

The Effect of Green IT Empowerment and Online Training on Technology Innovation Performance: The Moderating Role of Green Life Style



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ABSTRACT

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Green IT and online training have become the strategic themes in increasing Technology Innovation Performance for the creative industry in Indonesia. In the COVID-19 pandemic era, Green IT and online training became a strategic theme in improving Technology Innovation Performance. This study offers a moderating role of Green Life Style in testing and analyzing the effect of Green IT and online training. Respondent in this study is chosen by purposive sampling, namely the owners and managers of creative SMEs in Sleman, Special Region of Yogyakarta, Indonesia that is 156 SMEs. The data is collected by questionnaire and interview with SMEs that are considered as population representative. The statistical technique uses the Structural Equation Modelling with the Partial Least Square technique. The results prove the importance of Green IT and online training which have a partial impact on Technology Innovation Performance. Likewise, the green lifestyle is a strong moderator in seeing the effect of Green IT and online training on Technology Innovation Performance.

1. INTRODUCTION

During and after the COVID-19 pandemic, there was a change in the business model from traditional tourism management to digital tourism management. This provides an opportunity to maintain and restore the national tourism sector. The digital-based creative economy sector is also expected to provide and increase a significant contribution to a country's economic growth, especially in the tourism sector. This sector is one sector that optimizes the benefits of information technology in addition to the education and non education sector [1-5]. Through this transformation and resilient strategy, the creative economy are advanced, competitive, sustainable, and able to support local wisdom.

Several companies in developed and developing countries are trying their best to handle the challenges of technology adoption due to a shift in learning patterns for employees who have experienced drastic changes. In the beginning, learning mostly interacted directly with participants, but nowadays, like it or not, a lot of e-learning (online) is used. Several companies seek to improve the expertise and skill of all managers and employees through training and human resource development from the aspect of adoption and diffusion of information technology (IT) [6]. When there is a delay in the IT adoption process, it is feared that it would have a negative impact on the sustainability of business processes in an organization [7-9]. Therefore, organizations must have good knowledge of the e-learning adoption [7] for IT empowerment, especially from the Green IT aspect [10-14]. Green IT is important since the current use of IT is increasing so it is expected that the use of IT can be managed efficiently and effectively. It is useful for eliminating or minimizing negative impacts on the environment. The adoption of this e-learning

must be guaranteed to be sustainable even though the COVID-19 pandemic has been declared over. However, Green IT in Indonesia is faced with several obstacles including human resources, capital, and high investment [11, 15, 16]. Companies must anticipate failure and resistance from adopters so that they must be able to generate IT empowerment. Even though the COVID-19 pandemic has ended, online training is still needed so that managers and employees can implement Green IT empowerment in improvement of Technology Innovation Performance. Technology Innovation Performance will increase when it is strengthened by the lifestyle of managers and employees who are oriented towards green behavior.

Previous studies have shown that Green IT (GITEM) empowerment is correlated with someone's lifestyle [17, 18] and adaptive performance [19-21], particularly from Technology Innovation Performance (TIP) [22, 23]. Nowadays, companies are required to have adaptive performance where all are required to provide IT-based services. TIP fully mobilizes scientific and technological resources, organizes innovative activities, and produces a series of studies with a high level of technology. When a company moves employees towards TIP, the company would need the integration of resources and technology allocation [22, 23].

This study focuses on creative SMEs in the Special Region of Yogyakarta, Indonesia. During the COVID 19 pandemic, SMEs are required to have more innovative TIPs. They compete to have creative and innovative strategies. Some of the efforts made are to hold online training regularly so they will not left behind in technology and services and able to provide empowerment to employees, especially from the Green IT aspect. It seems that some creative SMEs have not

fully implemented the Green IT aspect because their resources are limited. Moreover, there are efforts from the Indonesian government that are committed to reduce carbon emissions in order to be resilient in the Covid-19 pandemic. The role of the private sector should also be optimal in supporting the government's efforts to reduce carbon emissions because there is large gap in financing since the government has provided fiscal incentive policy support in low-carbon development, so that the private sector invests in green projects [24].

This study has several novelties, namely:

(1) The lack of research in Asia, especially in Indonesia that discuss about Green IT Empowerment associated with Online Training on Technology Innovation Performance, especially in the context of creative MSMEs [25, 26]. The moderating role of Green Life Style still become an important aspect during COVID-19 pandemic era [27, 28].

(2) Creative MSMEs rarely implement Green IT Empowerment when it is associated with Online Training [19] that have an impact on organizational performance, especially on Technology Innovation Performance [22, 23, 29].

(3) During this digital era, technology holds a strategic role as the keyword to boost MSMEs performance [30] thus the role of Green IT Empowerment and intensive training through online is required [31]. It is also triggered by Green Life Style, which has an impact on Technology Innovation Performance [32, 33]. Green behavior adoption still becomes a crucial topic in the context of MSMEs in Indonesia [34, 35].

(4) The tough challenge for creative MSMEs in Indonesia is the existence of digital-based business process. Therefore, MSMEs need to prepare their investment in the form of HR, technology, or other infrastructures that are based and oriented on greening behavior [35-37] which eventually will have an impact on sustainable business performance [38].

Those reasons are triggers for researcher to fill research gaps and become the novelties of this study. The significance of the study is to test and analyze the effect of (1) GITEM in increasing TIP, (2) GITEM in increasing TIP, (3) Green Life Style in moderating the effect of Green IT empowerment on Technological Innovation Performance, and (4) Green Life Style in moderating the effect of online training on Technological innovation performance. Online training and empowerment of Green IT can be conducted when the owners or managers of creative SMEs have a Green Life Style (GLS). It is important to increase the TIP.

2. LITERATURE REVIEW

2.1 Technology-organization-environment theory

Several literature reviews explain that IT adoption is very common in both theoretical and previous studies. However, in this study, researcher tried to fill research gaps that had not been studied by previous researchers by combining or integrating two models, namely: (1) a model that uses a technology-organization-environment (TOE) framework from Tornatzky and Fleischer [39] who identified the technology-organization-environment factors that have an impact on the adoption and diffusion of IT in organizations; and (2) the process-oriented model of Soh and dan Markus [40] which describes the process of using IT to influence IT adoption readiness, IT value creation, organizational performance, and competitiveness. Sarosa [41] adds that the weakness of the IT adoption literature is IT adoption has three different

definitions. IT adoption has a three-stage process: (1) the decision-making stage, when information is emphasized on IT information that is collected, evaluated, and the decision to adopt IT is made; (2) implementation phase, when IT components are implemented and deployed; and (3) evaluation stage, when IT solutions are implemented in business evaluation. This study refers to the decision-making stage to use IT by examining the importance of GITEM, OLT, and GLS in improving TIP. The technology context describes the relevant technological aspects of a company such as OLT. The organizational context describes the improvement of GITEM and SME owners and managers. Meanwhile, the environmental context includes the importance of competition outside the organization related to TIP in the context of creative SMEs in the Special Region of Yogyakarta, Indonesia. In the IT adoption and diffusion process, managers are involved in making decisions and policies related to green-based IT empowerment by involving all employees and leaders. While the implementation phase is conducted by online training. It can be considered even though the COVID-19 pandemic is over. While the evaluation is done by analyzing organizational performance, especially on Technology Innovation Performance.

