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The Influence of Transformational Leadership, Digital Technology and Knowledge Sharing on Corporate Sustainability Performance Mediated by Organizational Innovation Performance

Wanda Rahma*, Dita Oki Berliyanti, Eleonora Sofilda, Budi Santosa
Universitas Trisakti, Indonesia
Email: 122012316002@trisakti.ac.id*, dita.oki@trisakti.ac.id, eleonora@trisakti.ac.i, budi_santosa@trisakti.ac.id

Abstract

This study aims to examine the relationship between Transformational Leadership, Digital Technology, and Knowledge Sharing on Corporate Sustainability Performance mediated by Organizational Innovation Performance. The research data was taken from two energy companies, namely PT Adaro Energy Indonesia Tbk (Adaro) and PT Medco Energi Internasional Tbk (Medco). Sampling used Google Form in distributing the questionnaire. This study uses a quantitative approach through sampling with Purposive Sampling, the data analysis method used Structural Equation Model (SEM) using SmartPLS. The results of this study indicate that Transformational Leadership has proven to have no positive effect on Corporate Sustainability Performance. Digital Technology has proven to have a positive effect on Corporate Sustainability Performance. Knowledge Sharing has not proven to have a positive effect on Corporate Sustainability Performance. Transformational Leadership has proven to have a positive effect on Organizational Innovation Performance. Digital Technology has proven to have no positive effect on Organizational Innovation Performance. Knowledge Sharing has proven to have a positive effect on Organizational Innovation Performance. Organizational Innovation Performance has proven to have a positive effect on Corporate Sustainability Performance. Organizational Innovation Performance has been shown to mediate the effect of Transformational Leadership on Corporate Sustainability Performance. Organizational Innovation Performance has not been shown to mediate the effect of Digital Technology on Corporate Sustainability Performance. Organizational Innovation Performance has been shown to mediate the effect of Knowledge Sharing on Corporate Sustainability Performance. The implication of Management should strengthen transformational leadership, strategically integrate digital technology, create effective knowledge-sharing systems, and promote sustainable innovation through incentives and regular performance measurement.

Keywords: Transformational leadership; Digital Technology; Knowledge Sharing; Corporate Sustainability Performance; Organizational Innovation Performance

INTRODUCTION

The issue of sustainability is one of the main concerns in the modern business world (Agustina & Pradesa, 2024; Arifin, 2024; Takwa et al., 2026; Utama et al., 2025; Wafiq & Sisdianto, 2024). Companies are required not only to pursue financial profits, but also to maintain a balance between economic, social, and environmental aspects as reflected in the concept of corporate sustainability performance. A company's sustainability performance is an important benchmark for stakeholders in assessing the extent to which the company is able to contribute to sustainable development and respond to global challenges such as climate change, resource limitations, and regulatory demands.

This is in accordance with research (Kajang et al., 2025) conducted on companies listed on the Indonesia Stock Exchange. In an effort to improve corporate sustainability performance, leadership has a very strategic role. Transformational leadership is believed to be able to drive organizational change through a clear vision, motivation, and the ability to inspire employees to innovate and commit to long-term goals (Bass & Riggio, 2006).

Transformational leadership can improve company adaptability and instill sustainability values in organizational culture (Arum et al., 2025; Budiarto, 2024; Fahrezi et al., 2026). The

energy industry is currently undergoing a strategic transformation towards renewable energy, driven by regulatory pressures (such as ESG reporting and SDGs) and the use of digital technologies such as IoT and AI for efficiency and emission reduction. This sector was chosen as the object of research because it has a significant environmental impact, is under strict global and national regulations, and plays a strategic role in the economy. In addition, energy sustainability performance received great attention from investors and was supported by the availability of data from public companies, making it a relevant context to analyze the contribution of innovation to corporate sustainability performance.

PT Adaro Energy Indonesia Tbk and PT Medco Energi Internasional Tbk were chosen as the research objects because they are both diversifying their portfolios in response to ESG pressures. Adaro, as a major coal producer that is starting to switch to renewable energy, becomes a relevant case study to observe the impact of the energy transition on sustainability performance. Meanwhile, Medco, with its diversification into natural gas, geothermal, and power generation, reflects the readiness of energy companies in facing sustainability challenges. Both provide the right context to examine the influence of changes in business models on corporate sustainability performance.

