abdillah & Hartono, 2015; Ghozali & Latan, 2015). This research uses the SmartPLS 4.0 application for testing. In addition, this research conducts a Common Method Variance (CMV) test to enhance the validity and reliability of the data, as well as to produce more accurate research conclusions. The Common Method Variance (CMV) test is a type of systematic bias that arises from the same method used to measure constructs in a study (Kuo et al., 2022; Tehseen, Ramayah, & Sajilan, 2017).

Results and Discussion

Based on Table 1, the descriptive statistics indicate that the performance variable has the highest mean of 31.18 with a standard deviation (SD) of 4.786, suggesting relatively high variability compared to other variables. The variables Accountability Public and Human Capital have the lowest means, 22.87 and 22.80, respectively, with similar standard deviations of 3.525 and 3.619, while Innovation Capability has a mean of 26.70 and a standard deviation of 4.252. The range of values (Min-Max) shows that all variables have a wide distribution, particularly performance, which ranges from 11 to 40.

Table 1 Descriptive Statistics

Variable	N	SD	Mean	Min	Max
Public Accountability	152	3.525	6	30	22.87
Human Capital	152	3.619	6	30	22.80
Innovation Capability	152	4.252	8	35	26.70
Performance	152	4.786	11	40	31.18

Based on Table 2, this research conducted a bias test or Common Method Variance (CMV) test using the SPSS V.26 application to measure constructs in a study, and an unbiased construct is a construct that has a percentage<50% (Kock, Berbekova, & Assaf, 2021). the test result is 48.541%. This indicates that the tested data shows no occurrence of Common Method Variance (CMV) in this study.

Table 2 Results of Common Method Variance Analysis (CMV)

<i>Extraction Sums of Squared Loadings</i>		
Total	% of Variance	Cumulative %
15.533	48.541	48.541

The Data displayed in Table 3 Measurement tests were carried out by testing data quality and hypothesis testing. Data quality testing requires two stages, a measurement model (outer loading) and a structural model (inner model), utilizing SmartPLS. In evaluating the measurement model, convergent and discriminant validity were tested by looking at the outer loading.

Table 3 Convergent Validity and Reliability Test Results

Variable	Indicators	Loading
<i>Innovation Capability (AVE= 0.760; CR=0.956; CA=0.945)</i>		
IC1	VOEs are often the first to introduce new products or services among VOEs with similar businesses	0.946
IC2	VOE managers are adept at leveraging their knowledge to introduce products or services that meet consumer demand	0.787
IC3	The creativity of our VOE's products and services puts us one step ahead of other VOEs with similar offerings	0.705
IC5	The new products or services offered by our VOEs are radically different from those of other VOEs	0.922
IC6	Our VOE often experiments with new ideas and seeks innovative, unique solutions	0.910
IC7	Our VOE frequently explores new ways of doing things	0.900
IC8	Our VOE is consistently creative in managing operations and business activities	0.905
<i>Human Capital (AVE= 0.798; CR=0.959; CA=0.948)</i>		
HC-CA1	Develops effective strategies for managing risks	0.933
HC-CA2	Skilled in leveraging existing opportunities	0.937
HC-E1	Has experience in managing businesses	0.941
HC-E2	Capable of designing work mechanisms and standard operating procedures (SOPs) for VOEs	0.926
HC-K1	Possesses a solid understanding of the VOE business, from the production process to marketing products to end customers	0.800
HC-K2	Consistently engages in collaborative learning to enhance knowledge related to the VOEs business	0.809
<i>Performance (AVE=0.757; CR=0.961; CA=0.954)</i>		
PER1	Carry out economic activities and run profitable businesses	0.863
PER2	Invest in enterprises that are in line with the potential and productivity of the village	0.846
PER3	Carry out service activities to meet the needs of the village community	0.904
PER4	Assist the village government in solving community problems. For example, garbage, clean water, village electricity, unemployment, poverty, and environmental conservation	0.912
PER5	Generate profits from the businesses it runs	0.859
PER6	Provide profit-sharing as the village's own revenue.	0.844
PER7	Manage and utilize village assets to add value to the village	0.883
PER8	Develop a digital economic ecosystem in the village (e.g., a digital platform for village markets)	0.850
<i>Public Accountability (AVE=0.648; CR=0.959; CA=0.948)</i>		
PA1	VOE management prioritizes the best interest of the community	0.790
PA2	VOE management has been conducted effectively	0.905
PA4	VOE resources in accordance with its objectives	0.736
PA6	Public funds have been utilized in an appropriate manner	0.739
PA7	VOEs current operational activities impact future funding	0.739
PA8	VOE is representative (eligible) for funding	0.900
AVE = Average Variance Extracted; CR = Composite Reliability; CA = Cronbach's Alpha.		

The outer loading value used in this test must be more than 0.7, with an average variances extracted (AVE) value of 0.5, so the indicator is considered valid (Fauzi, 2022). The indicator for testing discriminant validity is by comparing the values between constructs for each targeted construct, which must be greater than the cross-loading values of other constructs (Fauzi, 2022).

