A study on influence of select variables on Mediation of Green Information Technology Capital in Mining Industry

.

ABSTRACT

Aims: The primary objective of the paper is to investigate the influence of Environmental Corporate Social Responsibility (ECSR), Organizational Culture (OC), and Top Management's Commitment (TMC) on Environmental Performance (EP) in the mining industry. The study specifically examines how Green Information Technology Capital (GITC) mediates the relationships between these variables. The research aims to provide insights into how mining companies can effectively integrate sustainability strategies into their operations to reduce negative environmental impacts.

Place and Duration of Study: This study was conducted in the mining industry sector over a period of six months.

Methodology: The study employed a quantitative research method using Structural Equation Modeling (SEM) with data collected from a sample of mining industry companies over a period of six months. The research design is quantitative, aiming to test known hypotheses regarding the relationships between ECSR, OC, TMC, GITC, and EP. The analysis was conducted using Smart PLS software, which is a popular tool for SEM in the context of partial least squares (PLS) path modeling. The study contributes to the understanding of how ECSR, OC, and TMC interact with GITC to influence EP in the mining industry, providing insights for sustainable business practices and environmental sustainability strategies

Results: The analysis revealed that ECSR has a positive but insignificant influence on EP ($P > 0.05$), while it significantly negatively influences GITC ($P < 0.05$). GITC, in turn, shows a significant positive influence on EP ($P < 0.05$), underscoring the importance of green information technology in improving environmental performance. Organizational Culture (OC) did not have a significant direct impact on EP ($P > 0.05$) but had a significant positive influence on GITC ($P < 0.05$), which then positively impacted EP. Top Management's Commitment (TMC) did not have a significant direct effect on EP ($P > 0.05$) and had a significant negative influence on GITC ($P < 0.05$). The mediating role of GITC was significant for the effects of ECSR and OC on EP, but not for TMC.

Conclusion: The study highlights the critical role of Green Information Technology Capital (GITC) as a mediator in enhancing environmental performance within the mining industry. While Environmental Corporate Social Responsibility (ECSR) and Organizational Culture (OC) contribute positively to environmental performance through GITC, Top Management's Commitment (TMC) requires further exploration due to its complex interaction with GITC. These findings emphasize the necessity for companies to invest in green technology to achieve better environmental outcomes.

.

Keywords: Environmental Corporate Social Responsibility, Top Management Commitment, Organizational Culture, Environmental Performance

1. INTRODUCTION

Environmental performance in the mining industry is a pressing global issue in today's modern era**.** The mining industry is known for its significant ecological impacts, such as water and air pollution, habitat destruction, and soil degradation. In this context, it is crucial to understand and mitigate these negative impacts while developing effective sustainability strategies (Wang et al., 2022). Sustainable development has become a widely recognized goal for human civilization, especially as environmental sustainability becomes increasingly threatened (Qarahasanlou et al., 2022). Although Life Cycle Assessment (LCA) has been widely used as an environmental system analysis tool, its application in the mining industry is still in the developmental stages (Vu & Dang, 2021).

The mining industry also contributes to climate change and biodiversity loss, not only on a local scale but also globally (Araya et al., 2021). One of the critical aspects that needs to be addressed is the management of mining waste, such as tailings, which represent one of the main waste streams in the mining industry (Kinnunen et al., 2021). The concept of a circular economy is also relevant in this context, where circular flows in the economy aim to retain resources as efficiently as possible and limit final disposal (Sardjono et al., 2023).

Strategy For development sustainable in operation mining covers various aspect, start from create environment inclusive work, investment in education, support new industry develop, implement responsible practice answer in a way environment , up to adopt more technology clean (Fraser, 2021) . It's also important to notice impact mining to sustainability local, incl involve community local in effort development sustainable (Lazarenko et al., 2021) .

Culture organization (*Organizational Culture*) in industry mining hold role key in direct company going to performance more environment Good. Remember impact ecologically significant from activity mining like water and air pollution, habitat destruction, and decline quality land , culture pro- environment organizations can help reduce impact negative that and pushed implementation strategy effective sustainability (Araya et al., 2021) . Culture supporting organization sustainability environment can influence behavior and attitudes employee to practices friendly environment, innovation in management waste such as tailings, and implementation draft purposeful circular economy maintain efficiency source Power as well as reduce disposal end (Sardjono et al., 2023) . With So, company can more proactive in handle issues environment and more responsive to change related external with sustainability (Araya et al., 2021) .

With notice aspect environmental, social, and economic, as well apply draft economy circularity and principles development sustainable, industrial mining can role in create balance between not quite enough answer social company, sustainability environment, and new market opportunities For increase profit margins (Blinova et al., 2022) .

In particular, corporate social responsibility (CSR) and top management commitment are two key variables that can influence environmental performance. Corporate social environmental responsibility reflects a company's commitment to sustainable and ethical business practices, while top management commitment indicates the extent to which company leaders support and implement environmental initiatives. The combination of these two variables can produce a significant positive impact on a company's environmental performance.

Using environmentally friendly information technology capital as a mediator, mining companies can optimize their operational processes to reduce their ecological footprint. Green information technology includes the use of energy efficient software and hardware, as well as data management systems that support environmental sustainability. This research aims to examine how environmentally friendly information technology capital can mediate the influence of corporate social environmental responsibility and top management commitment on environmental performance.

Stakeholder theory and resource-based view theory are important foundations for this research. Stakeholder Theory emphasizes the need for companies to pay attention to the interests of all parties involved, including local communities and the environment, while Resource-Based View Theory highlights the importance of internal resources, such as information technology, in achieving sustainable competitive advantage.

Previous research has shown that Corporate Social Responsibility (CSR) and top management commitment have a positive impact on environmental performance. For example, a study by (Boakye et al., 2020) found that companies with strong environmental commitment tend to have better financial and environmental performance. In addition, research by (Abdollahbeigi & Salehi, 2020) shows that the adoption of environmentally friendly information technology can help reduce energy consumption and carbon emissions.