2.2 Technology innovation performance

Creative SMEs must mobilize resource and technology to achieve the expected TIP. This is useful for producing a series of studies with a better level of technology, resource integration, and technology allocation [22, 23]. Tseng and James [42] prove that when company is able to establish reciprocal relationships with the external environment (stakeholders) more efficiently and integrate with technology optimally, the company could have high TIP. Zhang and Cao [23] and Bontis [43] divide TIP narrowly and broadly. Narrow TIP includes an input-output perspective that directly impacts innovation outcomes [29]. While broad TIP covers innovation, innovation environment, and innovation results. Zhang and Cao [23] confirms that human capital and relationship capital positively impact TIP. This indicates that HR plays a significant role in increasing TIP. Meanwhile, Szabo and Csontos [44], Volberda et al. [45] measure TIP with two indicators; management innovation and technological innovation. Innovation management includes organizational efforts to manage innovation that is integrated with technology. Technological innovation in a narrow sense is anything that appears as a new idea in the physical field of devices, equipment, systems, and techniques. Meanwhile, in a broad sense, it includes product innovations and renewal of production processes. All of them are used in measuring TIP with different object contexts. The integration of resources and technology allocation is a strategic aspect in improving the performance of technological innovation.

2.3 Green IT empowerment (GITEM) dan technology innovation performance (TIP)

The impact of the covid-19 pandemic had a very strong influence on financial, social and economic life [46-49], especially in the tourism sector. An agile organizational model is needed to face the digital era [30, 50]. Therefore, SMEs must also be encouraged to prepare for service speed by utilizing information technology in the digital era based on green information technology (green IT). Green IT or Green

Computing is the study and application of the efficient and effective design, manufacture, use, and disposal of computers, servers, and related subsystems such as monitoring systems, printers, storage media, communications, and networks. It is useful for eliminating or minimizing negative impacts on the environment. Green IT is expected to reduce carbon emissions and reduce global warming [10, 12-14, 51]. Green IT in Indonesia has several obstacles, namely human resources, capital, and high investment [12, 15, 16]. This condition is a formidable challenge as well as an obstacle for SMEs, the government, and the community to prepare and socialize the use of Green IT in the future. The Green IT empowerment model has been studied by several researchers and still focused on the readiness to use Green IT which is considered from the aspects of attitude, policy, practice, technology, governance, and personal IT [12-14, 51-53]. Mariani and Imam [15] conclude that in general, several aspects studied of Green IT adoption in Indonesia is still lower than Australia, New Zealand and the USA.

Muafi et al. [11, 54-56] emphasize that empowerment is an important aspect for employees so that employees have a high spirit of creativity and innovation. Several studies believe that the impact of empowerment can improve innovation performance [11, 57-60]. More specifically, it is state that empowerment from behavioral, psychological, and social and structural aspects have a positive impact on increasing innovation. Usually someone will have a risk-taking attitude, think positively and creatively, handle problems well, and respect the surrounding environment [61]. The prosperity and glory of a country will depend on the creative innovative from the community. Therefore, creative and innovative attitudes and behaviors must be nurtured from an early age [61-63], especially when associated with technological innovation.

H1. GITEM has positive effect on increasing TIP

2.4 Online training (OLT) and technology innovation performance (TIP)

Training is a learning experience that is planned and designed with the aim of causing a permanent change in an individual's knowledge, attitudes, or skills [64, 65]. Organizations should pay great attention to HR training. Training must be designed effectively and efficiently because it requires a large investment and must be proportional to the allocation of costs that have been invested by the company. The effectiveness of training must also consider the need for training attainment [66]. Bartley and Golek [67] conclude that 70 of large companies find it difficult to increase their performance growth due to a lack of trained employees. This can be followed up by conducting online training through e-learning. Online training is a collection subset of learning media that collectively and can be referred as flexible learning, cheaper [67, 68], utilize the latest technology [69] and ease of access [70].

Churi et al. [71] emphasize that online learning has become a crucial aspect in the COVID 19 pandemic era. More obstacles are experienced by organizations in middle-income countries which have limited assets and less advanced in education. They are faced with the existence of human resources and technology resources that inevitably have to follow the same guidelines as organizations that are already established and located in developed countries. Ramayah et al. [72-75] say that E-training is identical to e-learning in many

ways. The focus of e-training is mainly in; delivery methods and technologies used, refer to shorter learning time frames and designed specifically to achieve specific learning objectives or skills. Common types of online training are video conferencing and web-based training. This technology is intended to enable the delivery of learning that is "new, better, cheaper and faster" than traditional classroom methods. The current challenge is actually very difficult because participants begin to feel that they must have the benefits and ease of use of the e-learning system and do not let it bother and saturate participants [73, 74, 76]. Online learning has become popular because provide more flexible access to content and instructions anytime and anywhere [73, 77] state that there are several dimensions or characteristics that distinguish it from traditional training, including: time, place, space, technology, interaction, and control.

Gopal et al. [19, 73, 78] conclude that online training has a significant positive impact on organizational performance. The training not only transfers knowledge, but also influence changes in participants' behavior as desired by the organization. Training methods can be made interesting, for example by playing games so make participants more involved, change behavior, increase loyalty, and motivate participants to solve problems [66, 79-81]. This result is supported by Gilbert et al. [82] that technology training can improve innovation performance and knowledge sharing. Specific study finds that innovation training have a significant effect on TIP moderated by the role of external cooperation. Innovation training is measured by looking at the percentage of innovation costs allocated to training [83].

H2. OLT has positive effect in increasing TIP

2.5 Moderate role of green life style (GLS)

Today's global era requires a person to have a GLS. Each person competes to regulate the pattern of life, money, and time with certain goals [84], in activities, interests, and opinions [85] such as lifestyles that are environment oriented [86-88]. Green behavior will affect people's consumption patterns that are part of their lifestyle [27], also in using renewable energy resources and buying environmental friendly products [89, 90]. Suhaily et al. [91] and Ko et al. [92] assert that lifestyle can be a strong moderator in analyzing the relationship between variables. The case in Indonesia has the same finding [93]. The result of this studies is also supported by Ragas et al. [27] that GLS is able to play a role in moderating GHM practices on organizational performance. This means that GLS is expected to be able to moderate the empowerment of GITEM and OLT towards TIP.

Lambrinou et al. [17, 18, 94] find that there is a strong relationship between individual empowerment and healthy lifestyle. A person will feel the importance of having a healthy lifestyle when they feel there is an increase in empowerment. Empowerment individually or collectively will be related to socio-demographic conditions, lifestyle, health conditions, and life quality of a person [94]. Likewise, [28, 95] say that there is a strong correlation between the importance of training and one's lifestyle. Wu et al. [28] emphasize the importance of education and environmental literacy in a person so that it will be correlated with lifestyle. They choose MicroBlog, WeChat, and short video applications in choosing educational channels compared to conventional media such as television and newspapers. GLS means implementing green behavior in

every action and decision of everyday life.

