



# A Study on Influence of Select Variables on Mediation of Green Information Technology Capital in Mining Industry

Suwandi <sup>a\*</sup>, Ira Maya Hapsari <sup>a</sup>, Setyowati Subroto <sup>a</sup>  
and Mei Rani Amalia <sup>a</sup>

<sup>a</sup> Universitas Pancasakti Tegal, Indonesia.

## Authors' contributions

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## 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.

\*Corresponding author: E-mail: [suwandi2414@gmail.com](mailto:suwandi2414@gmail.com), [suwandi@upstegal.ac.id](mailto:suwandi@upstegal.ac.id);

**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 [1]. Sustainable development has become a widely recognized goal for human civilization, especially as environmental sustainability becomes increasingly threatened [2]. 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 [3].

The mining industry also contributes to climate change and biodiversity loss, not only on a local scale but also globally [4]. 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 [5]. 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 [6].

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 [7]. It's also important to notice impact mining to sustainability local, incl involve community local in effort development sustainable [8].

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 [4]. 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 [6]. With So, company can more proactive in handle issues environment and more responsive to change related external with sustainability [4].

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 [9].

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 [10] found that companies with strong environmental commitment tend to have better financial and environmental performance. In addition, research by [11] 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 [12]. 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 [13].

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

(Wyszomirski & Olkiewicz, [14])

## 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 [15,16]. Commitment management peak very important for create culture sustainability, implement strategy green, and reach objective environment.

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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, [17])

## 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., [18] 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 [19], 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 [20,21]. 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., [22])

### 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 [23]. 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 [24]. 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., [25])

### 2.6 Framework of Thinking

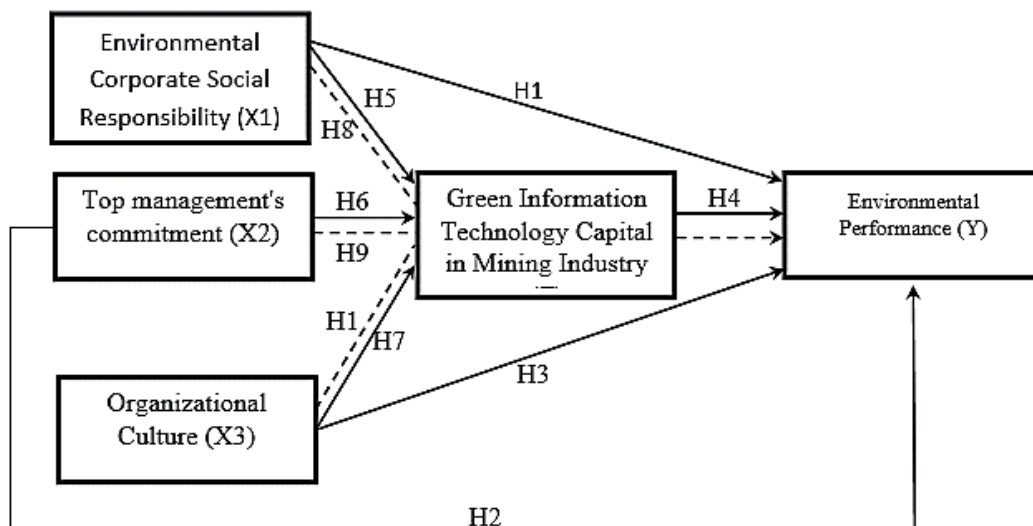


Fig. 1. Thinking Framework

**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

- 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 Convergent Validity AVE
Uji Reliabilitas	Cronbach Alpha Composite Reliability

**3.4 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.

**3.5 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:

**3. MATERIALS 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 [26].

**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

$H_a = t\text{-statistic} > 1.96$  with  $p\text{-values} < 0.05$ .  
 $H_0 = t\text{-statistic} < 1.96$  with  $p\text{-values} > 0.05$ .

#### 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.

##### 4.1 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.

Fig. 2 explains the outer loading value of the inner variable study. in picture the all mark out loading complies criteria validity Because has exceeds 0.7.

##### 4.2 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 [27] for study stage beginning from development scale measurement loading value 0.5 to 0.6 fast Enough adequate.