This research aims to determine the influence of corporate social environmental responsibility on environmental performance, examine the influence of top management commitment on environmental performance, and examine the role of environmentally friendly information technology capital as a mediator between corporate social environmental responsibility, top management commitment and environmental performance. Through this investigation, it is hoped that a deeper understanding can be gained regarding how mining companies can effectively integrate sustainability strategies into their operations, which can ultimately reduce negative impacts on the environment.

In the context of the mining industry which has a significant environmental impact, improving environmental performance through corporate social responsibility and top management commitment, mediated by environmentally friendly information technology capital, is an important strategic step. This solution not only provides immediate benefits in the form of reduced ecological impact but also improves the company's reputation and long-term sustainability. With a strong theoretical basis and support from previous research, it is hoped that this research can make a meaningful contribution to academic literature and sustainable business practices.

2. LITERATURE RIVIEW

2.1 **Environmental Corporate Social Responsibility**

Environmental Corporate Social Responsibility (ECSR) refers to the practices and policies adopted by companies For reduce impact negative its operations to environment and contribute to sustainability ecological. ECSR covers various initiative like subtraction house gas emissions glass , management responsible waste answer, efficiency energy, and conservation source Power natural (Li & Wang, 2022) . Corporate Social Responsibility (CSR) towards Environment refers to commitment company For operate in a way sustainable with notice impact the operation to environment and society . This involve integration caring environment to in operation business company and interaction with the stakeholders interest . Environmental CSR initiatives can covers subtraction emission carbon , conservation source power , applicability practice sustainability , and support to reason environment . Companies that prioritize environmental CSR show commitment they to sustainability and practice responsible business answer , as you can increase performance environment and trust holder interest (Nguyen et al., 2021) .

1.	Reduction of carbon emissions
2.	Effective waste management
3.	Use of renewable energy
4.	Invest in environmentally friendly technology

(Wyszomirski & Olkiewicz, 2020)

2.2 Top Management's Commitment

Commitment management peak reflect support and involvement active from leader company in implement and maintain initiative environment . Commitment This often becomes decider main success of sustainability programs and policies environment in organization . Commitment management peak play role important in push initiative inside environment organization . When management peak committed to sustainability environment , p This sets the tone for all over organization and influence adoption practices and policies green . Studies has show that commitment management peak impact positive to performance environment , responsibility answer social company , and behavior citizenship organization to environment (Newton et al., 2024; Memon et al., 2022) . Commitment management peak very important For create culture sustainability , implement strategy green , and reach objective environment .

1.	Availability source power for initiative environment
2.	Leadership and direction strategic from top management
3.	Policies and procedures supporting company sustainability
4.	involvement in environmental programs
5.	Communication and transparency about policy environment

(Kumar, 2023)

2.3 Organizational Culture

Organizational Culture or culture organization refers to the values , beliefs , and norms held by members forming organization behavior , attitudes , and ways Work they . Culture organization covers all something different One organization from organization others , incl owned values , habits work , as well method interact between member organization . (Kaur Bagga et al., 2023) define culture organization as pattern assumptions basis discovered , invented , or developed by a group certain in frame overcome problem adaptation external and internal integration , which has been Work with Enough Good For considered valid and, therefore that , taught to member new as the right way For looking , thinking , and feeling connection with problems the . Culture strong organization in support initiative environment can increase performance environment company . Based on research conducted by (Reader & Gillespie, 2023) , culture organization can measured through four main dimensions and indicators , namely :

Involvement (Involvement)

1. Empowerment (Empowerment): The degree to which members organization feel empowered to create decisions and contribute to organization .
2. Team Orientation (Team Orientation): The level of cooperation and collaboration within the team.
3. Capability Development (Development Capability): Effort organization in development abilities and skills its members .

Consistency (Consistency)

1. Core Values: Clarity and commitment to the organization's core values .
2. Agreement : The level of agreement between member organization about values and practices Work .

3. Coordination and Integration (Coordination and Integration): Level of cooperation between sections or departments within the organization .

Adaptability (Adaptability)

1. Creating Change (Creating Change): Ability organization in responding to external changes .
2. Customer Focus (Customer Focus) : Orientation to needs and satisfaction customer .
3. Organizational Learning (Organizational Learning): Ability organizations in learning and innovating .

Mission (Mission)

1. Strategic Direction and Intent Strategic): Clarity vision and mission organization .
2. Goals and Objectives : Setting clear goals and objectives .
3. Vision (Vision): View term long about the future of the organization .

2.4 Environmental Performance

Performance environment measure how much effective a organization in manage and reduce impact the environment . Performance This covers various aspect like management emissions , efficiency energy , reduction waste , and practices use source sustainable power . Performance environment refers to results and achievements from effort management environment a organization . This measure effectiveness initiative environment in reduce impact environment company , preserving source power , and promote sustainability . Performance environment influenced by factors like commitment management peak , innovation environment , and adoption practice green (Herrera & de las Heras-Rosas, 2020) (Huynh, 2020) . Company with performance strong environment show commitment they to not quite enough answer environment and can increase reputation they are interesting caring customers environment , and achieve sustainability business term long .

1.	House gas emission levels glass
2.	consumption per unit of output
3.	Volume of waste generated
4.	Use of materials standard recycling
5.	Compliance with environmental regulations

(W. Zhang et al., 2022)

2.5 Green Information Technology Capital in Mining Industry

Technology Capital Environmentally Friendly Information (Green IT Capital) in industry mining covers investment in reducing technology impact environment operational mining . This covers device hardware and devices designed software For efficiency energy , more data management OK , as well solution supporting technology operation sustainable (Aron & Molina, 2020) . Technology Capital Environmentally Friendly Information (IT). in industry mining involve use friendly IT solutions and practices environment For reduce consumption energy , minimize emission carbon , and increase efficiency operational . Adopt friendly IT capital environment can help company mining increase performance environment they with optimize utilization source power , reduce waste , and reduce impact environment (Leiva González & Onederra, 2022) . With integrate green IT solutions to in operation them , the company mining can reach savings costs , compliance to regulation , and growth sustainable while contribute to the effort conservation environment .

