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The Influence of Natural Resource Potential and Sovereign Wealth Fund Strategy on Organizational Performance: The Mediating Role of Human Resource Strategy in Indonesia

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Abstract

This purpose of this study is to examines the mediating role of Human Resource Strategy in the relationship between Natural Resource Potential (Renewable Energy), Sovereign Wealth Fund Strategy, and Organizational Performance in Indonesia. Using a correlational quantitative method, a non-probability sampling approach, and purposive sampling, the study targets managerial officials in government agencies and state-owned enterprises (SOEs) in the renewable energy sector. The final sample consists of 143 respondents, with cross-sectional data collected via an online survey. Data analysis is conducted using Structural Equation Modeling (SEM-PLS) with SmartPLS version 4. Findings reveal that HR Strategy not only has a dominant direct influence on organizational performance but also mediates the impact of Natural Resource Potential and SWF Strategy. This underscores the importance of synergy between resource management, strategic financial policies, and human competency development in driving the energy transition. The study extends the Resource-Based View through a dynamic capability approach, highlighting that competitive value depends not only on resource ownership but also on HR adaptability. It also redefines SWF as an institutional entrepreneur, transforming macro policies into micro-level actions. However, the study's focus on the renewable energy sector and government agencies/SOEs limits generalization. Future research should expand to other sectors, integrate contextual variables like energy decentralization policies, and adopt qualitative methods to explore HR Strategy and SWF implementation. Practical recommendations include improving HR training in green technology, enhancing SWF allocation transparency, and fostering synergy between national and local policies to support renewable energy targets.

Keywords: *Natural Resource Potential, Sovereign Wealth Fund, Organizational Performance, HR Strategy*

1. Introduction

Indonesia, a country rich in natural resources (NR), faces a paradox between renewable energy potential and high dependence on fossil fuels. Data from the Central Bureau of Statistics (BPS, 2024) shows that 87.4% of national energy consumption still comes from coal and oil, while renewable energy utilization accounts for only 12.5% of total power generation capacity (Kemen ESDM, 2023). This disparity hinders the 23% renewable energy mix target by 2025 (Kemen ESDM, 2023) and exacerbates carbon emissions, contradicting the Paris Agreement commitments (BPS, 2022).

Structural challenges, such as low investment in renewables (1.5% of total energy sector investment) and infrastructure gaps, worsen the situation (IRENA, 2023a). The Sovereign Wealth Fund (SWF) strategy through Daya Anagata Nusantara (Danantara) is expected to catalyze renewable energy investment. However, its realization is hampered by regulatory uncertainty and the dominance of fossil fuel funding. In 2022, SWF investment in renewables was only USD 2 billion far below the USD 20 billion required annually to meet the 23% clean energy target by 2025 (ESDM, 2023; Vianda & Wirawan, 2022). Weak inter-agency coordination and limited human capital in green technology management further hinder progress (IRENA, 2023b). This phenomenon indicates a failure to transform natural resource potential into optimal organizational performance, particularly in strategic government institutions within the energy and national development sectors.

Organizational performance is crucial for energy transition, yet poor governance, inter-agency coordination issues, and weak HR capacity limit policy effectiveness (IRENA, 2023b). Prior studies confirm NR and SWF influence on economic performance (James Obilikwu, 2023), but research in Nigeria and the Middle East neglects HR strategy as a mediator (Napathorn, 2023; Al-Qudah et al., 2020). In Indonesia, literature focuses on technical aspects like investment and regulation (IESR, 2023), overlooking how HR competencies mediate the relationship between NR, SWF, and

organizational performance. Notably, only 30% of the energy workforce meets qualifications, hindering green technology adoption (Dirjen EBTKE, 2023). Investment bias toward fossil energy persists despite the Net-Zero Emissions 2060 target requiring a 95% emission reduction (IEA, 2022).

Previous studies fail to integrate Indonesia's unique context as an archipelagic country with infrastructure disparities. For instance, research in China (Gong, 2021) focuses on technological innovation without considering remote area grid limitations, a challenge that affects 65% of Indonesia's coastal population (BMKG, 2023). Meanwhile, studies in Malaysia (Erdiwansyah, 2019) on electric vehicles overlook inter-agency coordination issues, a key barrier in Indonesia, where policy overlaps slow renewable energy projects (IRENA, 2023b).