The achievement of the Sustainable Development Goals (SDGs) plays an important role in strengthening corporate sustainability performance, which is reflected in its contribution to various goals such as SDG 7 (clean energy), SDG 12 (responsible production and consumption), SDG 13 (climate action), and SDGs 8 and 10 (inclusive economic growth and inequality reduction). Commitment to the SDGs not only improves environmental and social performance, but also opens up access to sustainable finance and strengthens the reputation and long-term competitiveness of the business. On the other hand, corporate sustainability performance is very important because it balances the aspects of profit, planet, and people through ESG integration. In this context, transformational leadership plays a key role by inspiring, providing vision, and fostering employee commitment, so as to positively influence corporate sustainability performance and encourage organizational innovation performance, which ultimately strengthens the integration of sustainability in company performance.

Previous research states that transformational leadership inspires and aligns stakeholders towards sustainability goals (Umar et al., 2025) and is considered the right leadership model to achieve sustainable performance (Xu et al., 2025), with strategic planning positively influencing both (Habeeb & Eyupoglu, 2024). On the other hand, digital technology has a relationship with corporate sustainability performance through increased operational efficiency, reduced environmental impact, and more accurate transparency (Sang & Anh, 2025; Buhaya & Metwally, 2024). Meanwhile, knowledge sharing has been proven to have a positive effect on sustainability by encouraging innovation and collaboration (Kader Jilani et al., 2020). Organizational innovation performance also plays an important role, as innovation—both in products and processes—has a positive impact on sustainability through resource efficiency and increased socio-environmental value (Valdivieso et al., 2025). However, in the context of the energy industry, the direct influence of transformational leadership on corporate sustainability performance is still inconsistent, the exploration of digital technology towards sustainability through innovation is still limited, and the direct link between knowledge sharing and corporate sustainability performance is still rarely researched, creating research gaps that need to be filled.

Based on the research background, this study is designed to answer various problems related to the influence of Transformational Leadership, Digital Technology, and Knowledge Sharing on Corporate Sustainability Performance with Organizational Innovation Performance as a mediation variable. The focus of the research problem includes the direct influence of each independent variable on Corporate Sustainability Performance, the influence of Transformational Leadership, Digital Technology, and Knowledge Sharing on Organizational Innovation Performance, and the influence of Organizational Innovation Performance on Corporate Sustainability Performance. In addition, this study also examines the role of Organizational Innovation Performance in mediating the influence of Transformational Leadership, Digital Technology, and Knowledge Sharing on Corporate Sustainability Performance, and examines the relationship between all these variables and the achievement of the Sustainable Development Goals (SDGs).

This study aims to empirically examine the influence of Transformational Leadership, Digital Technology, and Knowledge Sharing on Corporate Sustainability Performance with Organizational Innovation Performance as mediation, including analyzing the direct and indirect influences and their relationship with the Sustainable Development Goals (SDGs). In practical terms, research provides benefits for management as the basis for the development of leadership strategies and sustainable innovation, for investors as a tool to assess company readiness, for the government as policy input, and for academics as a literature supplement and further research reference.

METHOD

This study uses a quantitative research design supported by qualitative data and hypothesis testing approaches to analyze the influence of Transformational Leadership, Digital Technology, and Knowledge Sharing on Corporate Sustainability Performance with Organizational Innovation Performance as a mediation variable. The research analysis unit is an energy company, considering that this sector faces major challenges in balancing profitability and environmental responsibility during the transition to renewable energy as well as the implementation of Environmental, Social, and Governance (ESG) policies. The respondents were employees of PT Adaro Energy Indonesia Tbk and PT Medco Energi Internasional Tbk who were surveyed in real time using Google Form. Data were collected through purposive sampling with primary data as the main source and literature studies as supporting conceptual frameworks. The research population was 185 employees, while the sample size was determined based on the provision of a minimum of 5 to a maximum of 10 times the number of questionnaire indicators (Hair et al., 2020), with a total of 28 statement items so that the sample needs were in the range of 140–280 respondents. All variables were measured using a Likert scale of 1–5, and data analysis was carried out through descriptive statistics and SmartPLS-based Structural Equation Modelling (SEM).