H3. Green Life Style moderates the effect of Green IT Empowerment on Technological Innovation Performance

H4. Green Life Style moderates the effect of Online Training on Technological innovation performance

Based on the hypotheses, Figure 1 shows the research model.

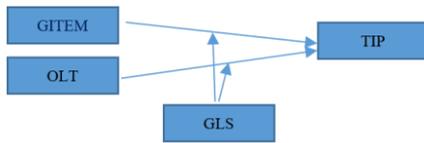


Figure 1. The research model

3. METHODOLOGY

The positivism approach in this study has aim to determine the pattern of relationships between variables [96]. This research uses a survey approach which is often used as a quantitative approach. The target population and the expected sample are carried out by obtaining a number of answers from the questionnaire [97]. The data collected from the surveys are used to make general conclusions from the specified target population [96]. The results of the structured questionnaire from the manager's opinion were further processed for analysis so that the proposed hypothesis could be answered [97]. The population is the entire owner or manager or concurrent owner and manager of creative SMEs in Sleman, Special Region of Yogyakarta. The creative industry in question is an industry that process the creation, creativity, and ideas from a person or a group of people who can produce a work without exploiting natural resources and can be use as economic product. This research includes craft and fashion industry. The reality is that Indonesia has not been able to keep up with the 4.0 industrial revolution because there are still many sectors that use simple equipment, for example in the agricultural sector and small industry [98].

The creative sector has proven to be resilient in the Covid 19 pandemic. Therefore, this study takes a sample of population, namely some creative SMEs in Sleman, Special Region of Yogyakarta with a target sample of 200 respondents. This study uses purposive sampling technique with criteria; (1) has a personal computer/laptop for business operations, (2) use internet media to help business processes, (3) the owner/manager of SMEs has minimum education of high school, (4) has net income of at least 10 million per month. After identification, it turns out that there are 170 respondents who meet the requirements. This study uses a questionnaire to collect data and interview with several SMEs that are considered to be able to represent the respondents. The results of the data recapitulation turned out that there are only 156 questionnaires that answered completely and could be processed further.

Research questions are directed at 4 variables used in research, namely; GITEM, OLT, GLS and TIP. The answer choices use a Likert scale; 5 (strongly agree) to 1 (strongly disagree) for the GITEM, OLT, GLS variables. As for the TIP variable, the answer choices are 5 (very high) to 1 (very not high) where respondents are asked to compare competitors' TIP for the last 3 years. The statistical technique uses the

Structural Equation Modelling with the Partial Least Square technique. The measurement of variables is explained as follows:

(1) GITEM (X1) uses 5 modified items from the studies of ref. [11, 15, 16].

(2) OLT (X2), using 8 modified items from the studies of ref. [67, 70].

(3) The GLS (Z) uses 7 modified items from the studies of ref. [27, 91].

(4) TIP (Y) uses 7 modified items from the studies of ref. [23, 44, 45].

The results of testing the validity and reliability of all items and variables are valid and reliable.

4. RESULT

4.1 Respondent description

The respondents of this study are SMEs with the majority of: owner and manager (82%), male (77%), bachelor's degree (52%), operating >3 years (76%).

4.2 Hypothesis test

There is a two-step analysis in this study, namely outer model analysis and inner model analysis. Outer model evaluation aims to examine the validity and reliability of the measurement instrument of the research model. It is carried out to understand how well the questionnaire items measure the nature and concept of the variables, and to determine the consistency of the questionnaire items in measuring the same variables in different time and places. The inner model evaluation, or structural model, is carried out to understand the results of hypothesis test.

4.2.1 Outer model analysis-Validity test

The validity test consists of two stages of testing, namely convergent validity for indicator validity and construct validity for variable validity. Convergent validity can be analyzed through the value of the loading factor with the minimum limit of the loading factor value in each indicator is 0.7. Therefore, the valid and invalid indicator can be known, and invalid indicator must be dropped from the study. The construct validity is analyzed through the Average Variance Extracted (AVE) value with the criteria of $AVE \geq 0.5$.

Table 1 indicates that there are 5 indicator that are invalid, thus it must be dropped from the analysis. After the invalid indicators are dropped, then all indicators in this study are valid. Table 1 also presents the results of construct validity, with all variables showing the AVE value of >0.5 , thus all indicators of this study are valid.

4.2.2 Outer model analysis - Reliability test

The reliability test can be seen from the value of Cronbach's alpha and Composite Reliability. A construct can be said to be reliable if it has Cronbach's alpha value of ≥ 0.6 and Composite Reliability value of ≥ 0.7 .

Table 2 shows that all constructs of this study have Cronbach's alpha value of ≥ 0.6 and Composite reliability value of ≥ 0.7 , thus it can be said that all constructs are reliable. This means that each construct in the research model has internal consistency in the instrument reliability test.

Table 1. Validity test

Indicator	Loading Factor	Loading Factor (Valid)	AVE
GITEM1	0.861	0.869	
GITEM2	0.892	0.897	
GITEM3	0.726	0.712	0.694
GITEM4	0.459	Invalid	
GITEM5	0.835	0.842	
GLS1	0.821	0.831	
GLS2	0.796	0.790	
GLS3	0.700	0.707	
GLS4	0.706	0.735	0.575
GLS5	0.750	0.746	
GLS6	0.690	Invalid	
GLS7	0.749	0.736	
OLT1	0.745	0.738	
OLT2	0.579	Invalid	
OLT3	0.841	0.855	
OLT4	0.884	0.896	
OLT5	0.847	0.870	0.717
OLT6	0.845	0.846	
OLT7	0.847	0.865	
OLT8	0.548	Invalid	
TIP1	0.764	0.760	
TIP2	0.197	Invalid	
TIP3	0.787	0.791	
TIP4	0.704	0.700	0.625
TIP5	0.802	0.803	
TIP6	0.840	0.845	
TIP7	0.833	0.841	

Table 2. Reliability test

	Cronbach's Alpha	Composite Reliability
GITEM	0.855	0.900
GLS	0.853	0.890
OLT	0.920	0.938
TIP	0.880	0.909

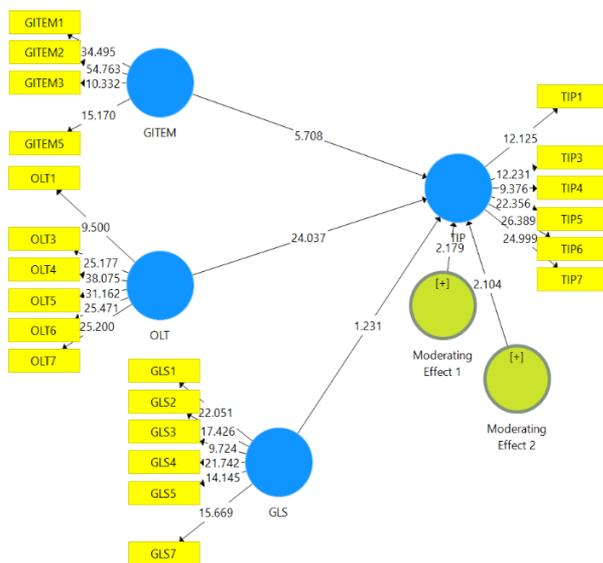


Figure 2. Inner model analysis

4.2.3 Inner model analysis

Inner model or structural model evaluation is carried out to predict the causal relationship between variables, or to understand the results of hypothesis test. The results of this evaluation can be known from the value of determinant coefficient, predictive relevance, goodness of fit, and path analysis. The inner model test is done using bootstrapping. The

results of PLS bootstrapping output in this research model is presented in Figure 2.