Fossil fuel investment dominance reflects a business-as-usual bias contradicting the NZE 2060 target (IEA, 2022). Meanwhile, Indonesia's 3,294 GW solar potential remains underutilized at only 0.3% (Dirjen EBTKE, 2023), indicating failed investment strategies despite the need for competent HR. Studies in China (Gong, 2021) and Malaysia (Erdiwansyah, 2019) focus on technology but ignore HR's role in translating investment policies into action.

Addressing these gaps, this study introduces a novel perspective on HR strategy's mediating role in the relationship between NR, SWF, and organizational performance an aspect overlooked in previous research. By integrating macro-level (SWF policy) and micro-level (HR capacity) analyses, this study examines energy transition dynamics at the organizational level. It also fills a geographic gap by highlighting Indonesia's specific challenges, such as infrastructure disparities and bureaucratic culture hindering innovation. Optimizing HR strategy as a mediator can help Indonesia transform NR potential into actionable outcomes, reduce fossil fuel dependency, and achieve sustainable development goals inclusively.

2. Literature Review

The dynamic interaction between natural resource potential, strategic investment mechanisms, and organizational performance has garnered significant attention in management research. At the core of this discourse is the Dynamic Capability Theory (Teece, 2007), which asserts that organizations must continuously adapt to unstable environments by reconfiguring internal and external resources. In Indonesia's energy sector, this theory highlights how organizations leverage natural resource potential (NR) and sovereign wealth fund (SWF) strategies to build resilience and foster innovation. For instance, SWFs, as long-term investment vehicles, enable organizations to allocate capital to infrastructure and renewable energy projects, enhancing adaptive capacity essential for sustaining competitive advantage (Teece, 2007; Ansoff, 2019).

The Resource-Based View (RBV) further explains the role of unique resources in driving performance. (Barney, 1991) argues that NR, when managed as a scarce and valuable asset, can serve as the foundation for competitive differentiation. Indonesia's abundant natural resources, if strategically utilized through SWF-funded infrastructure, create synergies that enhance operational efficiency and market positioning. However, NR alone is insufficient; optimization requires alignment with organizational strategy frameworks (Porter, 1985; , 2019). For instance, SWF investments should prioritize projects aligned with national energy transition goals, ensuring resource utilization generates tangible economic value.

Human resource (HR) strategy emerges as a crucial mediator in this relationship. Organizational Behavior Theory (Judge, 2022) highlights how HR practices shape employee adaptability and innovation readiness, directly impacting organizational agility. Effective HR strategies, such as talent development programs and performance incentives, enable organizations to operationalize NR and SWF initiatives effectively. This aligns with Freeman's Stakeholder Theory (Freeman, 1984), emphasizing collaborative governance. Engaging government stakeholders, investors, and communities in SWF decision-making fosters transparency and ensures HR strategies address diverse needs, enhancing legitimacy and organizational performance.

However, challenges persist. Mismanagement of NR or misaligned SWF allocations can erode competitive advantage, as warned by Teece (2007). Over-reliance on non-renewable resources without HR-driven innovation risks obsolescence in a global economy shifting towards decarbonization. Thus, integrating Applied Theories, such as infrastructure development frameworks and HR governance models, ensures a holistic strategic execution (Barney, 1991; Freeman, 1984).

Empirical studies reinforce these perspectives. (Salem et al., 2023) examined 100 managers in Palestine's commercial and industrial sectors, revealing a positive relationship between the adoption of Renewable Energy Sources & Sustainability (RESs) and sustainable performance. This indicates that effective NR utilization can create economic value, enhance operational efficiency, and support environmental sustainability, ultimately improving organizational performance. Similarly, (L. Zhang et al., 2022) emphasized in their conceptual framework on NR management that a strategic approach incorporating green technology integration and government policies enhances resource efficiency and organizational sustainability.

A study by (James Obilikwu, 2023) in Nigeria found that while the impact of SWF on fiscal performance is not yet statistically significant, it has the potential to enhance economic transformation if funds are allocated to green infrastructure and renewable energy projects. Similarly, Norway has demonstrated that a transparent and accountable

SWF can drive holistic organizational performance. (Gasparini, 2023) highlights how Norway reinvests oil revenues into renewable energy through the European Green Deal (EGD), creating a multiplier effect on performance. (Yadav *et al*., 2024) emphasize the role of fintech and green finance in BRICS nations, suggesting that SWFs can collaborate with financial institutions to develop innovative funding instruments like green bonds and Public-Private Partnerships (PPP). Investments in smart grids and battery-based energy storage not only expand infrastructure capacity but also improve operational efficiency for organizations reliant on clean energy.