1.	Invest in devices hard energy saving
2.	Implementation device software for operational efficiency
3.	Use of technology monitoring environment
4.	Data management system for sustainability
5.	Subtraction energy consumption through technology

(Kraus et al., 2020)

2.6 Framework of thinking

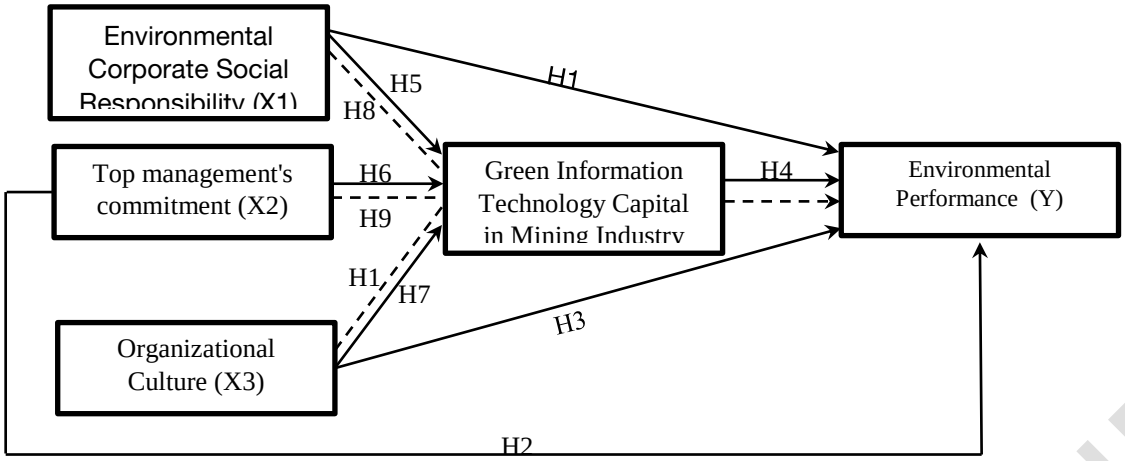

Fig 1: Thinking Framework

Hypothesis

H1: Environmental Corporate Social Responsibility influences Environmental Performance

H2: Top management's commitment influences Environmental Performance

H3: Organizational Culture influences Environmental Performance

H4: Green Information Technology Capital in Mining Industry has an effect on Environmental Performance

H5: Environmental Corporate Social Responsibility influences Green Information Technology Capital in Mining Industry

H6: Top management's commitment influences Green Information Technology Capital in Mining Industry

H7: Organizational Culture influences Green Information Technology Capital in Mining Industry

H8: Environmental Corporate Social Responsibility influences Environmental Performance mediated by Green Information Technology Capital in Mining Industry

H9: Top management's commitment influences Environmental Performance, mediated by Green Information Technology Capital in Mining Industry

H10: Organizational Culture influences Environmental Performance mediated by Green Information Technology Capital in Mining Industry

3. MATERIAL AND METHODS

3.1 Study Design

Quantitative techniques were used in this study. The goal of a quantitative study is to test a known hypothesis. This method uses numbers resulting from measurements carried out by questionnaire on study variables. The analysis of this study is a structural *Equation Model* (SEM) approach with the help of smart PLS (Ghozali, 2018) .

3.2 Outer Model Analysis

Validity and Reliability Test

Validity and reliability tests are carried out to ensure that the measurements used are accurate and reliable. Validity and reliability testing can be seen in:

1. First, Convergent Validity is a metric that is assessed in relation to the correlation between item/component scores and construct scores, as seen in the standard loading factor which describes the magnitude of the

correlation between each item measured and its construct. If the individual reflex measurement is correlated, it is said to be high if it is > 0.7.

2. *cross-loading* measures and constructs . Discriminant validity, namely comparing the extracted *root mean square of variance* (AVE), a tool is declared valid if the AVE value is > 0.5.
3. Third, Composite reliability is a measure of a structure that can be seen in terms of latent variable coefficients. In this measurement, if a value > 0.70 is achieved then the construction can be said to have high reliability.
4. Fourth, Cronbach's Alpha is a reliability test designed to strengthen composite reliability results. A variable can be declared reliable if the Cronbach's alpha value is > 0.7.

3.3 Instrument Testing

Table 1: Testing of instruments

Uji Instrumen	Uji yang digunakan
Uji Validitas	Convergent Validity
	AVE
Uji Reliabilitas	Cronbach Alpha
	Composite Relibility

R Square Test

The dependent construct's R-square is used to analyze the influence of specific independent variables on the dependent latent variable, which displays the magnitude of the influence.

Inner Model Analysis

Deep Model Analysis, also known as Structural Modeling, is a technique for predicting causal relationships between model variables. Hypotheses are tested during deep model analysis in Smart PLS testing. The t-statistic value and probability value can be shown in evaluating the hypothesis. The t-statistic results used to test the hypothesis using statistical values are 1.96 for an alpha of 5 percent, while the beta score is used to determine the direction of the influence of the relationship between variables. The criteria for acceptance/rejection of the hypothesis are:

Ha = t-statistic > 1.96 with p-values < 0.05.

H_0 = t-statistic <1.96 with p-values> 0.05 .

4. RESULTS AND DISCUSSION

In the Results Chapter, provide detailed description of findings from study . as explanation more carry on from results have been explained in a way general in the Results Chapter through existing sub- chapters.

Evaluation of the Measurement Model (Outer Model)

Four criteria external model measurements Validity Convergent, Validity Discriminant, Reliability Composite, and *Cronbach Alpha* considered during external model evaluation study. The following image shows the research model.

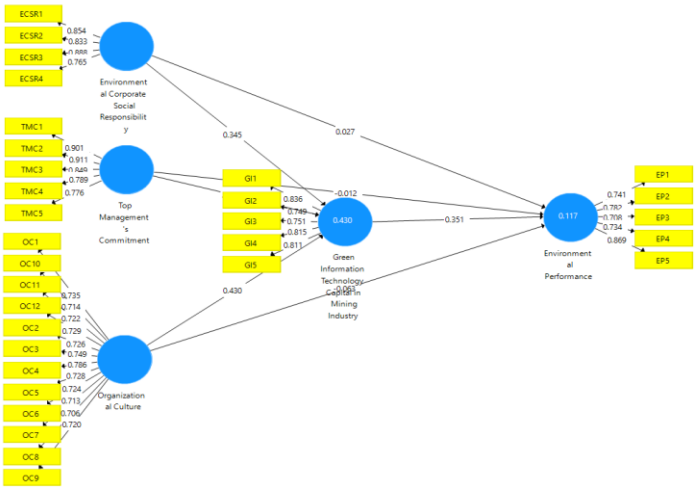

Figure 2. Outer Model
Figure 2 explains the outer loading value of the inner variable study . in picture the all mark outr loading complies criteria validity Because has exceeds 0.7.