Data testing includes validity, reliability, model suitability, and hypothesis testing. The validity test was carried out by analyzing outer loading on SEM, with a value criterion of >0.7 as a valid indicator, as shown in the SmartPLS processing results. The reliability test refers to convergent validity, Average Variance Extracted (AVE), discriminant validity, as well as composite reliability and Cronbach alpha (Hair et al., 2014), where all constructs meet the reliability criteria with an AVE value of >0.5 and a composite reliability of >0.7. Model

suitability was tested using SmartPLS goodness of fit indicators, including SRMR, NFI, R-squared, and Q-squared, with results indicating an acceptable level of model fit. Data analysis was followed by descriptive statistics to describe the characteristics of the data, as well as hypothesis testing using SEM to assess the causal relationship between variables. Hypothesis testing is carried out one-tailed hypothesis with the p-value criterion ≤0.05 as the basis for accepting alternative hypotheses, thus allowing the drawing of conclusions based on theory and empirical evidence without eliminating references and citations used in the research.

RESULTS AND DISCUSSION

Description of Research Data

Based on gender, the highest frequency of male respondents was 104 people or 56.2% while women were 81 people or 43.8%. This shows that employees in energy companies are more male.

Based on the level of education, the majority of respondents' education is at the S1 level at 49.7%, then S2 at 23.8% and D3 at 20%, the last at the S3 level at 6.5%.

Based on the survey results, most respondents were employees with a working period of 4-10 years as many as 83 people or 44.9%, then in the 2-5 years of service as many as 81 people (43.8%) and over 10 years as many as 21 people (11.3%).

The most software used by respondents were Ms Excel as many as 98 people or 52.9%, Ms Access 72 people or 38.8% and the least 15 people or 8.2% used accounting software.

The most respondents came from PT. Adaro Energy Indonesia is 102 people or 55.1% and the remaining 83 people or 44.9% are from PT Medco Energi International.

Statistics Descriptive

1. Statistics Descriptive *Transformational Leadership*

Respondents answered yes (4.1514) to the Transformational Leadership variable. The answer of the respondent who had the lowest average was the seventh indicator (4.0108) Leader describes an inspiring future for everyone. This shows that respondents are less likely to feel that leaders are portraying an inspiring future for everyone.

The indicators with the highest averages are the first and fourth indicators. Leaders show determination in achieving goals and Leaders show competent, passionate, and confident qualities. This shows that the leader has determination to achieve goals and has competent and enthusiastic qualities in leading the company.

2. Statistics Descriptive Digital Technology

Respondents answered yes (4.1372) to the Digital Technology variable. The answer with the lowest average (4.0541) is in the fourth indicator, which is Using digital tools helps me get my work done faster. This shows that digital technology will not necessarily accelerate work.

The highest average of respondents' answers was in the second, third and eighth indicators. This shows that the use of digital technology is flexible and collaborative to develop the ability to use modern technology, can increase speed and convenience and companies measure the success of using digital technology from business results rather than operational time.

3. Statistics Descriptive Knowledge Sharing

Respondents answered yes (4.1279) to the Knowledge Sharing variable. The lowest average respondent answers were found in the first and third indicators (4.1027), which shows

that not all employees are happy to help their colleagues by sharing knowledge or then documenting it for others to use. The average respondent answered the highest in the second indicator (4.1784). This shows that sharing suggestions and ideas to help complete tasks is still preferred by respondents.

4. Statistics Descriptif Organizational Innovation Performance

Respondents answered yes (4.2097) to the variable Organizational Innovation Performance. The lowest average on the fifth indicator. This shows that not all policies implemented by companies can improve organizational performance. The highest average answer is on the first indicator that indicates that the company has demonstrated a new management work system, meaning that the company has implemented or introduced different management methods, procedures, or structures than before to improve its effectiveness, efficiency, and operational quality.