(Santoso, 2019) found that asset structure, particularly natural resource potential (NR), significantly influences organizational performance. (Wei *et al*., 2020) using macroeconomic data from G7 energy sectors, confirm that investments in NR positively impact organizational outcomes, underlining the importance of resource management in sustainable development.

(Akhtar *et al*., 2023) in China reveal that effective investment strategies enhance financial and operational efficiency, particularly when supported by competent human resources and robust information systems. Similarly (Cakranegara, 2021) asserts that Indonesia's SWF success depends not only on financial capital but also on HR readiness to manage and implement investments effectively. Thus, integrating HR strategy into SWF policies is essential for optimizing national financial management and development.

Based on the previous studies discussed above, the hypotheses proposed in this research are as follows:

H_1: There is an influence of Natural Resource Potential on Organizational Performance.
H_2: There is an influence of Sovereign Wealth Fund (SWF) Strategy on Organizational Performance.
H_3: There is an influence of Human Resource (HR) Strategy on Organizational Performance.
H_4: There is an influence of Natural Resource Potential on HR Strategy.
H_5: There is an influence of SWF Strategy on HR Strategy.
H_6: HR Strategy mediates the relationship between Natural Resource Potential and Organizational Performance.
H_7: HR Strategy mediates the relationship between SWF Strategy and Organizational Performance.

The researcher illustrates the conceptual framework as follows:

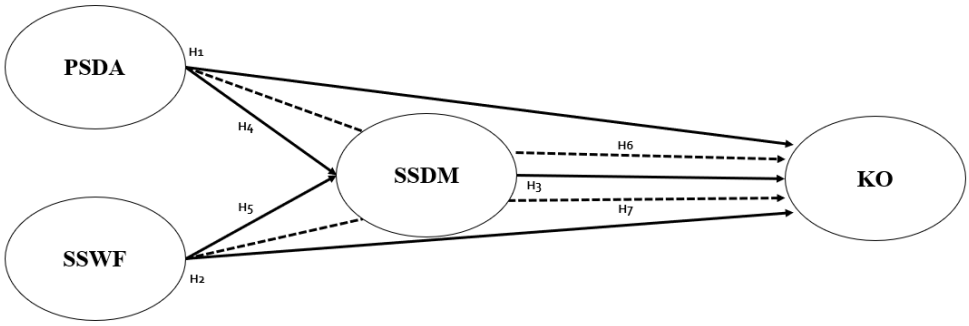

Figure 1: Conceptual Framework

3. Materials and Methods

This study employs a correlational quantitative research design with hypothesis testing based on causal relationships. The correlational quantitative approach is used to analyze the relationships between the examined variables. This method is chosen because it allows for an objective measurement of the impact of one variable on another using numerical data. Quantitative research relies on precise measurement and statistical analysis of data collected through instruments such as questionnaires, surveys, or relevant tests (Sekaran & Bougie, 2016).

This study uses primary data collected through surveys distributed to management-level officials, ranging from Echelon 1/Director, Echelon 2/Manager, and Echelon 3&4/Supervisor in government institutions of the Republic of Indonesia and state-owned enterprises (SOEs) operating in the natural resource sector, specifically renewable energy. The sampling method applied is non-probability sampling, specifically purposive sampling, where questionnaires are distributed via Google Forms.

The study population consists of all decision-makers or executives at top management, middle management, and lower management levels, covering eight institutions or organizations. The exact number of executives within this population is unknown. These institutions are selected because they represent key stakeholders in energy or natural resource management, covering both policy-making and policy implementation in Indonesia. The respondents in this study are executives and decision-makers who hold strategic roles in policymaking. These individuals are chosen because they possess in-depth knowledge of policies, strategies, innovations, and their implementation within their respective organizations or institutions.

The sample size in this study is determined based on sampling references. According to (Hair *et al*., 2017) the recommended sample size for the Maximum Likelihood Estimation (MLE) technique ranges from 100 to 200 respondents to ensure reliable estimations and interpretations using Structural Equation Modeling (SEM). Therefore, the final sample size is determined based on the minimum required sample calculation.