Validity Test

Validity Test used For measure valid , or valid or not a questionnaire . In research This testing validity done with using convergent validity and AVE. Validity using convergent validity which is the measurement model with reflection indicator assessed based on correlation between the item scores/component scores that are calculated with PLS. size individual reflection is said tall If correlate more from 0.7 with measured construction . However according to (Creswell & Guetterman, 2019) For study stage beginning from development scale measurement loading value 0.5 to 0.6 fast Enough adequate .

Table 2 Validity Test Results

Variable		Outer Loading	AVE	Information
Environmental Corporate Social Responsibility	ECSR1	0.854	**0.699**	Valid
	ECSR2	0.833		Valid
	ECSR3	0.888		Valid
	ECSR4	0.765		Valid
Environmental Performance	EP1	0.741	0.591	Valid
	EP2	0.782		Valid
	EP3	0.708		Valid
	EP4	0.734		Valid
	EP5	0.869		Valid
Green Information Technology Capital in Mining Industry	GI1	0.836	**0.629**	Valid
	GI2	0.749		Valid
	GI3	0.751		Valid
	GI4	0.815		Valid
	GI5	0.811		Valid
Intellectual Capital	OC1	0.735	**0.532**	Valid
	OC10	0.714		Valid
	OC11	0.722		Valid
	OC12	0.729		Valid
	OC2	0.726		Valid
	OC3	0.749		Valid
	OC4	0.786		Valid
	OC5	0.728		Valid
	OC6	0.724		Valid
	OC7	0.713		Valid
	OC8	0.706		Valid
	OC9	0.720		Valid
Top Management's Commitment	TMC1	0.901	**0.717**	Valid
	TMC2	0.911		Valid
	TMC3	0.849		Valid
	TMC4	0.789		Valid
	TMC5	0.776		Valid

Reliability Test
Study This uses 2 types of reliability tests namely the Cronbach Alpha test and Composite Reliability Test. Cronbach Alpha measure mark lowest (lowerbound) reliability . Data stated reliable if the data own Cronbach alpha value >0.7. Composite

reliability measures mark true reliability from a variable . Data stated own reliability tall if own composite reliability score >0.7.

Table 3. Reliability Test Results

	Cronbach's Alpha	rho_A	Composite Reliability
Environmental Corporate Social Responsibility	0.856	0.879	0.903
Environmental Performance	0.832	0.867	0.878
Green Information Technology Capital in Mining Industry	0.853	0.859	0.894
Organizational Culture	0.921	0.928	0.932
Top Management's Commitment	0.904	0.945	0.927

Test results show that , all over instrument stated reliable with Cronbach Alpha and Composite reliability scores > 0.7.

***Inner* Structural Model**

Evaluate hypothesized relationship between construct latent is the essence of deep model assessment . As for inner model evaluation can be done explained as following :

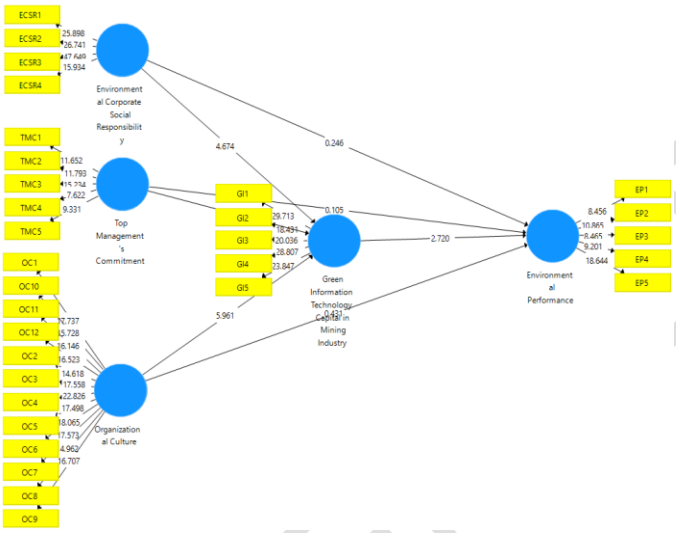

Fig. 3. Inner Structural Model

R-Square Test

The R-Square Coefficient determination (R-Square) test was used For measure how much Lots Endogenous variables are influenced by variables other . Based on yagn data analysis done through using the smartPLS program , obtained R-Square value as shown in the table following :

Table 4. R-Square Test

	R Square	**R Square Adjusted**
Environmental Performance	0.117	0.080
Green Information Technology Capital in Mining Industry	0.430	0.412

Based on results testing , obtained The R-Square score for Environmental Performance is 0.117, which means Environmental Performance is influenced by Environmental Corporate Social Responsibility Green Information Technology Capital in Mining Industry, Organizational Culture, Top Management's Commitment by 11.7% and the other 88.3% is influenced by variables that have not been explained in study This .

Based on results testing , obtained R-Square score for Green Information Technology Capital in Mining Industry is 0.430 , which means that Green Information Technology Capital in Mining Industry is influenced by Environmental Corporate Social Responsibility, Organizational Culture, Top Management's Commitment by 43% and the other 57% is influenced by variables that have not been explained in study This .