Table 4 Fornell Lacker

Variabel	1	2	3	4
Human Capital	0.893			
Innovation Capability	0.823	0.872		
Performance	0.889	0.843	0.870	
Public Accountability	0.300	0.331	0.336	0.805

The square root of the AVE ($\sqrt{\text{AVE}}$) displayed in the Fornell Lacker table 4 indicates that all variables in this study exhibit the highest correlation with their own constructs, compared to their correlation with other variables. This confirms the validity of each variable.

The measurement of the level of variation in changes in the independent variable on the dependent variable was done using the structural model measurement of the Adjusted R-Square value. The greater the Adjusted R-Square value, the better the prediction model of the research model.

Table 5 Adjusted R Square

	R Square	R Square Adjusted
Innovation Capability	0.678	0.946
Performance	0.835	0.787

Table 5 shows that the ability of the Human Capital variable to explain variations in the ability to innovate is 67.8%, while the remaining 32.2% is influenced by other variables not examined. The Adjusted R Square value in Table 5 shows the ability of the Human Capital variable and the Innovation capability variable to explain the VOE Performance variable by 83%. The remaining 17% is influenced by other variables not examined.

Table 6 hypothesis test results

Hipotesis		Original Sample (O)	t-statistics	P-Value	Information
HC→PER	H ₁	0.598	5.749	0.000	Supported
HC→IC	H ₂	0.823	19.255	0.000	Supported
IC→PER	H ₃	0.321	3.225	0.001	Supported
HC→IC→PER	H ₄	0.265	3.171	0.001	Supported
PA*IC→PER	H ₅	-0.051	1.829	0.034	Not Supported

Notes: PA (Public Accountability); IC (Innovation Capability); PER (VOEs Performance); HC (Human Capital)

Human Capital on the Performance of VOE

The research results show that Human Capital has a positive influence on the performance of VOEs. Competent and skilled human capital are able to enhance cooperation both among VOEs and with external parties, such as the community, local government, and business partners, thereby supporting the main objectives of VOEs: improving the economy and solving social problems (Choi & Chang, 2020; Christy et al., 2020; Saputra, 2021). This research supports the Stewardship Theory, which states that committed and effective Human Capital plays a key role in resource management and decision-making, as well as focusing on the needs of the community (Syahara et al., 2024). Good human resource management results in better team motivation, competence, and efficiency, as well as improved productivity and service quality (Mayo, 2000; Pinheiro et al., 2021; Saluy et al., 2021). In addition, skill enhancement, appropriate incentives, proper task allocation, and the utilization of technology also strengthen the operational efficiency of VOEs, optimize resources, and provide a greater positive impact on the community (Iswahyudi et al., 2023; Primawanti & Ali, 2022; Purbadarmaja et al., 2024). Thus, the VOEs can be more effective in carrying out sustainable social and economic missions while also increasing community satisfaction with the services provided (Nurcahyo & Supriyono, 2024; Purbadarmaja et al., 2024; Raharjo, 2021b).

Human Capital on Innovation Capability

The test results show that Human Capital has a positive influence on innovation capability in Village-Owned Enterprises. This is in line with the Resource-Based View (RBV), which states that an organization's competitive advantage comes from resources that are valuable, rare, difficult to imitate, and non-substitutable (Fahriyah & Yoseph, 2020; Mardatillah, 2021). Innovative Human Capital with unique skills serves as strategic assets that drive the innovation capabilities of VOEs, enabling the organization to capitalize on local economic opportunities and face various challenges (Achmad & Fadlurrohman, 2023; Azhari et al., 2023; Nguyen et al., 2020; Pradani, 2020). Innovation Capability in VOEs does not only depend on technology or finance but also the sustainable development of Human Capital through training and the empowerment of the local workforce (P. R. Fatimah, 2018; Zahrosa et al., 2021). A work culture that supports creativity and collaboration is also important to drive innovation as part of the organization's strategy (A. S. Fatimah, 2021; Maharani et al., 2024; Zahrudin et al., 2023). Village VOEs managers who are responsive to changes and collaborate with external parties can create new ideas, products, or services that enhance the village's economy. (Javed et al., 2023; Umar et al., 2023; Widiastuti et al., 2019).

Innovation Capability on the Performance of Village-Owned Enterprises

Research results show that Innovation Capability has a positive impact on the performance of VOEs. This supports the Stewardship Theory, where the VOEs act as stewards striving to meet the needs of the community and enhance innovation sustainably (Kurniawan & Wea, 2022; Syahara et al., 2024). Innovation Capability allows

VOEs to adapt to environmental dynamics, minimize risks, and capitalize on local economic opportunities. With the Resource-Based View (RBV) approach, innovative VOEs are able to achieve sustainable competitive advantage through unique products and services that meet the needs of the community. (Fauzan, 2024; Nikmah & Siswahyudianto, 2022; Rohman et al., 2023). To achieve better performance, VOEs must focus on product, market, process, behavior, and strategy innovations that can solve social problems and improve community welfare (Achmad & Fadlurrohman, 2023; Nikmah & Siswahyudianto, 2022). The effective implementation of innovation enables VOEs to improve public services such as waste management, clean water, education, and health, as well as create decent jobs (Humanika, Trisusilo, & Setiawan, 2023; Sholihati, 2020). This research is consistent with the findings of Acosta-Prado et al. (2020), which state that the more innovative an organization is, the higher the quality of its management and the competitiveness among VOEs (Aljuboori et al., 2021; Darmaileny et al., 2022).