This study employs Structural Equation Modeling (SEM) to predict the relationships between variables, utilizing SmartPLS Version 4 as the analytical software. SEM is chosen because it allows for the simultaneous examination of multiple relationships among latent variables, making it suitable for complex models involving both direct and indirect effects (Hair et al., 2013). Additionally, SEM is widely used in management and business research to test theoretical models while accounting for measurement errors, ensuring more robust and reliable findings (Henseler et al., 2016). Given that this study examines mediation effects and multiple construct relationships, SEM provides a comprehensive analytical framework that enhances the validity of the results.

4. Results and Discussion

4.1. Result

This study successfully collected and analyzed data from 143 respondents. The descriptive data provides an overview of the respondents' demographic and professional characteristics. From a gender perspective, the distribution of male and female respondents is relatively balanced, with 77 male respondents (53.85%) and 66 female respondents (46.15%). Although there is a slight difference in numbers, it is important to note that women play a significant role in organizations, particularly at managerial levels. A study by (Smith *et al*., 2020) indicates that gender diversity in management can enhance organizational performance and decision-making. Therefore, despite male dominance, the presence of women in managerial positions remains crucial in fostering an inclusive work environment.

Regarding work experience, 96 respondents (67.13%) have been employed for more than five years, indicating that most employees possess significant experience within their organizations. According to (Wagen & White, 2014) longer work experience is often associated with improved performance and better decision-making capabilities. In terms of job positions, the majority of respondents belong to Lower Management, reflecting a hierarchical organizational structure. This aligns with (Stephen P. Robbins, 2019), who states that decision-making in larger organizations is often centralized at higher managerial levels. However, it is crucial to recognize that Lower Management also plays a vital role in strategy implementation and daily operations. In this study, 63 respondents (44.06%) are in Lower Management/Supervisor roles (Echelon 3 & 4/Supervisor). Additionally, 53 respondents (37.06%) hold Middle Management positions (Echelon 2), while 27 respondents (18.88%) belong to Top Management (Echelon 1). This distribution suggests that most respondents operate at lower managerial levels, acting as a bridge between top management and operational teams.

The study utilizes SmartPLS as a statistical tool to process survey data, addressing sample size limitations and non-normal data distribution. This data processing is essential for identifying model structures, factor loadings, and the significance of latent variables. Validity testing is conducted by assessing the convergent validity of the outer model, while reliability testing is measured using Cronbach's Alpha. The validity assessment compares the factor loading of each statement item against the standard factor loading. An indicator is considered valid if it meets the factor loading threshold based on the sample size for a sample size of 150, the minimum factor loading is 0.45, for a sample size of 120, the minimum factor loading is 0.50, Generally, a factor loading of >0.70 is considered valid, while a loading below this threshold indicates invalidity (Hair et al., 2013). The minimum criterion for the Average Variance Extracted (AVE) is that it must be greater than 0.50 (>0.50). If the outer loading value is below 0.70 in the test, the indicator can still be used, provided that the minimum loading value is greater than 0.40 (Loading >0.40) and the AVE value exceeds 0.50 (AVE >0.50), ensuring that the variable is valid. However, if the loading value is less than 0.40, the indicator must be removed (Hair et al., 2022, p. 126).

Table 1. Result of Validity Test

Variable Constructs	Organizational Performance	Natural Resource Potential (Renewable Energy)	Sovereign Wealth Fund Strategy	Human Resource Strategy	Average Variance Extracted (AVE)
KO1	0.850				
KO2	0.667				
KO3	0.774				
KO4	0.723				0.611
KO5	0.850				
KO6	0.831				
KO7	0.740				

Variable Constructs	Organizational Performance	Natural Resource Potential (Renewable Energy)	Sovereign Wealth Fund Strategy	Human Resource Strategy	Average Variance Extracted (AVE)
KO8	0.796				
PSDA10		0.762			
PSDA2		0.781			
PSDA3		0.712			
PSDA4		0.706			
PSDA5		0.769			0.574
PSDA6		0.811			
PSDA7		0.810			
PSDA8		0.719			
PSDA9		0.766			
PSDA1		0.729			
SSDM1				0.683	
SSDM2				0.737	
SSDM3				0.716	
SSDM4				0.735	
SSDM5				0.75	0.54
SSDM6				0.749	
SSDM7				0.731	
SSDM8				0.771	
SSDM9				0.736	
SSWF1			0.702		
SSWF2			0.762		
SSWF3			0.719		0.544
SSWF4			0.719		
SSWF5			0.782		
SSWF6			0.738		

Source: Primary Data Processing

Based on Table 1 above, it can be stated that all indicators for each variable meet the required criteria, and the Average Variance Extracted (AVE) values fulfill the standards. Therefore, this model is considered suitable for further testing. The next step is to assess the reliability of each research variable, which can be observed in Table 2 below. Reliability was evaluated using Cronbach's alpha, where an indicator is considered reliable if Cronbach's alpha ≥ 0.70, indicating that the items are internally consistent in measuring the construct (Sekaran & Bougie, 2016).