Hypothesis Test s

The result can used For answer hypothesis study based on data processing that has been done done. T-Statistics and P-Values examination was carried out For test hypothesis in study This. We can say that hypothesis study accepted if the P-Values are less from 0.05. Following ie results findings from testing hypothesis research obtained from the inner model:

Table 5. Hypothesis Testing Study

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
Environmental Corporate Social Responsibility -> Environmental Performance	0.027	0.246	0.806
Environmental Corporate Social Responsibility -> Green Information Technology Capital in Mining Industry	0.345	4,674	0,000
Green Information Technology Capital in Mining Industry -> Environmental Performance	0.351	2,720	0.007
Organizational Culture -> Environmental Performance	-0.063	0.431	0.667
Organizational Culture -> Green Information Technology Capital in Mining Industry	0.430	5,961	0,000
Top Management's Commitment -> Environmental Performance	-0.012	0.105	0.917
Top Management's Commitment -> Green Information Technology Capital in Mining Industry	-0.198	2,688	0.007
Environmental Corporate Social Responsibility -> Green Information Technology Capital in Mining Industry -> Environmental Performance	0.121	2,316	0.021
Organizational Culture -> Green Information Technology Capital in Mining Industry -> Environmental Performance	0.151	2,465	0.014
Top Management's Commitment -> Green Information Technology Capital in Mining Industry -> Environmental Performance	-0.070	1,858	0.064

Environmental Corporate Social Responsibility -> Environmental Performance

Test results hypothesis First namely Environmental Corporate Social Responsibility towards Environmental Performance obtained Positive Beta score (0.027) with T statistics 0.246 (p>1.96) and p values 0.806 (p<0.05) produces positive influence No significant Where Environmental Corporate Social Responsibility does not can influence Environmental Performance.

Environmental Corporate Social Responsibility -> Green Information Technology Capital in Mining Industry

Test results hypothesis First namely Environmental Corporate Social Responsibility towards Green Information Technology Capital in Mining Industry was obtained Positive Beta score (-0.063) with T statistics 4.674 (p>1.96) and p values 0.000 (p<0.05) produces positive influence significant Where Environmental Corporate Social Responsibility can influence Green Information Technology Capital in Mining Industry.

Green Information Technology Capital in Mining Industry -> Environmental Performance

Test results hypothesis First namely Green Information Technology Capital in Mining Industry on Environmental Performance obtained Positive Beta score (0.351) with T statistics 2.720 (p>1.96) and p values 0.007 (p<0.05) produces positive influence significant where Green Information Technology Capital in Mining Industry can be affecting Environmental Performance.

Environmental Corporate Social Responsibility (ECSR) is draft multifaceted involving initiative purposeful company For reduce impact company to environment natural and integrating problem environment to in operation business and interaction holder interests ("The United Nations Global Compact: An Institutional Approach for Environmental Principles based on Participants in Turkey"). Although there is understanding general that Corporate Social Responsibility (CSR) has an impact positive to Performance Environment (Xu et al., 2022) , relationship between Corporate Social Responsibility (CSR) Environment and Performance Environment Possible No always significant . A number of study show that Performance Environment Possible No impact significant to Social Responsibility Companya (Ni Putu Pebriani Diah Pratiwi & Eka Ardhani Sisdyani, 2023) . Study has show that Corporate Social Responsibility, incl aspect environment, yes leads to improvement performance finance (Pramudiati et al., 2022) .

However, disclosure not quite enough answer social company Possible No mediate influence No direct performance environment to mark company (Sukma Pratiwi & Hidayah, 2023) . Besides that, increasingly Good company ESG (Environmental , Social and Governance) performance , increasingly high value too his company . More far , influence ESG factors against performance companies , esp in matter not quite enough answer environment , has highlighted (Suwandi & Susilawati, 2023) . Has observed that not quite enough answer environment company in a way No direct can influence performance company through variables like R&D investment. Although There is correlation positive between corporate ESG performance and performance finances , relationships the Possible more clear when company show management environment and responsibility answer strong social (C. Zhang & Azman, 2023) . As conclusion, though There is consensus general about impact positive CSR towards Performance Environment and results finance, influence direct Performance Environment to Environmental Corporate Social Responsibility Possible No always significant. Companies need consider with carefully initiative environment they in more CSR context wide For reach development sustainable and improving performance they in a way overall.

Organizational Culture -> Environmental Performance

Test results hypothesis First namely Organizational Culture on Environmental Performance was obtained Positive Beta score (-0.063) with T statistics 0.431 (p>1.96) and p values 0.667 (p<0.05) produces there is no negative influence significant where Organizational Culture does not can affecting Environmental Performance.

Culture organization is aspect important from behavior influencing organizations various results , incl performance employee (Suwandi & Jaka Waskito, 2022) . Temporary Lots study has show connection positive between culture organization and performance (Magsi, 2021) , there are also mutual findings contradicting that shows that culture organization Possible No impact significant impact on performance (Afandy et al., 2022) (Gunawan & Widodo, 2022) (Kurniandra et al., 2022) . A number of study even show effect negative or No significant from culture organization to performance employee. Difference in findings This highlighting complexity connection between culture organization and performance, which shows that influence culture organization to performance employee Possible No always significant. As conclusion, impact culture organization to performance employee can varies depending on context specific and dynamic organization. Temporary a number of study show influence positive culture organization to performance, others pointed out lack effect significant or

even connection negative. Therefore that's important for organization For evaluate with carefully circumstances unique them and consider Lots factor when endeavor increase performance employee through initiative culture organization.

Organizational Culture -> Green Information Technology Capital in Mining Industry

Test results hypothesis First namely Organizational Culture towards Green Information Technology Capital in Mining Industry was obtained Positive Beta score (0.430) with T statistics 5.961 (p>1.96) and p values 0.000 (p<0.05) produces positive influence significant where Organizational Culture can be influencing Green Information Technology Capital in Mining Industry.

For explore influence positive significant Culture Organization to Technology Capital Information Green in industry mining , us can take outlook from relevant studies . Culture organization play role important in form behavior employees and practices organization , which can influence adoption and integration initiative green , including Technology Capital Information Green (Shahzad et al., 2023) (Acquah et al., 2023) (Amores-Salvadó et al., 2021) . Studies has show that culture strong organization can increase commitment organization, management knowledge, and abilities innovation, which is important For push practice and technology green. More Far again , relationships between Culture Organizational and Technological Capital Information Green can moderated by factors such as Total Quality Management (TQM), orientation sustainability , and structural capital green (Acquah et al., 2023) . Factors moderation This can provide framework necessary work and support for organization For develop and implement technology green in a way effective in industry mining. More Far again, literature show that culture organization green, when combined with human capital green and culture oriented environment, yes in a way significant influence identity and performance organization green . Integration values and practices green in culture organization This can push innovation , improve Power compete , and overcome problem environment , leading to the development of Technological Capital Information Green in sector mining (Suwandi, 2021) . As conclusion, with fertilize culture organization strong green, take advantage of system management knowledge, and embrace initiative sustainability, company mining can create conducive environment For development and utilization of Technology Capital Information Green. Approach holistic This, which is supported by Total Quality Management practices and structural capital green, yes push innovation and performance sustainable in industry mining.