Details:

GITEM: Green IT Empowerment

OLT: Online Training

GLS: Green Life Style

TIP: Technology Innovation Performance

Moderating Effect 1: The moderating effect of GLS on the relationship between GITEM and TIP

Moderating Effect 2: The moderating effect of GLS on the relationship between OLT and TIP

4.2.4 Determinant coefficient of endogenous variable

The endogenous variable of the inner model of the structural equation is technology innovation performance.

Table 3. R² value of endogenous variable in the inner model

Exogenous Variable	Endogenous Variable	R ² Value
GITEM	TIP	0.910
OLT		
GLS		

Table 3 shows the magnitude of the total determinant coefficient (R²) in this study, namely 0.910. This means that the ability of the model to predict is 91%, while the remaining 8% is caused by variables outside the model. It was meant that the 8% can be caused by other variables outside the model that can be considered, such as competitive strategy [99], cultural values and environmental attitude [100], green transformational leadership [101], green OCB [102], strategic planning [103, 104], environmental uncertainty [104-106], and isomorphism [107-109].

4.2.5 Goodness of fit

PLS can also identify the criteria of global optimization to find out the goodness of fit model (GoF). GoF index is calculated from the square root of the average communality index and the average R-square value. GoF=0.1 means small, GoF = 0.25 means medium, GoF=0.36 means large.

Table 4. Results of goodness of fit model (GoF)

Construct	R Square	Communality
GITEM		0.493
OLT	0.910	0.399
GLS		0.594
TIP		0.469
Average	0.910	0.488
GoF		0.666

Based on Table 4, it can be seen that the value of GoF of the model reaches 0.666, which is greater than 0.36. Therefore, the model belongs to the large category.

4.3 Interpretation of structural equation model

This study examines five hypotheses in the inner model with the results shown as follows Table 5.

Table 5 presents that GITEM directly has positive and significant influence on TIP with the path coefficient of 0.213, t-statistic value of 5.708, and significance level of 0.000, which is smaller than α (0.05). This coefficient with positive sign indicates that the increase of GITEM can encourage the increase of TIP. Therefore, the first hypothesis is supported.

Furthermore, the results show that OLT directly has positive and significant influence on TIP with the path coefficient of 0.811, t-statistic value of 24.037, and significance level of 0.000, which is smaller than α (0.05). This coefficient with

positive sign indicates that the increase of OLT can encourage the increase of TIP. Therefore, the second hypothesis is supported.

Table 5. Results of inner model test

	Original Sample	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P Values
GITEM -> TIP	0.213	0.208	0.037	5.708	0.000
OLT -> TIP	0.811	0.810	0.034	24.037	0.000
Moderating Effect 1 -> TIP	0.074	0.068	0.034	2.179	0.030
Moderating Effect 2 -> TIP	0.068	0.069	0.033	2.104	0.036

5. DISCUSSION AND IMPLICATION

The result shows that GITEM has a significant positive effect on TIP (H1 is accepted). This result supports the previous study from [11, 54-57, 59-60] that empowerment become a strategic aspect to improve the performance of technological innovation. GITEM should be conducted when creative SMEs have business processes that are oriented towards efficiency and effectiveness. Catyanadika [10] suggests that in GITEM implementation, the company should have steps from the start, including; awareness, translation, comprehension, and green IT values. Awareness activities can be related to environmental issues such as a policy of not smoking in any place, paperless, reducing electricity use during working hours, and other activities that reduce electricity wastage. Translation can be followed up by linking the Green IT strategy with SME business operations. Comprehension is followed up with the determination of measurement indicators regarding green IT outcomes. While the Green IT value includes the identification of outcomes from Green IT such as; reduce pollution, reduction of e-waste, and recycling used items. Currently, environmental changes are happening very quickly. The greening demands from stakeholders, especially customer, are a strategic aspect and absolutely must be followed up. The creative industry is also experiencing the same condition because demands of tourism costumers are currently also focused on greening orientation.

In the COVID-19 pandemic era, environmental changes occurred very quickly. Greening demands from stakeholders, especially customers, became a strategic aspect and absolutely must be followed up. In fact, from an early age, when SMEs are established, owners, managers, and employees had to act and behave green, especially from the IT aspect. Although in general the resources of SMEs are very limited, creative SMEs in this context inevitably have to optimize their resource ownership in order to increase TIP. The entire process from input to output must be managed and measured from the innovation aspect. Therefore, it is necessary to integrate resources and technology in a planned and integrated manner [22, 23] so result in increased TIP [42]. Another aspect that is important is creative SMEs need to empower from behavioral, psychological, and social as well as structural aspects. Social engineering is needed on behavior because it is very important that employees feel they have been able to empower themselves, especially from the Green IT aspect, they still need a courageous attitude to take risks, think positively and creative, and able to solve problems well and respect the surrounding environment so as to create increased business sustainability and not only have an impact on TIP.

The result also shows that OLT has significant positive

effect on TIP (H2 is accepted). It supports the studies of ref. [19, 73, 78]. Gilbert et al. [82] also emphasize that technology training can improve innovation performance and knowledge sharing. It should be noted that the improvement in the competence of the leadership and staff of creative SMEs through training and development (even though carried out online) can continue to be improved due to the increasingly fierce level of competition. Especially in the COVID 19 pandemic era, all stakeholders demand very fast and safe service. The consideration is besides being able to be conducted at any time, cheap cost, no need to rent or use large room, more flexible, and easy to access [67-68, 70]. Although online training on the other hand also has weaknesses that is difficult to implement, less communicative, and cannot be controlled properly when practice directly. Therefore, the training conducted must be effective so that the achievement of training objectives can be conducted properly. It's just that the obstacles in the field will be encountered when some owners or managers of creative SMEs in Special Region of Yogyakarta are not supported by a good and modern set of IT. Signal constraints, unattractive training materials and methods, and poor equipment support make the trainees lack motivation and good creativity. It should be remembered that by participating in the training there is a change in the aspect of work behavior so that it will have high involvement, commitment, and loyalty which is expected to have an impact on TIP. What is not expected is creative SMEs do not experience delays from any aspect, especially for IT adoption and diffusion because it will certainly have a detrimental impact on the organization [7-9]. Human Capital has a significant role in increasing TIP [23]. This condition can be supported by online training that is in accordance with the needs of the organization and employees.