Table 2. Result of Reliability Test

Latent Variables	Cronbach's Alpha	rho_A	Composite Reliability	Result
Organizational Performance	0.908	0.911	0.926	Reliable
Natural Resource Potential (Renewable Energy)	0.918	0.928	0.931	Reliable
Sovereign Wealth Fund Strategy	0.833	0.836	0.877	Reliable
Human Resource Strategy	0.893	0.897	0.913	Reliable

Source: Primary Data Processing

Based on the table 2 above, the following information can be observed: The Cronbach's Alpha values for all variables exceed 0.70, and the Composite Reliability values for all variables are also greater than 0.70. This indicates that both reliability measures Cronbach's Alpha and Composite Reliability meet the required criteria. Given these considerations, it can be concluded that all variables are suitable for further testing.

The test results also indicate that the R^2 value for Organizational Performance (OP) is 0.315, meaning that 31.5% of the variance in organizational performance is explained by the independent variables in this study, while the remaining

variance is attributed to other factors not included in the model. Similarly, the Adjusted R^2 value for Human Resource Strategy (HR Strategy) is 0.195, indicating that 19.5% of the variance in HR strategy is explained by the independent variables in the model, while the remaining variance is explained by other factors beyond the scope of this study. Thus, all these values can be seen in Table 3 below.

Table 3. Coeficient Determination

Variabel Laten	R Square	R Square Adjusted	Remark
Organizational Performance	0.315	0.3	Medium
Human Resource Strategy	0.195	0.183	Low

Source: Primary Data Processing

The SEM PLS research model using Smart PLS 4 is presented as shown in Figure 2:

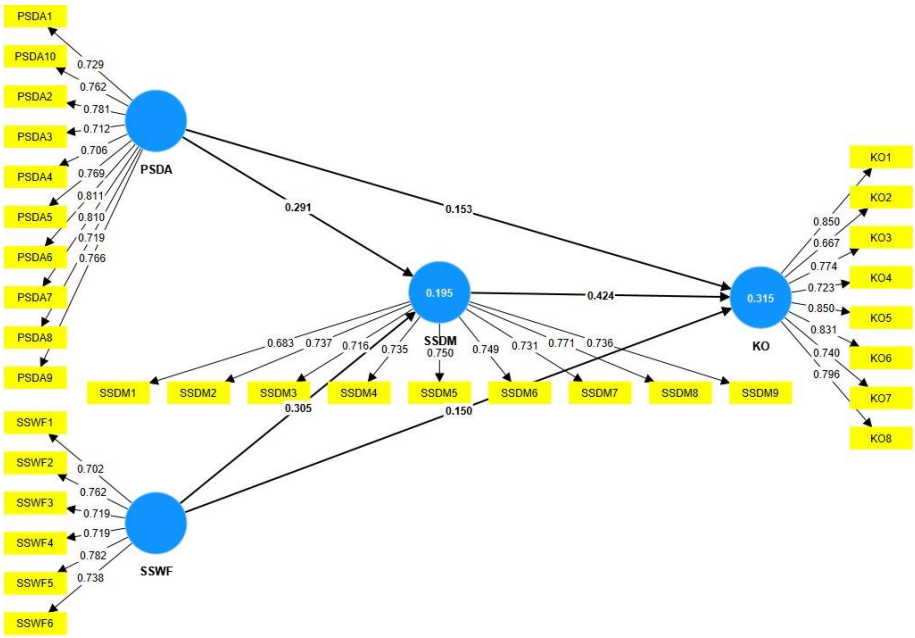

Figure 2: SEM PLS Reseach Model

The hypothesis testing in this study aims to determine the effect between independent and dependent variables. The presence or absence of an effect between variables can be assessed based on the p-value, where if $p \geq 0.05$, the hypothesis is not supported, and if $p < 0.05$, the hypothesis is supported.

