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Efforts to Improve Green Performance Through Green Human Resource Management Companies in Batam

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Abstract:

Many companies still focus on increasing profits by maximizing the production process, without paying attention to the impact on the surrounding environment. Based on data for the 2022 period, there is still a lot of hazardous and toxic waste in Batam City, which can cause environmental damage and be dangerous for the health of the people of Batam City. This study aims to investigate how to improve Developing Green Abilities, Motivating Green Initiatives, Providing Green Opportunities, and Green Process Innovation through Green Human Resource Management. In this research, researchers surveyed via questionnaire as a technique for collecting primary data. Questionnaires were distributed to employees of Phillips Ltd, Panasonic Ltd, and TDK Electronics Indonesia Ltd in Batam City. The results show that Green Ability and Green Motivation do not affect Green Performance, Green Motivation, and Green Innovation affect Green Performance, Green Ability, Green Initiative Motivation, Green Opportunities have an effect on environmentally friendly innovation, Green Ability still has no effect on Green Performance which is mediated by environmentally friendly innovation but Green Motivation becomes influential after adding mediating variables, and Green Opportunities influence Green Performance through the mediation of environmentally friendly innovation. Companies can use this research as an assessment of the company's green performance and still see the influence of green capability development, green motivation, and green opportunities. With this research, it is hoped that companies will continue to develop green innovation processes and products that will be used by the community.

Keywords: *Developing Green Abilities; Motivating Green Initiatives; Providing Green Opportunities; Green Process Innovation; Green Performance*

1. Introduction

Batam City is an industrial area that will continue to develop in the future. Batam City is still referred to as an area that is vulnerable to problems, and one thing that still needs attention is the living environment in Batam City (Harma et al, 2020). There are still many companies that are built and operate without considering the comfort of the community, so they still harm the environment. The more industrial growth in Batam City increases, the more waste will be produced. One of the wastes that is often found

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is electronic waste, where electronic waste is included in B3 waste which is dangerous for humans and the surrounding environment (Jonny & Banjar, 2019).

In this regard, there is a need for company awareness regarding the importance of implementing green environmental industrial activities to reduce environmental problems. Environmental issues are increasingly increasing and important for companies because regulations on preserving the natural environment are becoming stricter and the increasing public sensitivity that companies must face. Companies are encouraged to increase ethical awareness of the environment and reduce environmental damage caused by production waste. Based on this incident, companies are increasingly switching to environmentally friendly work styles (Siburian & Sugiarto, 2022).

Table 1. Statistics on the amount of B3 waste in Batam City for 2020-2022

Indicator (In Thousands of Tons)	2020	2021	2022
Amount of B3 Waste	155,77	75,97	43,1

Source: 2022 Sectoral Statistics Report (Tim Penyusun Publikasi Statistik Sektoral Pemerintah Kota Batam Tahun 2022, 2022)

This research needs to be carried out because there is still a large amount of hazardous and toxic waste in Batam City. Apart from that, there are also companies in Batam City that have not implemented it *Green Human Resource Management*. Based on the data above, it can be seen that in the 2022 period, there will still be a lot of hazardous and toxic waste in Batam City, which can cause environmental damage and be dangerous for the health of the people of Batam City. With the increasing issue of environmental damage in Batam City, all companies in Batam City should implement *Green Human Resource Management* so that natural sustainability in the company management process is still maintained.

In company management, *Green Human Resource Management* (GHRM) is a policy implemented to manage human resources sustainably by considering environmental aspects to support natural sustainability. In the context of increasing environmental damage due to production processes, *Green Human Resource Management* (GHRM) is important to reduce this condition. HR management, also known as GHRM, aims to optimize the development, research, and utilization of existing resources and human resources so that they can be implemented properly and correctly (Purnama & Nawangsari, 2019).

According to Theory *Ability, Motivation, Opportunity* in GHRM, GHRM plays an important role in people management practices with individual performance determined by existing opportunities, motivation, and abilities. By developing green capabilities, providing green rewards to employees, and providing them with green opportunities for performance improvement, companies can achieve higher levels of quality, performance, and profitability. The implementation of GHRM aims to encourage the use of environmentally friendly resources, increase environmental

conservation efforts, and increase the commitment of employees to preserving the environment (Siburian & Sugiarto, 2022).