5. Statistics Descriptive Corporate Sustainability Performance

Respondents answered yes (4.1676) to the Corporate Sustainability Performance variable. The average respondent answered the lowest in the fourth indicator (4.0216) which shows that the organization has not been maximized in fostering a culture of accountability and integrity in the decision-making process.

The highest average answer is found in the first indicator (4.2541) which is that our organization has achieved important certification, which means that the company or organization has received official recognition from the authorities for meeting certain standards in environmental management.

Summary of Hypothesis Test and Relation to Sustainable Development Goals (SDGs)

Table 1. Hypothesis Test Results

	Hypothesis	Estimation	P Value	Conclusion	Supported SDGs	Summary of Contributions against the SDGs
H1	Transformational Leadership Influential Positive against Corporate Sustainability Performance	-0,057	0,030	Hypothesis Failed	SDGs 4, 8, 9, 12	Leadership Driving Value creativity and sustainability, but not yet Impact directly on Performance Sustainability Company
H2	Digital Technology Positive effect on Corporate Sustainability Performance	0,222	0,001	Hypothesis Supported	SDG 4, 8, 9, 12	Digital technology Improve resource efficiency, quality of human resources, and sustainability practices

	Hypothesis	Estimation	P Value	Conclusion	Supported SDGs	Summary of Contributions against the SDGs
H3	Knowledge Sharing Influential positive against Corporate Sustainability Performance	-0.347	0,000	Hypothesis Failed	SDG 8, 9, 12, 17	Knowledge Sharing yet Impact directly on Sustainability without mechanism Innovation
H4	Transformational Leadership Influential Positive against Organizational Innovation Performance	0,757	0,000	Hypothesis Supported	SDGs 8, 9, 12	Leadership transformational push creativity, innovation, and power Competitive Organizations
H5	Digital Technology Influential Positive against Organizational Innovation Performance	-0,212	0,035	Hypothesis Failed	SDG 4, 8, 9	Technology has not yet Automatic Improve Innovates without Integration strategy organisasi
H6	Knowledge Sharing has a positive effect against Organizational Innovation Performance	0,446	0,000	Supported Hypotheses	SDG 8, 9, 12, 17	Knowledge sharing accelerates knowledge transfer and organizational innovation
H7	Organizational Innovation Performance has a positive effect on Corporate Sustainability Performance	1,077	0,000	Supported Hypotheses	SDG 8, 9, 12, 13	Organizational innovation is the main key to achieving corporate sustainability
H8	The role of Organizational Innovation Performance in mediating influence Transformational Leadership on Corporate Sustainability Performance	0,815	0,000	Supported Hypotheses	SDGs 8, 9, 12	Organizational innovation mediates the influence of Transformational Leadership on sustainability
H9	The Role of Organizational Innovation Performance in Mediating the Influence of Digital	-0,228	0,036	Hypotheses Failed	SDG 9, 12	Technology needs the support of innovation that mature to impact sustainability

	Hypothesis	Estimation	P Value	Conclusion	Supported SDGs	Summary of Contributions against the SDGs
	Technology on Corporate Sustainability Performance					
H10	The role of Organizational Innovation Performance mediates the influence of Knowledge Sharing Corporate Sustainability Performance	0,480	0,000	Supported Hypotheses	SDG 8, 9, 12, 17	Knowledge sharing contributes to sustainability through improvement