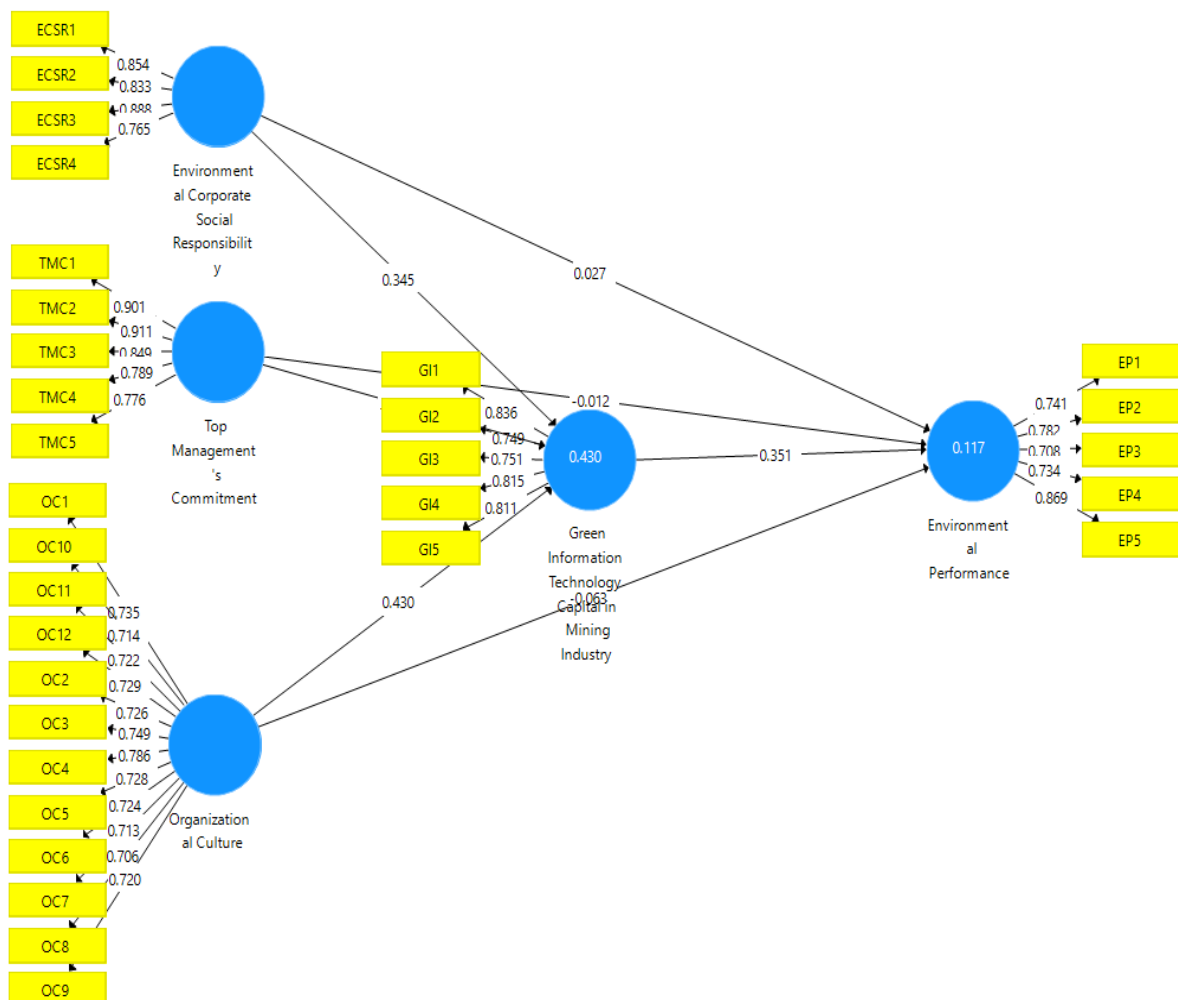


Fig. 2. Outer model

**Table 2. Validity test results**

Variable		Outer Loading	AVE	Information
Environmental Corporate Social Responsibility	ECSR1	0.854	<b>0.699</b>	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	<b>0.629</b>	Valid
	GI2	0.749		Valid
	GI3	0.751		Valid
	GI4	0.815		Valid
	GI5	0.811		Valid
Intellectual Capital	OC1	0.735	<b>0.532</b>	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	<b>0.717</b>	Valid
	TMC2	0.911		Valid
	TMC3	0.849		Valid
	TMC4	0.789		Valid
	TMC5	0.776		Valid