Top Management's Commitment -> Environmental Performance

Test results hypothesis First namely Top Management's Commitment to Environmental Performance obtained Positive Beta score (-0.012) with T statistics 0.105 (p>1.96) and p values 0.917 (p<0.05) produces there is no negative influence significant where Top Management's Commitment does not can affecting Environmental Performance.

Analysis track find that disclosure not quite enough answer social company mediate influence cost environment to profitability company, but No mediate influence performance environment to profitability company. Study (Rasheed & Ahmad, 2022) support that disclosure not quite enough answer social company bridge gap between cost environment and profitability company, but No bridge gap between performance environment and profitability company. This matter show that impact direct performance environment to performance finance company Possible No significant.

Top Management's Commitment -> Green Information Technology Capital in Mining Industry

Test results hypothesis First namely Top Management's Commitment to Green Information Technology Capital in Mining Industry was obtained Positive Beta score (-0.198) with T statistics 2.688 (p>1.96) and p values 0.007 (p<0.05) produces positive influence significant where Top Management's Commitment can be influencing Green Information Technology Capital in Mining Industry. Study (Soesetyoa et al., 2024) support exists influence positive significant Commitment Management Peak to performance operational through IT adoption , integration chain supply , and management chain supply green . Study This emphasized role important commitment management peak in guard practice friendly environment and improve performance company in a way overall, which is in line with focus task on influence Commitment Management Peak to Technology Capital Information Green in industry mining. Therefore that , research (Soesetyoa et al., 2024) is relevant and appropriate references For support claim that Commitment Management Peak can in a way significant affects Technology Capital Information Green in industry mining .

Environmental Corporate Social Responsibility -> Green Information Technology Capital in Mining Industry -> Environmental Performance

Test results hypothesis First namely Environmental Corporate Social Responsibility mediated by Green Information Technology Capital in Mining Industry on environmental performance obtained Positive Beta score (0.121) with T statistics

2.316 (p>1.96) and p values 0.021 (p<0.05) produces positive influence significant Where Environmental Corporate Social Responsibility is mediated Green Information Technology Capital in Mining Industry can affect environmental performance.

Study conducted by (Xu et al., 2022) can support claim that Environmental Corporate Social Responsibility (ECSR) mediated by Green Information Technology Capital can influence performance environment in industry mining . Study This aim For explore connection between Corporate Social Responsibility (CSR), performance environment company (FEP), and performance finance company (FFP), as well How innovation technology green role as mediation in connection This (Suwandi & Susilawati, 2021) . Studies This give deep understanding about How innovation technology green can become liaison between not quite enough answer social company to environment and performance environment , as appropriate with focus tasks linking ECSR with Green Information Technology Capital for influence performance environment .

Organizational Culture -> Green Information Technology Capital in Mining Industry -> Environmental Performance

Test results hypothesis First namely Organizational Culture mediated by Green Information Technology Capital in Mining Industry on environmental performance obtained Positive Beta score (0.151) with T statistics 2.465 (p>1.96) and p values 0.014 (p<0.05) produces positive influence significant Where Organizational Culture is mediated Green Information Technology Capital in Mining Industry can affect environmental performance.

Study conducted by (Amores-Salvadó et al., 2021) can support claim that culture organization mediated by Technological Capital Information Green can influence performance environment in industry mining . Study This highlighting that culture organization play role important in push implementation practice green, which in turn can influence performance environment . Studies This show that culture organization lead implementation technology green and management programs waste, which is ultimately can lower cost production and increase connection with holder interest.

Top Management's Commitment -> Green Information Technology Capital in Mining Industry -> Environmental Performance

Test results hypothesis First namely Top Management's Commitment mediated by Green Information Technology Capital in Mining Industry towards environmental performance obtained Positive Beta score (-0.070) with T statistics 1.858 (p>1.96) and p values 0.064 (p<0.05) produces positive influence significant Where Top Management's Commitment is mediated Green Information Technology Capital in Mining Industry can affect environmental performance. The most relevant and appropriate references For support claim that Commitment Top Level Management mediated by Technological Capital Information Green can influence performance environment in industry mining is study conducted by (Soesetyoa et al., 2024) . Study This highlighting importance commitment management level on in guard product friendly environment and contribute to performance company in a way overall. With Thus, study This in a way direct support connection between commitment management level above, technological capital information green, and performance environment, appropriate with focus assigned tasks

4. CONCLUSION

Based on results testing hypothesis that has been done, can concluded that Environmental Corporate Social Responsibility (ECSR) has influence positive However No significant on Environmental Performance (EP), while ECSR has an effect negative significant towards Green Information Technology Capital (GITC) in the industry mining. GITC itself show influence positive significant against EP, indicating that investment in technology information green can increase performance environment. Organizational Culture (OC) does not show influence significant against EP, however own influence positive significant against GITC, which is next impact positive significant on EP. Likewise, Top Management's Commitment (TMC) does not own influence significant direct against EP but show influence negative significant against GITC. Besides that, ECSR and OC mediated by GITC show influence positive significant against EP, shows importance GITC's role as a mediator. In contrast, GITC- mediated TMC does not own influence significant towards EP. This conclusion confirm that although initiative not quite enough answer social company and culture organization important, role technology information green in industry mining very crucial For increase performance environment.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc have been used during writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology
Details of the AI usage are given below:
1.
2.
3.