The result of the study proves that GLS is able to strengthen the relationship between GITEM and TIP (H3 is accepted). Likewise, GLS is able to strengthen the relationship between OLT and TIP (H4 is accepted). The results of this study also support [91, 92] who conclude that lifestyle plays a role in analyzing the relationship between two or more variables. GLS is becoming increasingly able to strengthen the relationship between GITEM empowerment and TIP because someone who has a green lifestyle tends to have a high awareness of GITEM. This seems to be in line with the greening life orientation that has been firmly attached and followed up with consistent greening behavior in every condition. The studies of ref. [86-88] find that every activity, interest, and opinion that is owned should be directed from the start at pro-environmental behavior so it indirectly indicates that a person already has GLS. When there is an empowerment program in creative SMEs, it turns out to be correlated with a

person's life style, especially when directed to green IT. This is in accordance with the recommendations from the studies of ref. [17-18, 94]. In this study, GLS is also correlated with the training held by the organization. It turns out that it is very important for owners, managers, and employees to be given training even though it is online because it has an impact on the resulting performance. TIP will increase when given training such as; management innovation and technological innovation based on greening. Especially when it comes to the renewal of production processes [44-45]. It is hoped that in the long term it can have an impact on increasing business sustainability. The hope is that in the long term it can have an impact on increasing business sustainability of the creative industry in order to encourage the tourism sector in Yogyakarta to be more developed.

6. LIMITATIONS AND FUTURE STUDY

This study has limitations and future study including;

(1) This study has not been able to generalize the population, namely creative SMEs in Sleman, Special Region of Yogyakarta so in determining the sample, it is better to use proportional random sampling area.

(2) The number of respondents is also relatively small which has an impact on being unable to capture the overall population of creative SMEs.

(3) In assessing the TIP, researcher still uses self-report. It is feared that it will not be objective when assessing it even though it has been compared to competitor TIP in the last three years.

(4) Respondent of creative SMEs should be grouped between creative SMEs that have implemented Green IT practices and those who have not. The goal is that respondents can better understand the questionnaire from the greening aspect so that they can better achieve study objectives.

(5) This study only analyzes GITEM and OLT in increasing TIP. The future study needs to consider other factors such as such as competitive strategy [99], cultural values and environmental attitude [100], green transformational leadership [101], green OCB [102], strategic planning [103-104], environmental uncertainty [104-106] and isomorphism [107-109].

(6) Future study needs to examine other moderating roles in strengthening the relationship between Green IT and online training in improving TIP such as work ethics [110, 111].

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REFERENCES

[1] Chandra, A., Bagdi, N. (2021). Analysis of factor's in fluencing the adoption of e-teaching methodology of learning by students: An empirical study amidst the present pandemic crisis. *Asian Journal of Economics and Banking*, 5(1): 15-24. <https://doi.org/10.1108/AJEB-12-2020-0112>

[2] Khan, S.A.R., Yu, Z., Umar, M., Lopes de Sousa Jabbour, A.B., Mor, R.S. (2021). Tackling post-pandemic challenges with digital technologies: An empirical study. *Journal of Enterprise Information Management*, 35(1): 36-57. <https://doi.org/10.1108/JEIM-01-2021-0040>

[3] Dwivedi, Y.K., Hughes, L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N.P., Sharma, S.K., Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 55: 102211. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>

[4] Brem, A., Viardot, E., Nylund, P.A. (2020). Implications of the coronavirus (COVID-19) outbreak for innovation: Which technologies will improve our lives? *Technological Forecasting and Social Change*, 163: 120451.

[5] Lekopanye, C.M., Mogwe, A. (2014). Information communication technology adoption in higher education sector of Botswana: A case study of Botho University. *IJACSA*, 5(8): 145-148.

[6] OECD. (2014). *Measuring Innovation in Education: A New Perspective*, OECD Publishing. Paris, available at: <http://dx.doi.org/10.1787/9789264215696-en>, accessed August 30, 2016.

[7] Mehta, A., Morris, N.P., Swinnerton, B., Homer, M. (2019). The influence of values on e-learning adoption. *Computers and Education*, 141: 103617. <https://doi.org/10.1016/j.compedu.2019.103617>

[8] Sabelli, N.H., Harris, C.J. (2015). The Role of Innovation in Scaling Up Educational Innovations. In C.K. Looi & L. W. Teh (Eds.). *Scaling Educational Innovations*, 13-30, Singapore: Springer.

[9] Kanwal, F., Rehman, M. (2017). Factors affecting e-learning adoption in developing countries—empirical evidence from Pakistan's higher education sector. *IEEE Access*, 5: 10968-10978. <https://doi.org/10.1109/ACCESS.2017.2714379>

[10] Catyanadika, P.E. (2017). *Green IT value analysis for hospitality industry*. Thesis, Master of E-Business Management at the Graduate School of International Management International University of Japan, p. 1-70.

[11] Muafi. (2015). Green IT empowerment, social capital, creativity and innovation: A case study of creative city, Bantul, Yogyakarta, Indonesia. *Journal of Industrial Engineering and Management*, 8(3): 719-737.

[12] Yohannis, A. (2010). *Menuju Kerangka Kerja Green IT: Green IT dari Empat Perspektif*, TEKNOIN, Universitas Islam Indonesia, Yogyakarta.

[13] Gruber, R., Keller, V. (2010). *HPC@GreenIT: Green Hight Performance Computing Methods*. Springer-Verlag Berlin Heidelberg.

[14] Leonhard, W., dan Murray, K. (2009). *Green Home Computing for Dummies®*. Wiley Publishing, Inc.

[15] Mariani, M., Imam, K. (2012). A preliminary study of green it readiness in Indonesia organizations. *Journal of Energy Technologies and Policy*, 2(5): 11-9.

[16] Yuniarti, D. (2012). Analysis of domestic information and communication technologies (ICT) manufacture industry readiness to support green ICT implementation in telecommunication sector. *Buletin Pos dan Telekomunikasi*, 10(3): 213-224.

[17] Lambrinou, E., Hansen, T.B., Beulens, J.W.J. (2019).