Table 4. Hypothesis Test Results

Hypothesis	Path Coefficient	Original Sample (O)	T Statistics (|O/STDEV|)	p Values	Decision
$\mathbf{H_1}$	PSDA -> KO	0.153	2.583	0.010	Supported
$\mathbf{H_2}$	SSWF -> KO	0.150	2.178	0.029	Supported
$\mathbf{H_3}$	SSDM -> KO	0.424	6.719	0.000	Supported
$\mathbf{H_4}$	PSDA -> SSDM	0.291	3.796	0.000	Supported
$\mathbf{H_5}$	SSWF -> SSDM	0.305	3.843	0.000	Supported
$\mathbf{H_6}$	PSDA -> SSDM -> KO	0.124	3.321	0.001	Supported
$\mathbf{H_7}$	SSWF -> SSDM -> KO	0.129	3.025	0.002	Supported

Source: Primary Data Processing

This study reveals that Natural Resource Potential (PSDA) and Sovereign Wealth Fund Strategy (SSWF) have a direct positive impact on Organizational Performance (KO) in Indonesia. The analysis results indicate that PSDA enhances KO with a coefficient of 0.153 (p=0.010), while SSWF has a similar impact of 0.150 (p=0.029). However,

Human Resource Strategy (SSDM) emerges as the most dominant factor in driving KO, with the highest direct influence (coefficient 0.424; $p<0.001$). Additionally, SSDM is significantly influenced by both PSDA (coefficient 0.291; $p<0.001$) and SSWF (coefficient 0.305; $p<0.001$), reinforcing that natural resource management and national financial strategies not only have a direct effect but also shape the organization's human resource readiness.

A key finding lies in the mediating role of SSDM. PSDA and SSWF contribute not only directly to KO but also strengthen organizational performance through improved human resource quality. The indirect effect of PSDA → SSDM → KO has a coefficient of 0.124 ($p=0.001$), while SSWF → SSDM → KO stands at 0.129 ($p=0.002$). This confirms that organizational success in Indonesia is highly dependent on the synergy between natural resource optimization, sustainable financial strategies, and human capacity development. All hypotheses (H1-H7) were found to be significant, reinforcing the importance of a holistic approach to improving organizational performance, particularly in resource-rich countries like Indonesia.

Based on a comparison of original sample values, the mediation effect of SSDM in this study is categorized as partial mediation. This is evident from the continued significance of the direct effects of PSDA and SSWF on KO (0.153 and 0.150, respectively), even though they are mediated by SSDM (indirect effects of 0.124 and 0.129). In other words, natural resource management and sovereign wealth fund strategies operate not only through human resource capacity enhancement but also exert a direct impact on organizational performance. The implication is that organizations in Indonesia must prioritize two aspects simultaneously: first, strengthening HR strategies as a bridge to optimize natural resources and financial management; second, maintaining direct initiatives in managing PSDA and SSWF. This approach ensures that natural advantages and financial policies are not only "filtered" through HR but also independently contribute to creating sustainable organizational performance.

4.2. Discussion

Hypothesis 1, which examines the direct impact of Renewable Energy Natural Resource Potential (PSDA) on Organizational Performance (KO), is supported. This finding aligns with previous research, such as (Salem *et al*., 2023), which found that the adoption of renewable energy positively correlates with sustainable organizational performance, and (He *et al*., 2024), which highlights the significant impact of renewable energy on food security and economic growth. These results reinforce the theory that optimizing PSDA, particularly in the renewable energy sector, serves as a crucial pillar in driving operational efficiency and organizational competitiveness, especially within the context of Indonesia's national development, which prioritizes the green energy transition. However, this finding differs slightly from the study b (İnal *et al*., 2022) n oil-producing African countries, which concluded that renewable energy does not have a significant impact on economic growth. This discrepancy may be explained by the characteristics of the study respondents, 81.12% of whom belong to Lower and Middle Management and have over five years of work experience. Respondents at the operational level tend to have a better understanding of the practical implementation of renewable energy, such as the use of solar power plants (PLTS) or biomass, which remains suboptimal in countries facing infrastructure and policy constraints. Additionally, the PSDA indicators in this study encompass both technical and managerial aspects, such as resource availability and management capacity, which are organizational priorities in Indonesia to meet the National Energy Plan (RUEN) targets. From a national development perspective, the support for H1 reflects Indonesia's commitment to achieving its renewable energy mix target of 23% by 2025. A study by (Kamaluddin *et al*., 2022) on energy efficiency in tire manufacturing companies suggests that PSDA management does not solely depend on resource availability but also on human resource readiness and supporting infrastructure. This is further reinforced by the findings of (Z. Zhang et al., 2022), which emphasize the need for a holistic framework to integrate PSDA with technical and social policies.