Source: Results of Hypothesis Test Processing and *SDGs Report*

Based on hypothesis testing, the findings of the study show that Transformational Leadership (H1) does not have a positive effect on Corporate Sustainability Performance ($\beta = -0.057$; $p = 0.030$), so that the hypothesis is declared to be unsupported, even though transformational leadership is still related to the achievement of SDGs 4, 8, 9, and 12 through the encouragement of creativity and sustainability values that have not had a direct impact on sustainability performance company. On the other hand, Digital Technology (H2) has been shown to have a positive effect on Corporate Sustainability Performance ($\beta = 0.222$; $p = 0.001$), so that the hypothesis is supported and contributes to the achievement of SDGs 4, 8, 9, and 12 through improving resource efficiency, human resource quality, and sustainability practices. Knowledge Sharing (H3) did not have a positive effect on Corporate Sustainability Performance ($\beta = -0.347$; $p = 0.000$), so the hypothesis failed to support it, indicating that knowledge sharing has not had a direct impact on sustainability in the absence of innovation mechanisms, even though it is related to SDGs 8, 9, 12, and 17. In terms of innovation performance, Transformational Leadership (H4) has been shown to have a positive effect on Organizational Innovation Performance ($\beta = 0.757$; $p = 0.000$), supporting hypotheses and contributing to SDGs 8, 9, and 12 by encouraging creativity, innovation, and organizational competitiveness, while Digital Technology (H5) does not have a positive effect on Organizational Innovation Performance ($\beta = -0.212$; $p = 0.035$), so that the hypothesis fails to be supported and shows that technology has not automatically increased innovation without the integration of organizational strategies. Furthermore, Knowledge Sharing (H6) has a positive effect on Organizational Innovation Performance ($\beta = 0.446$; $p = 0.000$), so that the hypothesis is supported and related to SDGs 8, 9, 12, and 17 through the acceleration of knowledge transfer and organizational innovation. Organizational Innovation Performance (H7) was also proven to have a positive effect on Corporate Sustainability Performance ($\beta = 1.077$; $p = 0.000$), supporting the hypothesis and contributing to SDGs 8, 9, 12, and 13 by affirming that organizational innovation is the main key to achieving corporate sustainability. The mediating role of Organizational Innovation Performance was also confirmed, where this variable

mediated the influence of Transformational Leadership on Corporate Sustainability Performance (H8; β = 0.815; p = 0.000) and mediated the influence of Knowledge Sharing on Corporate Sustainability Performance (H10; β = 0.480; p = 0.000), both of which are supported and related to SDGs 8, 9, 12, and 17 through strengthening organizational innovation, while the mediating role of Organizational Innovation Performance in the relationship of Digital Technology to Corporate Sustainability Performance (H9; β = −0.228; p = 0.036) is not supported, suggesting that digital technology requires mature innovation support and strategic integration in order to be able to contribute optimally to sustainability and the achievement of the SDGs.

CONCLUSION

Research on two energy companies, PT Adaro Energy Indonesia Tbk and PT Medco Energi Internasional Tbk, yielded several key findings. First, Transformational Leadership has been proven to have no direct effect on Corporate Sustainability Performance, but has a positive and strong effect on Organizational Innovation Performance. Second, Digital Technology has a direct positive effect on Corporate Sustainability Performance, but not significantly on Organizational Innovation Performance. Third, Knowledge Sharing does not have a direct effect on Corporate Sustainability Performance, but has a positive effect on Organizational Innovation Performance. Fourth, Organizational Innovation Performance has proven to have a positive and strong influence on Corporate Sustainability Performance, as well as acting as a full mediator in the relationship between Transformational Leadership and Knowledge Sharing and Corporate Sustainability Performance. On the other hand, Organizational Innovation Performance does not mediate the relationship between Digital Technology and Corporate Sustainability Performance, which shows that digital technology tends to have a direct impact. Overall, the findings confirm that Organizational Innovation Performance is a key mechanism that translates leadership resources and knowledge into sustainability values, while the contribution of digital technology needs to be strategically integrated with leadership and innovation culture to optimally support the achievement of the Sustainable Development Goals (SDGs).

For future research, it is recommended to expand the scope of the industry sector and use a longitudinal approach to improve the generalization and understanding of variable dynamics over time. The development of a research model by adding other mediating or moderation variables, such as organizational learning or sustainability culture, as well as using more specific and measurable sustainability performance indicators, will enrich the analysis and provide more operational recommendations. In addition, exploration of external factors and synergies between internal variables to support the broader achievement of the SDGs (such as SDGs 4, 8, 9, 12, 13, and 17) is also important to provide a more comprehensive understanding of companies' contributions to sustainable development.

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