Many companies still focus on increasing profits by maximizing the production process, without paying attention to the impact on the surrounding environment. This situation occurs because the company's operations are inefficient. Companies tend to have a limited understanding of environmental management, focusing only on production processes that produce waste, without considering changes in production processes to reduce waste. In fact, by implementing green innovation, companies can encourage energy efficiency, reduce pollution levels, and utilize waste through recycling. Green innovation has an important role in reducing the negative environmental impacts produced by conventional production processes while creating competitive competition for companies. In this way, it is hoped that it can improve the company's performance economically (Sari & Handayani, 2020).

Based on the explanation above, this research aims to see how to develop green capabilities, motivate green initiatives, and provide green opportunities to influence green performance with the mediating effect of environmentally friendly process innovation. Until now, there is still very little previous literature analyzing this, and discussions of green capability development variables, motivating green initiatives, providing green opportunities, environmentally friendly process innovation, and green performance in previous journals are still less detailed. Apart from that, the variables in the previous journals tested all had a significant influence Muisyo & Qin (2021), Hossen et al. (2021), Moradeke et al. (2021) and Sari & Handayani (2020), where this study found insignificant results. In this study, researchers added the mediating role of the green innovation process performance variable because there is still no previous research that links this variable to the variables green ability, green motivation, green opportunities, and green performance. Researchers are also interested in researching Phillips Ltd, Panasonic Ltd, TDK Electronics Indonesia Ltd, so that researchers can find out whether electronics companies in Batam City have implemented a green environmental performance program.

2. Theoretical Background

Green performance management and appraisal involves an employee performance evaluation system in the context of environmental management. Research has focused on various aspects of green performance management, such as giving *feedback* and a balance of quality and quantity. However, the method of measuring green performance is still not successful, because the regulations in each company are different, and the use of the same standards in all companies is subject to change (Shen et al., 2018). Companies need to identify systematic methods for implementing green performance. Based on this, it is a priority for several types of companies to use common standards in green performance management. Green performance management involves establishing provisions in determining various green performances that are used in assessing the performance of all members. These criteria include things such as environmental responsibility, environmental concerns, and

communication regarding environmental policies and concerns (Delmonico et al., 2018).

In an organization, ability is an important factor that drives success. Considering the current conditions, certain actions are needed, one of which is utilizing environmentally friendly potential. In this context, green literature refers to the competencies and attitudes of employees in maintaining environmental sustainability in the workplace (Muisyo & Qin, 2021). Companies must provide environmentally friendly training and development so that employees have green abilities. Green training and development refers to a series of activities that encourage employees to acquire skills to protect the environment and increase awareness of environmental issues. This is key to achieving the environmental goals that have been set (Huo et al., 2022).

Employee awareness, training, skills, and knowledge in terms of environmental activities can be increased (Sari & Handayani, 2020). It is important to provide green training that involves all company employees, not just those related to the environmental department, and must be combined with appropriate educational programs (Hossen et al., 2021). Through green training, employee awareness of pro-environmental activities in the workplace can be increased. With this training program, employees can gain a deeper understanding of the importance of protecting the environment and can make employees more sensitive, as well as prevent negative impacts on the environment, through this it will improve green performance in the company (Moradeke et al., 2021).
H1: Green Capability Development has a significant positive effect on Green Performance

Green performance practices aim to recognize the environmental performance demonstrated by employees and encourage employees to contribute directly to environmental activities held by the company (Aniqoh et al., 2022). *Feedback* The environmental focus provided by managers not only helps improve employee skills, abilities, and knowledge but can also motivate employees towards environmental responsibility. Muchsinati & Jeanny (2021), Assessing employee environmental activities can contribute to increasing employee motivation and green skills, which in turn will make employees more actively participate in environmental activities (Burhanuddin, 2022).
H2: Green Initiative Motivation significant positive effect on Green Performance

Employee involvement in green opportunities encourages them to actively participate and propose new ideas in ecological practices (Huo et al., 2022). This supports the company's goal of developing an effective and efficient environmental management system. The more employees are interested in the company's environmental activities, the more directly they contribute to environmental management (Syafari, 2022). Employee contributions also have a positive impact on the workplace and the surrounding environment and can help improve current environmental conditions (Evi Silvana Muchsinati & Ardiansyah, 2023). Moreover, when employees are allowed to

provide input and make decisions regarding environmental issues, they will be more motivated to voluntarily engage in environmental activities (Pham, Tučková, & Phan, 2019).