- Lifestyle factors, self-management and patient empowerment in diabetes care. *European Journal of Preventive Cardiology*, 26(2 suppl): 55-63. <https://doi.org/10.1177/2047487319885455>
- [18] Bakhshi, F., Shojaezadeh, D., Sadeghi, R., Taghdisi, M.H., Nedjat, S. (2017). The relationship between individual empowerment and health-promoting lifestyle among women NGOs in northern Iran. *Electron Physician*, 9(2): 3690-3693.
- [19] Gopal, R., Singh, V., Aggarwal, A. (2021). Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19. *Education and Information Technologies*, <https://doi.org/10.1007/s10639-021-10523-1>
- [20] Park, S., Park, S. (2020). Employee Adaptive Performance and Its Antecedents: Review and Synthesis. *Human Resource Development Review*, 1-31.
- [21] Ryan, L.C. (2017). Empowering adaptive performance through trait activation: A leader's impact. A Dissertation. Faculty of Saint Louis University. Degree of Doctor of Philosophy.
- [22] Effendi, M.I., Widjanarko, H., Sugandini, D. (2021). Green supply chain integration and technology innovation performance in SMEs: A case study in Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(4): 909-916.
- [23] Zhang, Y.H., Cao, H. (2014). The intellectual capital and technology innovation performance. *Empirical Study Based on Universities Affiliated with Ministry of Education*. *International Business and Management*, 9(2): 62-69. <http://dx.doi.org/10.3968/%25x>
- [24] <https://ekonomi.bisnis.com/read/20201015/9/1305252/sri-mulyani-dorong-pemulihan-ekonomi-berbasis-lingkungan-hidup>, retrieved on August 9, 2021.
- [25] Martín-Rubio. (2021). Challenges in Green Intellectual Capital and Knowledge Management in Sustainability and Industry 4.0. In *Knowledge Management for Corporate Social Responsibility*, Universidad Politécnica de Madrid, Spain.
- [26] Olaore, R.A., Adebisi, N.T. (2013). Accounting, purchasing and supply chain management interface. *IOSR Journal of Business and Management*, 11(2): 80-84.
- [27] Ragas, S.F.P., Tantay, F.M.A., Chua, L.J.C., Sunio, C.M.C. (2017). Green lifestyle moderates GHRM's impact on job performance. *International Journal of Productivity and Performance Management*, 66(7): 857-872. <https://doi.org/10.1108/IJPPM-04-2016-0076>
- [28] Wu, E., Cheng, J.Q., Zhang, J.B. (2019). Study on the environmental education demand and environmental literacy assessment of citizens in sustainable urban construction in Beijing. *Sustainability*, 12(1): 241. <https://doi.org/10.3390/su12010241>
- [29] Lau, A.K.W., Lo, W. (2019). Absorptive capacity, technological innovation capability and innovation performance: An empirical study in Hong Kong. *International Journal Technology Management*, 80(1/2): 107-148.
- [30] Fachrunnisa, O., Adhiatma, A., Ab Majid, M.N., Lukman, N. (2020). Towards SMEs' digital transformation: The role of agile leadership and strategic flexibility. *Journal of Small Business Strategy*, 30(3): 65-85.
- [31] Firmansyah, M.F., Maulana, H.Z. (2021). Empirical study of e-learning on financial literacy and lifestyle: A millennial urban generations cased study. *International Journal of Engineering, Science & Information Technology*, 1(3): 75-81.
- [32] Shakil, R.M., Mollah, A., Rahman, S.T., Habib, M. (2020). A bibliometric review of global research on human resources management and supply chain management. *International Journal of Supply Chain Management*, 9(4): 173-184.
- [33] Rasyidi, R.A., Kusumastuti, R.D. (2020). Supply chain agility assessment of an Indonesian humanitarian organization. *Journal of Humanitarian Logistics and Supply Chain Management*, 10(4): 629-652.
- [34] Syafri, W., Prabowo, H., Nur, S.A., Muafi, M. (2021). The impact of workplace green behavior and green innovation on green performance of SMES: A case study in Indonesia. *Journal of Asian Finance, Economics and Business*, 8(5): 365-374.
- [35] Muafi. (2021). The influence of green culture and green strategy on the circular economy implementation: The moderating role of green intellectual capital. *International Journal of Sustainable Development and Planning*, 16(6): 1101-1108.
- [36] Purwanti, I. (2021). Konsep dan implementasi ekonomi sirkular dalam program bank sampah (Studi kasus: keberlanjutan bank sampah tanjung). *Jurnal Manajemen dan Ekonomi*, 4(1): 83-92.
- [37] Kirchherr, J., Reike, D., Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation & Recycling*, 127: 221-232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- [38] Kristoffersen, E., Mikalef, O., Blomsma, F., Li, J. (2021). The effects of business analytics capability on circular economy implementation, resource orchestration capability, and firm performance. *International Journal of Production Economics*, 239: 108205. <https://doi.org/10.1016/j.ijpe.2021.108205>
- [39] Tornatzky, L.G., Fleischer, M. (1990). *The Processes of Technological Innovation*. Lexington, MA: Lexington Books.
- [40] Soh, C., dan Markus, M.L. (1995). How IT creates business value: A process theory synthesis. In J. I. DeGross, G. A., C. Beath, R. Hoyer, & C. Kemerer (Eds.), *Proceedings of the 16th International Conference on Information Systems*, pp. 29-41.
- [41] Sarosa, S. (2007). The information technology adoption process within Indonesian small and medium enterprises. University of Technology Sydney, Faculty of Information Technology, Thesis, pp. 1-236.
- [42] Tseng, C.Y., James, G.Y.J. (2005). Intellectual capital and corporate value in an emerging economy: empirical study of Taiwanese manufacturers. *R&D Management*, 35(2): 187-201.
- [43] Bontis, N. (1998). Intellectual capital: An exploratory study that develops measures and models. *Management Decision*, 35(2): 63-67. <https://doi.org/10.1111/j.1467-9310.2005.00382.x>
- [44] Szabo, R., Csontos, R. (2016). Efficient organisational renewal: The role of technological and management innovation. *International Journal of Business Management & Research*, 6(3): 35-50.
- [45] Volberda, H.W., Van den Bosch, F.A., Heij, C.V. (2013). *Management innovation: Management as fertile ground*