Hypothesis 2, which examines the direct impact of the Sovereign Wealth Fund Strategy (SSWF) on Organizational Performance (KO), is supported. This finding aligns with previous studies, such as (Wei *et al*., 2020), which found a positive relationship between natural resource abundance and financial development, as well as (Gasparini, 2023), which highlights the role of Norway's SWF in driving green investments and economic growth. These results reinforce the theory that SSWF serves as a strategic instrument for managing natural resource revenues sustainably, particularly in the context of Indonesia's renewable energy transition, which requires long-term financial support. However, this finding differs from (James Obilikwu, 2023) study in Nigeria, which concluded that SWFs have an insignificant impact on fiscal performance. This discrepancy may be explained by the characteristics of the study respondents, 81.12% of whom belong to Lower and Middle Management and have over five years of work experience. Additionally, the SSWF indicators in this study incorporate aspects of transparency and accountability, critical factors often overlooked in previous research, thereby providing a more holistic perspective. The relationship between SWF strategies and organizational performance is increasingly relevant, given that SWFs have been proven to enhance state revenue, strengthen foreign exchange reserves, and drive investments across various economic sectors (Mork *et al*., 2022). Overall, the support for H2 confirms that SSWF is a strategic pillar in enhancing organizational performance within Indonesia's renewable energy sector. One potential policy approach for SWF utilization is leveraging SWFs as underlying assets in monetary and fiscal policies. By using SWFs as collateral for money creation, the government can allocate these funds to productive economic sectors without excessive fiscal deficits, as outlined in Modern Monetary

Theory (MMT) by (Stephanie Kelton, 2020) and (Mitchell *et al*., 2016). If implemented with robust governance, this strategy could positively impact state institutions involved in development sectors, particularly energy, while also fostering a more flexible and growth-oriented economic policy framework in the long run.

The direct impact analysis of Human Resource Strategy (SSDM) on Organizational Performance (KO) confirms that this study supports the hypothesis that SSDM significantly influences KO. This finding is consistent with previous research, such as (Nayak *et al*., 2023), which states that HR strategies including recruitment, career development, and employee retention enhance organizational effectiveness by improving employee commitment and job satisfaction. In Indonesia, a major challenge in managing human resources within the renewable energy sector is the lack of skilled professionals in green technology and high employee turnover due to global competition. According to a report by the International Renewable Energy Agency (IRENA, 2020), 60% of renewable energy companies in Southeast Asia struggle to retain competent HR professionals due to the limited availability of career development programs. The findings of this study reinforce the urgency of government policies, such as certification-based training programs and performance-based incentive schemes, to ensure that SSDM not only improves KO but also supports the national energy transition agenda.

Hypothesis 4, which examines the effect of Natural Resource Potential (PSDA) in Renewable Energy on Human Resource Strategy (SSDM), is supported in this study. This finding aligns with previous research highlighting the relationship between natural resource management and human resource capacity development. For instance, (Amiri *et al*., 2019) found that the success of natural resource management depends on institutional quality, including the capabilities of human resources in designing adaptive strategies. Hypothesis 5 states that the Sovereign Wealth Fund Strategy (SSWF) significantly influences the Human Resource Strategy (SSDM). The results of this study confirm this hypothesis, aligning with (James *et al*., 2022), who emphasize the role of SSWF in establishing sustainable governance, including strengthening HR capacity through the allocation of natural resource revenues. Although H5 is supported, the implementation of SSWF in supporting SSDM in Indonesia still faces challenges. (Ackah, 2021) warns that in many African countries, SSWF has failed to contribute to HR development due to corruption and fund misallocation. To prevent similar issues, transparency in SSWF management is a fundamental prerequisite.

Hypothesis 6, which examines the effect of Natural Resource Potential (PSDA) on Organizational Performance (KO) through the mediation of Human Resource Strategy (SSDM), is supported. This finding aligns with previous research highlighting the crucial role of SSDM in optimizing the utilization of PSDA. For instance,(Salem *et al*., 2023) demonstrated that the adoption of renewable energy positively correlates with sustainable performance, albeit with government intervention as a moderator. In this context, SSDM acts as a mediator, linking natural resource capacity to organizational performance achievements through effective HR management. Additionally, (Z. Zhang et al., 2022) emphasized that internal policy factors, including HR strategies, can strengthen the relationship between resource potential and organizational performance. This finding aligns with Indonesia's current efforts to develop HR capacity in support of the renewable energy transition. Previous studies from various regions and countries further enrich the analysis, demonstrating that the impact of the mediator varies depending on HR quality and supporting policies.