The company provides full opportunities for all employees to participate in environmentally friendly practices through steps such as creating opportunities and space for employees in environmental activities (Yu et al., 2020). Apart from that, employees are also given the freedom to contribute to decision-making in cases of solving environmental problems. This can improve the eco-discretionary behavior of employees within the company, where practices like this will increase green performance within the company (Rizvi & Garg, 2021).
H3: Green Opportunity has a significant positive effect on Green Performance

Green capabilities of employees consist of employee competencies and attitudes toward preserving the environment (Hossen et al., 2021). Companies must provide green training so that employees can master green skills Jupiter (Alhazami, 2023). Employees who already have and master green skills have the potential to produce innovations for the company to make it more environmentally friendly in every production process (Muisyo & Qin, 2021). Green process innovation itself is a production process that uses new technology to be more environmentally friendly to produce goods or products that do not have a negative impact on the surrounding environment (Sari & Handayani, 2020). In implementing green process innovation, companies can improve the company's image so that it has a good impact on stakeholders, namely increasing the welfare of the stakeholders themselves and improving the company's image so that green competitive advantage can be achieved (Moradeke et al., 2021).
H4: Green Capability Development significant positive effect on Environmentally Friendly Process Innovation

Companies need to provide feedback on the implementation of an environmentally friendly work environment so that employees are motivated to engage in environmental responsibility (Huo et al, 2022). Companies must provide training or seminars to employees regarding environmentally friendly work environments to motivate employees. Motivated employees will always take part in or even create (Sibian & Ispas, 2021). environmental activities. Employees can innovate green products as an environmental activity and companies can provide an assessment of this activity to increase employee motivation (Purnama & Nawangsari, 2019). The application of green product innovation can increase its attractiveness to society (Pham et al., 2019). By realizing product innovation that pays more attention to the surrounding environment, the company's competitive advantage can be realized (Bos-Nehles et al., 2023).
H5: Green Initiative Motivation significant positive effect on Environmentally Friendly Process Innovation

The existence of green opportunities allows employees to contribute optimally to protecting the company's environment (Hossen et al., 2021). When companies

implement environmental standards and strive to increase labor productivity, integration occurs between strategy and company goals (Pascasarjana et al., 2023). This can achieve the company's goal of improving the environmental system. In the process of employees maintaining a green environment, companies can develop effective environmental systems such as implementing green innovation (Purnama & Nawangsari, 2019).

Green innovation includes the development of products made using environmentally friendly materials, with company strategies and goals to produce products that do not damage the environment. This innovation is aimed at reducing energy consumption during the production process, reducing negative impacts on the environment, and reducing production waste (Pham, Tučková, & Phan, 2019). Green innovation is used by companies as a long-term strategy to achieve competitive advantage in the market (Moradeke et al., 2021). Apart from that, green innovation also has the potential to lead in business, because implementing green innovation can attract people to use products so that it will increase market share position and enable companies to survive in business competition (Syafari, 2022).

H6: Green Opportunity Significant positive effect on Environmentally Friendly Process Innovation

Green Innovation is the creation of new products and processes as well as significant improvements to new products, processes, marketing methods, and company business practice methods in terms of environmental orientation (Burhanuddin, 2022). Green Innovation is divided into Green Innovation Products and Green Innovation Processes (Aniqoh et al., 2022). The company implements Green Innovation Products, meaning the company uses environmentally friendly materials (Sari & Handayani, 2020). The Green Innovation Process means that the company in its product activities minimize all negative impacts on the environment and uses resources efficiently so that no waste occurs (Syafari, 2022). By implementing green innovation, companies can attract public attention because businesses are considered to pay attention to environmental awareness by integrating green innovation processes and goods, which can have a positive influence on the company's survival (Alhazami, 2023).

H7: Environmentally Friendly Process Innovation has a significant positive effect on Green Performance

Green capabilities or employees' ability to preserve the environment is an important factor for organizational success (Pham, Tučková, & Phan, 2019). To achieve these green capabilities, companies need to provide environmentally friendly training and development to employees (Yu et al., 2020). The training aims to increase employee skills, awareness, and knowledge of environmental activities. Green training is not only provided to environmental departments but also to all members of the organization (Muisyo & Qin, 2021).