- for innovation. *European Management Review*, 10(1): 1-15. <https://doi.org/10.1111/emre.12007>
- [46] Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., Agha, R. (2020). The socio-economic implications of the coronavirus and COVID-19 pandemic: A review. *International Journal of Surgery*, 78: 185-193. <https://doi.org/10.1016/j.ijvs.2020.04.018>
- [47] Goodell, J.W. (2020). COVID-19 and finance: Agendas for future research. *Finance Research Letters*, 35: 101512. <https://doi.org/10.1016/j.frl.2020.101512>
- [48] Aji, H.M., Berakon, I., Md Husin, M. (2020b). COVID-19 and e-wallet usage intention: A multigroup analysis between Indonesia and Malaysia. *Cogent Business & Management*, 7(1): 1804181. <https://doi.org/10.1080/23311975.2020.1804181>
- [49] Aji, H.M., Muslichah, I., Seftyono, C. (2020a). The determinants of Muslim travellers' intention to visit non-Islamic countries: A halal tourism implication. *Journal of Islamic Marketing*, 12(8): 1553-1576. <https://doi.org/10.1108/JIMA-03-2020-0075>
- [50] Ghezzi, A., Cavallo, A. (2020). Agile business model innovation in digital entrepreneurship: Lean startup approaches. *Journal of Business Research*, 110: 519-537. <https://doi.org/10.1016/j.jbusres.2018.06.013>
- [51] Molla, M., Cooper, V., (2009). Green IT readiness: A framework and preliminary proof of concept. *Australasian Journal of Information Systems*, 16(2): 5-23. <https://doi.org/10.3127/ajis.v16i2.545>
- [52] Wadwoba, F., Wanyembi, G.W., Omuterema, S., Omieno, K.K. (2013). Green ICT readiness model for developing economies: Case of Kenya. *International Journal of Advanced Computer Science and Application*, 4(1): 51-65. <https://doi.org/10.14569/IJACSA.2013.040108>
- [53] Tenhunen, A. (2011). Conceptualizing and measuring green IT readiness in finnish companies. *Application Area: Electronic Invoice*. Information System Science. Department of Information and Service Economics. Thesis, 1-101.
- [54] Siswanti, Y., Muafi. (2020). Empowering leadership and individual creativity: The mediation role of psychological empowerment in facing COVID-19 pandemic. *Journal of Asian Finance, Economics and Business*, 7(11): 809-816. <https://doi.org/10.13106/jafeb.2020.vol7.no11.809>
- [55] Zhang, X., Bartol, K.M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53(1): 107-128.
- [56] Zhang, X., Zhou, J. (2014). Empowering leadership, uncertainty avoidance, trust, and employee creativity: Interaction effects and a mediating mechanism. *Organizational Behavior and Human Decision Processes*, 124(2): 150-164. <https://doi.org/10.1016/j.obhdp.2014.02.002>
- [57] Uzunbacak, H.H. (2015). The impacts of employee empowerment on innovation: A survey on is parta and burdur organized industrial zones. *Journal of International Social Research*, 8(37): 977-977. <https://doi.org/10.17719/jisr.20153710663>
- [58] Zhang, C., Zhong, C. (2014). Research on the influencing factors and mechanism to innovation performance of team psychological empowerment. *Open Journal of Social Sciences*, 2(12): 49-55. <http://dx.doi.org/10.4236/iss.2014.212007>
- [59] Kmiecik, R., Michna, A., Meczynska, A. (2012). Innovativeness, empowerment and IT capability: Evidence from SMEs. *Industrial Management & Data Systems*, 112(5): 707-728. <https://doi.org/10.1108/02635571211232280>
- [60] Chen, G., Kirkman, B.L., Kanfer, R., Allen, D., Rosen, B. (2007) A multilevel study of leadership, empowerment, and performance in teams. *Journal of Applied Psychology*, 92(2): 331-346. <http://dx.doi.org/10.1037/0021-9010.92.2.331>
- [61] Hapsah, R., Savira, S.I. (2015). The relationship between self efficacy and creativity with entrepreneurial intention. *Jurnal Psikologi Teori & Terapan*, 5(2): 81-90. <https://journal.unesa.ac.id/index.php/jptt/article/view/1804>
- [62] Munandar, S.C.U. (2002). *Creativity and Talent*. Jakarta: PT. Gramedia Pustaka Utama. https://scholar.google.com/scholar?hl=id&as_sdt=0%2C5&q=Munandar%2C+S.+C.+U.+%282002%29.+Kreativitas+dan+Keberbakatan&btnG=
- [63] Kisti, H.H., Fardana N, N.A. (2012). The Relationship Between Self Efficacy and Creativity in Vocational High School Students. *Jurnal Psikologi Klinis dan Kesehatan Mental*, 1(02): 52-58. <https://repository.unair.ac.id/106960/>
- [64] Campbell, J.P., Dunnet, M.D., Lawler, E.E., Weick, K.E. (1971). Managerial behavior, performance and effectiveness. *Industrial and Labour Relation Review*, 24(3): 487-488.
- [65] Campbell, J.P., Marvin, D., III, E.E.L., Weick, K.E., York, J.N. (1971). Managerial behavior, performance and effectiveness. *Professional Psychology*, 414-415. <https://doi.org/10.1109/ICGSE.2009.28>
- [66] Neirotti, P., Paolucci, E. (2013). Why do firms train? Empirical evidence on the relationship between training and technological and organizational change. *International Journal of Training and Development*, 17(2): 93-115. <https://doi.org/10.1111/ijtd.12003>
- [67] Bartley, S.J., Golek, J.H. (2004). Evaluating the cost effectiveness of online and face-to-face instruction. *Educational Technology & Society*, 7(4): 167-175.
- [68] Aragon, S.R., Johnson, S.D., Shaik, N. (2002). The influence of learning style preferences on student success in online versus face-to-face environments. *The American Journal of Distance Education*, 16(4): 77-22. https://doi.org/10.1207/S15389286AJDE1604_3
- [69] Gupta, R. (2010). Using technology in the English language classroom. *Language in India: Strength for Today and Bright Hope for Tomorrow*, 10: 61-77.
- [70] Schmeekle, J.M. (2003). Online training: An evaluation of the effectiveness and efficiency of training law enforcement personnel over the internet. *Journal of Science and Education Technology*, 12(3): 205-260. <https://doi.org/10.1023/A:1025028806189>
- [71] Churi, P., Mistry, K., Asad, M.M., Dhiman, G., Soni, M., Kose, U. (2021). Online learning in COVID-19 pandemic: An empirical study of Indian and Turkish higher education institutions. *World Journal of Engineering*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/WJE-12-2020-0631>
- [72] Ramayah, T., Ahmad, N.H., Hong, T.S. (2012). An assessment of e-training effectiveness in multinational