REFERENCES

Abdollahbeigi, B., & Salehi, F. (2020). The Role of Information and Communication Industry (ICT) in the Reduction of Greenhouse Gas Emissions in Canada. *International Research Journal of Business Studies* , *13* (3). https://doi.org/10.21632/irjbs.13.3.307-315

Acquah, ISK, Baah, C., Agyabeng-Mensah, Y., & Afum, E. (2023). Green procurement and green innovation for green organizational legitimacy and access to green finance: The mediating role of total quality management. *Global Business and Organizational Excellence* . https://doi.org/10.1002/joe.22183

Afandy, M., Setiawan, M., & Hapsari, RDV (2022). The Influence of Situational Leadership and Organizational Culture Moderated by Compensation on Employee Performance. *Interdisciplinary Social Studies* . https://doi.org/10.55324/iss.v1i9.233

Amores-Salvadó, J., Cruz-González, J., Delgado-Verde, M., & González-Masip, J. (2021). Green technological distance and environmental strategies: the moderating role of green structural capital. *Journal of Intellectual Capital* . https://doi.org/10.1108/JIC-06-2020-0217

Araya, N., Mamani Quiñonez, O., Cisternas, L.A., & Kraslawski, A. (2021). Sustainable Development Goals in Mine Tailings Management: Targets and Indicators. *Materials Proceedings* , *5* (1), 82–91. https://doi.org/https://doi.org/10.3390/materproc2021005082

Aron, A.S., & Molina, O. (2020). Green innovation in natural resource industries: The case of local suppliers in the Peruvian mining industry. *Extractive Industries and Society* , *7* (2), 353–365. https://doi.org/10.1016/j.exis.2019.09.002

Blinova, E., Ponomarenko, T., & Knysh, V. (2022). Analyzing the Concept of Corporate Sustainability in the Context of Sustainable Business Development in the Mining Sector with Elements of Circular Economy. *Sustainability (Switzerland)* , *14* (13), p.8163. https://doi.org/10.3390/su14138163

Boakye, DJ, TIngbani, I., Ahinful, G., Damoah, I., & Tauringana, V. (2020). Sustainable environmental practices and financial performance: Evidence from listed small and medium-sized enterprises in the United Kingdom. *Business Strategy and the Environment* , *29* (6), 2583–2602. https://doi.org/10.1002/bse.2522

Creswell, J. W., & Guetterman, T. C. (2019). *Educational research : planning, conducting, and evaluating quantitative and qualitative research* (Sixth). Pearson.

Fraser, J. (2021). Mining companies and communities: Collaborative approaches to reduce social risk and advance sustainable development. *Resources Policy* , *7* (4), p. 101144. https://doi.org/10.1016/j.resourpol.2018.02.003

Ghozali, I. (2018). *Multivariate Analysis Application with the IBM SPSS 25 Program.* Diponegoro University Publishing Agency.

Gunawan, RMB, & Widodo, W. (2022). Intellectual Capital and Corporate Governance Affect Organizational Performance through Competitive Advantage: Evidence from Indonesia. *Quality - Access to Success* . https://doi.org/10.47750/QAS/23.189.28

Herrera, J., & de las Heras-Rosas, C. (2020). Corporate social responsibility and human resource management: Towards sustainable business organizations. *Sustainability (Switzerland)* . https://doi.org/10.3390/su12030841

Huynh, Q. L. (2020). Impacts of environmental responsibility and performance on organizational performance: Importance of environmental performance. *International Journal of Energy Economics and Policy* , *10* (6), 100–108. https://doi.org/10.32479/ijeep.9955

Kaur Bagga, S., Gera, S., & Haque, S. N. (2023). The mediating role of organizational culture: Transformational leadership and change management in virtual teams. *Asia Pacific Management Review* . https://doi.org/10.1016/j.apmrv.2022.07.003

Kinnunen, P., Obenaus-Emler, R., Raatikainen, J., Guignot, S., Guimerà, J., Ciroth, A., & Heiskanen, K. (2021). Review of closed water loops with ore sorting and tailings valorisation for a more sustainable mining industry. *Journal of Cleaner Production* , *17* (8), 123237. https://doi.org/10.1016/j.jclepro.2020.123237

Kraus, S., Rehman, S.U., & Garcia, F.J.S. (2020). Corporate social responsibility and environmental performance: The

mediating role of environmental strategy and green innovation. *Technological Forecasting and Social Change* , *1* (60), 120262. https://doi.org/10.1016/j.techfore.2020.120262

Kumar, A. (2023). Leadership and decision-making: Top management team age demographics and environmental strategy. *Journal of Management and Organization* , *29* (1), 69–85. https://doi.org/10.1017/jmo.2019.91

Kurniandra, FW, Febriyantoro, MT, Zulkifli, Z., Suleman, D., Saputra, F., & Suyoto, YT (2022). The effect of organizational culture, work discipline, and work experience on employee performance at PT. Delicious Creations Omnicopy. *Private Social Sciences Journal* . https://doi.org/10.55942/pssj.v2i4.179

Lazarenko, Y., Garafonova, O., Marhasova, V., & Grigashkina, S. (2021). Gaining a Competitive Advantage through Sustainability Strategy: Managerial Applications for the Mining Sector. *E3S Web of Conferences* . https://doi.org/10.1051/e3sconf/202127803036

Leiva González, J., & Onederra, I. (2022). Environmental Management Strategies in the Copper Mining Industry in Chile to Address Water and Energy Challenges—Review. *Mining* , *2* (2), 197–232. https://doi.org/10.3390/mining2020012

Li, D., & Wang, L.F.S. (2022). Does environmental corporate social responsibility (ECSR) promote green product and process innovation? *Managerial and Decision Economics* , *43* (5), 1439–1447. https://doi.org/10.1002/mde.3464

Magsi, B. H. (2021). Management Control Systems and Performance: The Mediating Role of Organizational Capabilities in Malaysia. *Asian Journal of Accounting and Governance* , *1* (5), 1–19. https://doi.org/10.17576/ajag-2021-15-05

Memon, SB, Rasli, A., Dahri, AS, & Hermilinda Abas, I. (2022). Importance of Top Management Commitment to Organizational Citizenship Behavior towards the Environment, Green Training and Environmental Performance in Pakistani Industries. *Sustainability (Switzerland)* , *14* (17), 11059. https://doi.org/10.3390/su141711059