Human Capital on the Performance of VOE through Innovation Capability

The research results show that Human Capital has a positive impact on the performance of VOEs through innovation capability. Based on the Resource-Based View (RBV), innovative Human Capital is considered a strategic asset capable of providing sustainable competitive advantages, especially through the development of products and services based on local potential that are difficult for competitors to imitate (Alimuddin et al., 2023; Septiana et al., 2023). Human Capital with innovative skills plays a crucial role in enhancing operational efficiency, business diversification, and adaptive responses to market changes and community needs, thereby strengthening the performance of VOEs (Dayani, 2023; Wardiyanto et al., 2016). Meanwhile, the Stewardship Theory emphasizes the importance of responsible and community welfare-oriented Human Capital in driving sustainable innovation (Amerieska, Narsa, & Ningsih, 2023). Collaborative and transparent management supports the ability of Human Capital to innovate more effectively, as they feel a moral and emotional responsibility toward the success of the VOEs. This study concludes that Innovation Capability plays a full mediating role in the relationship between Human Capital and the performance of VOEs, as reinforced by the research of Azamela et al. (2022), which shows that innovation enhances collaboration and competitiveness of VOEs.

Public Accountability Strengthens the Relationship between Innovation Capability and the Performance of VOEs

Research results indicate that public accountability can weaken the relationship between innovation capability and the performance of VOEs. Accountability, which aims to enhance transparency and integrity, can have a dual effect: on the one hand, it encourages more responsible and efficient management (Rahmawati et al., 2020; I. Rosidah et al., 2023), but on the other hand, if not managed well, it can lead to rigid bureaucracy and hinder innovation (Dwiyanto, 2021; Mardiasmo, 2021). In the public sector, especially in VOEs, non-transparent accounting practices can hinder proper decision-making, reduce innovation motivation, and lower stakeholder trust (Djamil, 2023; Nasirwan et al., 2024; Rukin, 2021). Therefore, to maximize innovation and

performance, VOs need to ensure accurate and transparent accounting practices to support effective decision-making. Although public accountability can help increase awareness and commitment to resource management, excessive administrative burdens often reduce the space for innovation (Azhari et al., 2023). Excessive accountability can limit the freedom of VOs to try new things or take risks, thereby hindering the development of more creative products and services (Amalia, 2024; Wulandari & Lestari, 2024). Therefore, a balance between accountability and the freedom to innovate is needed through a monitoring system that not only emphasizes transparency but also promotes an organizational culture that supports experimentation and learning (Fauzan, 2024; Sudrajat, 2021). Thus, VOs can remain innovative while meeting the demands of public accountability.

The findings suggest that the concept of public accountability, while critical in enhancing resource management, requires further exploration in the context of organizational innovation. The tension between accountability and innovation presents an area for developing new theoretical frameworks that address how these two factors can be balanced within Village-Owned Enterprises (VOs). Future studies could investigate the role of organizational culture and management practices in fostering both transparency and creativity, contributing to a deeper understanding of how accountability mechanisms impact innovation in public sector organizations. For practitioners, this research highlights the need to design monitoring systems that balance public accountability with the freedom to innovate. VOs should consider adopting systems that not only ensure transparency but also cultivate a culture that supports experimentation and learning. Policymakers and managers should be mindful of the potential risks of excessive administrative burdens and work towards creating an environment where innovation can thrive alongside fulfilling accountability requirements. This balance can help VOs develop more creative products and services while still meeting public expectations.

Conclusion

The study explores the impact of Human Capital (HC), innovation capability, and public accountability on the performance of VOs. It finds that Human capital plays a crucial role in determining the success of VOs, with good Human capital management enhancing skill and knowledge. Innovation also serves as a bridge connecting Human capital and VOs's performance, indicating that it's not just about brilliant ideas; it's about competent Human Capital adapting to local needs and responding to changes. Public accountability, a key pillar of transparency, can weaken the relationship between innovation and the performance of VOs. Overly rigid regulations can hinder decision-making flexibility, slowing down innovative efforts. This research supports the Resource-Based View (RBV) and stewardship theories, emphasizing the importance of competent Human Capital and adaptive innovation for VOs's growth and adaptation. Practical implications include improving human resource quality, simplifying regulations, and ensuring government support to foster an environment that fosters innovation in VOs.

The research focused on VOE in Bangka Belitung and West Sumatra, Indonesia, using questionnaires as the sole data collection tool. The results may not fully reflect the conditions across Indonesia. Future studies should involve more VOE from various regions and use mixed methods like interviews and direct observations to understand Human Capital dynamics, innovation, and accountability. Researchers should also consider other variables like policy support, technology, and community participation to influence VOE performance. By adopting a more adaptive, innovative, and transparent approach, VOE can drive economic progress and support inclusive and sustainable national development.

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.



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