### 4.3 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.

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



### 4.4 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:

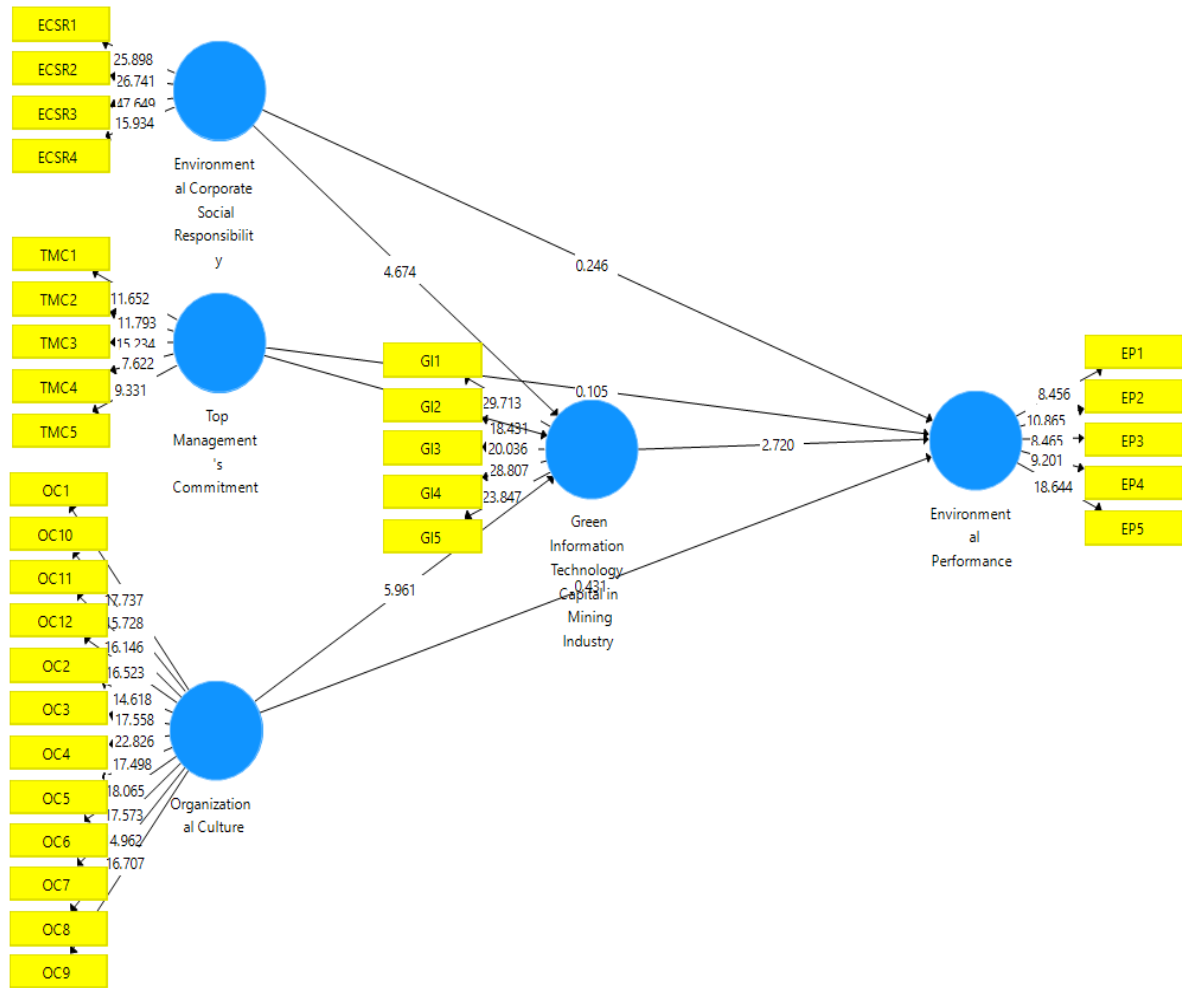


Fig. 3. Inner structural model

### 4.5 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 4.

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.

**Table 4. R-Square test**

	<b>R Square</b>	<b>R Square Adjusted</b>
<b>Environmental Performance</b>	0.117	0.080
<b>Green Information Technology Capital in Mining Industry</b>	0.430	0.412

**Table 5. Hypothesis testing study**

	<b>Original Sample (O)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
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

**4.6 Hypothesis Tests**

The result can used for answer hypothesis study based on data processing that has been 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 in the Table 5.

**4.7 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.

**4.8 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.

#### **4.9 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 [28], 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 [29]. Study has show that Corporate Social Responsibility, incl aspect environment, yes leads to improvement performance finance [30].

However, disclosure not quite enough answer social company Possible No mediate influence No direct performance environment to mark company [31]. 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 [32]. 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 [33]. 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.

#### **4.10 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 [34]. Temporary Lots study has show connection positive between culture organization and performance [35], there are also mutual findings contradicting that shows that culture organization Possible No impact significant impact on performance [36,37,38]. 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.

#### **4.11 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 [39,40,41]. 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 [40]. 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 [42]. 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.

#### **4.12 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 [43] 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.

#### **4.13 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 [44] 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 [44] 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.

#### **4.14 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 [28] 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 [42]. 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.

#### **4.15 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 [41] 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.

#### **4.16 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 [44]. 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 [45].

### **5. 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)

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 this manuscript.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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