Hypothesis 7, which examines the effect of Sovereign Wealth Fund Strategy (SSWF) on Organizational Performance (KO) through the mediation of Human Resource Strategy (SSDM) in the context of renewable energy and national development, is supported based on the analysis results of this study. This finding aligns with previous research emphasizing the role of SSDM in optimizing the impact of SSWF. For instance, (Edet *et al*., 2023) found that SSWF in Nigeria contributed to economic growth through structured human resource management. In Indonesia, the implementation of SSWF initiatives such as Danantara for renewable energy projects still faces HR capacity challenges, including a shortage of experts in green technology (IESR, 2023). However, organizations that have successfully integrated SSDM with SSWF, such as PT Sarana Multi Infrastruktur (SMI), have demonstrated improved performance through competency-based recruitment and training programs in renewable energy. Additionally, (Affuso *et al*., 2022) noted that SSWF in developing countries tends to fail if not supported by adaptive HR policies aligned with infrastructure project needs. Real-world policies, such as the National Energy General Plan (RUEN), further underscore the urgency of synergy between SSWF and SSDM.

5. Conclusion

This study confirms that Natural Resource Potential (PSDA) and Sovereign Wealth Fund Strategy (SSWF) have a significant direct impact on Organizational Performance (KO) in Indonesia's renewable energy sector. PSDA, particularly in the context of renewable energy, contributes to improving KO through operational efficiency and alignment with the National Energy Plan (RUEN) targets. Meanwhile, SSWF serves as a strategic financial instrument that supports long-term investment and economic stability, aligning with findings from Norway and the challenges faced by Nigeria. On the other hand, Human Resource Strategy (SSDM) emerges as the key factor with the highest direct influence on KO, emphasizing that competent human resource capacity is the backbone of organizational success. These findings also reveal that SSDM acts as a partial mediator, meaning that PSDA and SSWF influence KO not only directly but also through human resource quality improvement, although this mediation effect does not entirely replace

their direct influence. Additionally, the study highlights the mediating role of value-creation innovation in the relationship between digital transformation and organizational performance. The findings confirm that digital transformation affects organizational performance through value-creation innovation, as supported by hypothesis testing results. Similarly, value-creation innovation mediates the relationship between strategic agility and organizational performance, reinforcing its role as a crucial driver of performance improvement.

The primary implication of this research lies in the urgency of synergy between natural resource management, financial strategies, and human resource development. Although PSDA and SSWF have proven to have positive impacts, challenges such as a lack of skilled professionals in green energy, high employee turnover, and corruption risks in SSWF fund allocation hinder performance optimization. Differences in findings compared to studies in African oil-producing countries, such as Nigeria, highlight the importance of local context, including policy quality, infrastructure, and human resource readiness. To support sustainable development, several policy recommendations can be proposed: strengthening training and certification programs for HR in renewable energy to address competency gaps, enhancing transparency and accountability in SSWF management to prevent fund misallocation, as learned from failures in Africa, integrating SSWF with monetary and fiscal policies based on Modern Monetary Theory (MMT) to finance productive projects without excessive deficits, and fostering collaboration between government, private sector, and educational institutions in designing a holistic framework that synergizes PSDA, SSWF, and SSDM. Through this approach, Indonesia can not only achieve its renewable energy mix targets but also establish a resilient and globally competitive organizational foundation in the long term.

This study contributes theoretically by expanding the Resource-Based View perspective through a dynamic capability approach, emphasizing that an organization's competitive value in renewable resource management depends on adaptive HR strategies rather than mere resource ownership. From an institutional theory perspective, these findings reconstruct the role of Sovereign Wealth Funds (SWF) as institutional entrepreneurs that transform macroeconomic policies into micro-level actions while addressing gaps in human capital theory by asserting that technical literacy (such as expertise in green technology) acts as a catalyst for converting innovation into organizational value. Despite its contributions, this study has several limitations. One major limitation is that the research focuses solely on organizations within the energy sector, which may not provide a comprehensive understanding of organizational performance across various industries with different characteristics. Future research should consider expanding the sample to include a broader range of organizations, including governmental institutions at both macro and micro levels, to enhance the generalizability of the findings.

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