Newton, S., Susainathan, S., & Parayitam, S. (2024). Top Management Commitment as a Moderator in the Relationship Between Green Banking Adoption Practices and Performance: Evidence from India. *Indian Journal of Corporate Governance* , *17* (1). https://doi.org/https://doi.org/10.1177/097468622412365

Nguyen, T. ., Elmagrhi, M. H., Ntim, C. G., & Wu, Y. (2021). Environmental performance, sustainability, governance and financial performance: Evidence from heavily polluting industries in China. *Business Strategy and the Environment* , *30* (5), 2313–2331. https://doi.org/10.1002/bse.2748

Ni Putu Pebriani Diah Pratiwi, & Eka Ardhani Sisdyani. (2023). Financial performance and corporate social responsibility disclosure mediate environmental performance on firm value. *World Journal of Advanced Research and Reviews* , *20* (3), 657–671. https://doi.org/10.30574/wjarr.2023.20.3.2503

Pramudiati, N., Adyaksana, RI, & Susilowati, A. (2022). Do Environmental Performance and Corporate Social Responsibility Disclosure Affect Financial Performance? *Journal of Accounting* , *12* (2), 73–84. https://doi.org/10.33369/j.akuntansi.12.2.1-11

Qarahasanlou, A.N., Khanzadeh, D., Shahabi, R.S., & Basiri, M.H. (2022). Introducing sustainable development and reviewing environmental sustainability in the mining industry. *Rudarsko Geolosko Naftni Zbornik* , *37* (4), 91–108. https://doi.org/10.17794/rgn.2022.4.8

Rasheed, B., & Ahmad, M. (2022). Competitive intensity: bridging the gap between corporate social responsibility and competitive advantage. *Journal of Strategy and Management* . https://doi.org/10.1108/JSMA-08-2021-0177

Reader, T. W., & Gillespie, A. (2023). Developing a battery of measures for unobtrusive indicators of organizational culture: a research note. *Journal of Risk Research* . https://doi.org/10.1080/13669877.2022.2108116

Sardjono, W., Maryani, M., Sudrajat, J., & Lusia, E. (2023). Sustainable development in the coal mining operation: challenges, opportunities, and strategies. *International Conference on Community Development (ICCD)* , *5* (1), 528–537. https://doi.org/10.33068/iccd.v5i1.602

Shahzad, M. A., Jianguo, D., & Junaid, M. (2023). Impact of green HRM practices on sustainable performance: mediating role of green innovation, green culture, and green employees' behavior. *Environmental Science and Pollution Research* . https://doi.org/10.1007/s11356-023-28498-6

Soesetyoa, ZE, Tarigana, ZJH, Siagiana, H., Basanaa, SR, & Jie, F. (2024). The role of top management commitment to improve operational performance through adoption, supply chain integration, and green supply chain management. *Desition Science Letters* , *13* (3), 421–438. https://doi.org/10.5267/dsl.2024.4.007

Sukma Pratiwi, A., & Hidayah, R. (2023). The Influence of Corporate Social Responsibility in Mediating Relationships Green Accounting on Financial Performance The Influence of Corporate Social Responsibility in Mediating Green Accounting Relationships on Financial Performanceid 2 *Corresponding Author. *Management Studies and Entrepreneurship Journal* , *4* (5), 5530–5541. http://journal.yrpipku.com/index.php/msej

Sudanese. (2021). The Effect of Corporate Social Responsibility, Working Capital Efficiency, Earning Per Share on Company Performance and Mining Company Value 2019-2020. *Asian Journal of Economics, Business and Accounting* , *21* (4), 67–79. https://doi.org/10.9734/ajeba/2021/v21i430372

Suwandi, & Jaka Waskito. (2022). The Implementation of Canvas Model in Plan Determination of Swallow Nest Business

Management. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)* , *5* (2), 8202–8213.
Suwandi, S., & Susilawati, AD (2023). The Effect Of Corporate Social Responsibility, Managerial Ownership And Intellectual Capital On Company Value With Company Performance As A Mediation Variable. *Scientific Journal of Management, Economics & Accounting (MEA)* , *7* (2). https://doi.org/10.31955/mea.v7i2.3046
Suwandi, & Susilawati, AD (2021). Democracy / Participation-Based Corporate Social Responsibility Management Improves Public Welfare in Indonesia. *International Journal of Scientific Research and Management* , *9* (07), 2287–2292. https://doi.org/10.18535/ijsrm/v9i07.em03
Vu, T.T., & Dang, WVT (2021). Environmental commitment and firm financial performance: a moderated mediation study of environmental collaboration with suppliers and CEO gender. *International Journal of Ethics and Systems* , *37* (1), 53–69. https://doi.org/10.1108/IJOES-02-2020-0015
Wang, K., Zhang, Z., Zhu, L., Yang, X., Chen, M., & Yang, C. (2022). Comparative Life Cycle Assessment of Conventional and Dry Stack Tailings Disposal Schemes: A Case Study in Northern China. *Minerals* , *12* (12), 1603. https://doi.org/10.3390/min12121603
Wyszomirski, A., & Olkiewicz, M. (2020). Environmental corporate social responsibility as a tool for creating the future of environmental protection. *Rocznik Ochrona Srodowiska* , *22* (2), 1145–1161.
Xu, X., Jing, R., & Lu, F. (2022). Environmental Regulation, Corporate Social Responsibility (CSR) Disclosure and Enterprise Green Innovation: Evidence from Listed Companies in China. *International Journal of Environmental Research and Public Health* , *19* (22), 14771. https://doi.org/10.3390/ijerph192214771
Zhang, C., & Azman, NHBN (2023). Environmental Social and Governance (ESG) Performance of Corporate Value in Different Periods. *Business Management and Strategy* . https://doi.org/10.5296/bms.v14i2.21233
Zhang, W., Luo, Q., & Liu, S. (2022). Is government regulation a push for corporate environmental performance? Evidence from China. *Economic Analysis and Policy* , *7* (4), 105–121. https://doi.org/10.1016/j.eap.2022.01.018