- companies in Malaysia. *Educational Technology and Society*, 15(2): 125-137.
- [73] Ismail, A., Muafi. (2019). The influence of talent management, servant leadership and trust in employee performance mediated by online training (study of PT. Ruma employees). 13th International Quality Conference, Quality Festival, 115-129.
- [74] Adedoyin, O.B., Soykan, E. (2020). COVID-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 1-13. <https://doi.org/10.1080/10494820.2020.1813180>
- [75] Ismail, A., Muafi, M. (2019). The influence of talent management, servant leadership and trust in employee performance mediated by online training (study of pt. Ruma employees). *Proceedings on Engineering Sciences*, 1(2): 115-130.
- [76] Nikou, S., Maslov, I. (2021). An analysis of students' perspectives on e-learning participation – the case of COVID-19 pandemic. *International Journal of Information and Learning Technology*, 38(3): 299-315. <https://doi.org/10.1108/IJILT-12-2020-0220>
- [77] Means, B., Toyama, Y., Murphy, R., Baki, M. (2013). The effectiveness of online and blended learning: a meta-analysis of the empirical literature. *Teachers College Record*, 115(3): 1-47. <https://doi.org/10.3991/ijac.v3i2.1322>
- [78] Al-Fraihat, D., Joy, M., Masa'deh, R., Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, 102: 67-86. <https://doi.org/10.1016/j.chb.2019.08.004>
- [79] Zichermann, G., Linder, J. (2013). *The Gamification Revolution: How Leaders Leverage Game Mechanics to Crush the Competition* (1 ed.). McGraw-Hill Education.
- [80] Zichermann, G., Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. http://storage.libre.life/Gamification_by_Design.pdf.
- [81] Safitri, A.H. (2020). Effect of Gamification Training on Employee Self-Efficacy Mediated by Soft Skills: Survey at Pt Aneka Bumi Pratama Batanghari, Jambi Skripsi. Jurusan Manajemen, Universitas Islam Indonesia.
- [82] Gilbert E. Jones III, D.M., Jayawickrama, U. (2017) Knowledge sharing and technological innovation: The effectiveness of trust, training, and good communication, *Cogent Business & Management*, 4(1): 1387958. <https://doi.org/10.1080/23311975.2017.1387958>
- [83] Cerdón-Pozo, E., Vidal-Salazar, M.D., Torre-Ruiz, J-Md. (2017). Innovation training and product innovation performance: the moderating role of external cooperation. *International Journal Technology Management*, 73(1/2/3): 3-20. <https://doi.org/10.1504/IJTM.2017.10003238>
- [84] Mowen, J.C., Minnor, M. (1998). *Consumer Behavior USA*. Prentice Hall Inc.
- [85] Kotler, P., Keller, K.L. (2009). *Marketing Manajemen*. Jakarta: Penerbit Erlangga.
- [86] Yong, J.Y., Yuliza, M.Y., Olawole, F., T.R. (2019). Nexus between green intellectual capital and green human resource management. *Journal of Cleaner Production*, 215: 364-374. <https://doi.org/10.1016/j.jclepro.2018.12.306>
- [87] Pinzone, M., Guerci, M., Lettieri, E., Redman, T. (2016). Progressing in the change journey towards sustainability in healthcare: The role of 'Green' HRM. *Journal of Cleaner Production*, 122: 201-211. <https://doi.org/10.1016/j.jclepro.2016.02.031>
- [88] Ullah, M.M., Jahan, S. (2017). The 'green' roles of HR professionals: Green human resource management perspective. *The Cost and Management*, 45(2): 33-41.
- [89] Pagiaslis, A., Krontalis, A.K. (2014). Green Consumption behavior antecedents: Environmental concern, knowledge, and beliefs. *Psychology and Marketing*, 31(5): 335-348. <https://doi.org/10.1002/mar.20698>
- [90] Chwialkowska, A. (2019). How sustainability influencers drive green lifestyle adoption on social media: the process of green lifestyle adoption explained through the lenses of the minority influence model and social learning theory. *Management of Sustainable Development Sibiu, Romania*, 11(1): 33-42. <https://doi.org/10.2478/msd-2019-0019>
- [91] Suhaily, L., Darmoyo, S., Boentoro, S., Anasthashia, E. (2020). The impact of green product innovation, green perceived quality to purchase intention moderated by lifestyle on stainless steel straw. *International Journal of Applied Business and International Management*, 5(2): 13-25. <https://doi.org/10.32535/ijabim.v5i2.854>
- [92] Ko, E., Lee, J.H., Kim, A.J., Burns, L.D. (2010). Moderating effect of lifestyle on consumer behavior of loungewear with Korean traditional fashion design elements. *Journal of Global Academy of Marketing*, 20(1): 15-26. <https://doi.org/10.1080/12297119.2010.9707340>
- [93] Hasanah, K. (2016). Hijabers community, lifestyle as moderation and purchasing decisions at Elzatta Madiun gallery. *Jurnal Ilmu Ekonomi, Manajemen, dan Akuntansi*, 5(1): 14-22.
- [94] Soares, M.F., Ferreira, R.C., Pazzini, C.A., Travassos, D.V., Paiva, S.M. (2015). Individual and collective empowerment and associated factors among Brazilian adults: A cross-sectional study. *BMC Public Health*, 15(1): 1-11. <https://doi.org/10.1186/s12889-015-2113-7>
- [95] Firmansyah, M.F., Maulana, H.Z. (2021). Empirical study of e-learning on financial literacy and lifestyle: A millennial urban generations cased study. *International Journal of Engineering, Science & Information Technology*, 1(3): 75-81.
- [96] Hair, J.F., Anderson, R.E., Tathan, R.L., Black W.C. (1995). *Multivariate Data Analysis*. Fourth Edition. New Jersey: Prentice Hall.
- [97] Malhotra, N.K., Hall, J., Shaw, M., Oppenheim, P.P. (2007). *Essentials of marketing research: an applied orientation*. Pearson Education, Saffron House, 6-10 Kirby Street, London, EC1N 8TS.
- [98] <https://www.timesindonesia.co.id/read/news/239977/uk-m-di-bantul-tak-lagi-dipandang-sebelah-mata>, accessed on August 7, 2021.
- [99] Muafi, M., Roostika, R. (2022). MSMEs business sustainability models in Indonesia. *International Journal of Sustainable Development and Planning*, 17(1): 207-217. <https://doi.org/10.18280/ijstdp.170120>
- [100] Samarasinghe, R. (2012). The influence of cultural values and environmental attitudes on green consumer behaviour. *International Journal of Behavioral Science*, 7(1): 83-98. <https://doi.org/10.14456/ijbs.2012.6>
- [101] Chen, Y.S., Chang, C.H., Lin, Y.H. (2014). Green transformational leadership and green performance: the mediation effects of green mindfulness and green self-

- efficacy. *Sustainability* (Switzerland), 6(10): 6604-6621. <https://doi.org/10.3390/su6106604>
- [102] Boiral, O., Paillé, P. (2012). Organisational citizenship behaviour for the environment: measurement and validation. *Journal of Business Ethics*, 109(4): 431-445. <https://doi.org/10.1007/s10551-011-1138-9>
- [103] Aytar, O., Selamet, A.A. (2021). An empirical research on strategic management: A research on sme managers. *Journal of life Economics*, 8(1): 93-100. <https://doi.org/10.15637/jlecon.8.1.09>
- [104] Kusuma, H., Muafi, M., Aji, H.M, Sigit, A. (2020). Information and communication technology adoption in small- and medium-sized enterprises: demographic characteristics. *Journal of Asian Finance Economics and Business*, 7(10): 969-980. <https://doi.org/10.13106/jafeb.2020.vol7.no10.969>
- [105] Loncar, M. (2017). The impact of strategic management and strategic thinking approaches on business performance of companies operating in the retail industry. *European Project Management Journal*, 7(1): 85-98.
- [106] Plance, A. (2015). The effect of strategic management practices on performance of savings and loans companies in Kumasi. Thesis. A thesis submitted to the school of business, Kwame Nkrumah university of science and technology, in partial fulfillment of the requirements for the award of a Masters Degree in Business Administration.
- [107] Muafi., Kusumawati, R.A. (2020). Strategic consensus on organizational performance: A contingency approach of organizational culture and isomorphic pressure. *Journal of Industrial Engineering and Management*, 13(2): 352-370. <http://dx.doi.org/10.3926/jiem.2480>
- [108] Masocha, R., Fatoki, O. (2018). The role of mimicry isomorphism in sustainable development operationalisation by SMEs in South Africa. *Sustainability*, 10(4): 1264. <https://doi.org/10.3390/su10041264>
- [109] Gudono. (2014). *Teori Organisasi Edisi 3*. Yogyakarta: BPFE Yogyakarta.
- [110] Rokhman, W. (2010). The effect of Islamic work ethics on work outcomes. *Electronic Journal of Business Ethics and Organization Studies*, 15(1): 21-27. <http://urn.fi/URN:NBN:fi:jyu-201010052960>.
- [111] Yousef, D.A. (2000). The Islamic work ethic as a mediator of the relationship between locus of control, role conflict and role ambiguity. *Journal of Managerial Psychology*, 15(4): 283-302. <https://doi.org/10.1108/02683940010330966>