Through green training, employees can increase their understanding of the importance of protecting the environment and become more sensitive to the process of controlling and preventing impacts on the environment. Thus, the company's green performance

can increase (Rizvi & Garg, 2021). Employees who have green skills also have the potential to produce new, environmentally friendly innovations in the production process. This green process innovation can improve the company's image in the eyes of the public and provide benefits to stakeholders, including improving their welfare (Green et al., 2023). Thus, green training is an important step in developing employees' green capabilities and achieving green competitive advantages for companies (Huo et al., 2022).

H8: Green Capability Development significant positive effect on Green Performance through the Mediation of Environmentally Friendly Process Innovation

Green performance management practices have the aim of appreciating employee environmental performance and encouraging employees to participate in the company's environmental activities (Humairoh & Hermawan, 2023). Companies need to provide positive feedback on the implementation of an environmentally friendly work environment to encourage employee motivation in environmental responsibility. Motivated employees will actively participate in and even create environmental activities (Shen et al., 2018).

Employees can play a role in creating green product innovations as a form of their contribution to environmental activities (Bos-Nehles et al, 2023). Companies can provide assessments or awards for this activity to increase employee motivation (Sibian & Ispas, 2021). Implementing green product innovation can increase a company's attractiveness in the eyes of the public. By creating products that pay more attention to the surrounding environment, companies can achieve a competitive advantage (Rizvi & Garg, 2021).

H9: Green Initiative Motivation significant positive effect on Green Performance through the mediation of Environmentally Friendly Process Innovation

Green opportunities through employee engagement can encourage innovation and the development of ecological practices in companies (Sari & Handayani, 2020). Employee involvement in environmental activities supports the company's environmental goals and improves the performance of the environmental management system. Employees who are actively involved in environmental activities can also make positive contributions to the environment where they work and the surrounding environment Jupiter (Alhazami, 2023). By providing green opportunities to employees and employees being involved in problem-solving and making environmental decisions, companies can improve individual discretionary eco-behavior and overall green performance (Hossen et al., 2021).

Implementing green innovation, namely developing products with environmentally friendly materials and energy-efficient production processes, can become a company strategy for achieving long-term competitive advantage (Muisyo & Qin, 2021). Green innovation helps companies meet environmental standards, increase labor productivity, and attract consumers with environmental preferences. Thus, through green opportunities and the application of green innovation, companies can develop

effective environmental systems, improve green performance, and achieve competitive advantage in the long term (Sibian & Ispas, 2021).
H10: Green Opportunity Significant positive effect on Green Performance through the mediation of Environmentally Friendly Process Innovation

3. Methodology

Employees Phillips Ltd, Panasonic Ltd, and TDK Electronics Indonesia Ltd in Batam City is the object of this research. Questionnaires were distributed to employees of Phillips Ltd, Panasonic Ltd, TDK Electronics Indonesia Ltd in Batam City because these three companies produce and sell electronic goods, where there is still a lot of electronic waste which is classified as dangerous. (Pratiwi et al., 2016)**.** The questionnaire was distributed to 250 respondents using the SPSS application to test the hypothesis. Then sampling to answer the questions in the questionnaire was carried out on employees who had worked at the company for more than 1 year. These potential respondents were chosen because they met the criteria in this research, where respondents were expected to understand knowledge about *green performance* so that the answers filled in in the questionnaire are more accurate and by reality. Based on the determination of sample selection, this research uses the method of *purposive sampling* where consideration is used in determining samples that comply with the standards determined by (Ardiana & Fitria, 2021)**.** Sampling was carried out by distributing questionnaires to potential respondents who had or had reported taxes in Indonesia.

The distribution of questionnaires was given to employees of Phillips Ltd, Panasonic Ltd, TDK Electronics Indonesia Ltd in Batam City to use as data for sampling because there is still hazardous waste produced from electronic goods. This research uses SPSS to test hypothesis data. In the process of determining the number of samples used in this research, the author determined it using Roscoe's (1975) theory in Sari & Rohman (2015), namely that the sample size used in the research must be between 3 and 500 if the sample is divided into each category, then the total sample per category at least 30. Then the total sample members are at least 10 times the number of variables studied. So the minimum number of samples in this study is 250 respondents and the number of questions in the questionnaire that will be distributed is 21 questions consisting of 5 questions related to *developing green abilities*, 4 questions related to *motivating green initiatives*, 4 questions related to *providing green opportunities,* 4 questions related to *green process innovation*, and 4 questions related to *green performance* (Muisyo & Qin, 2021).

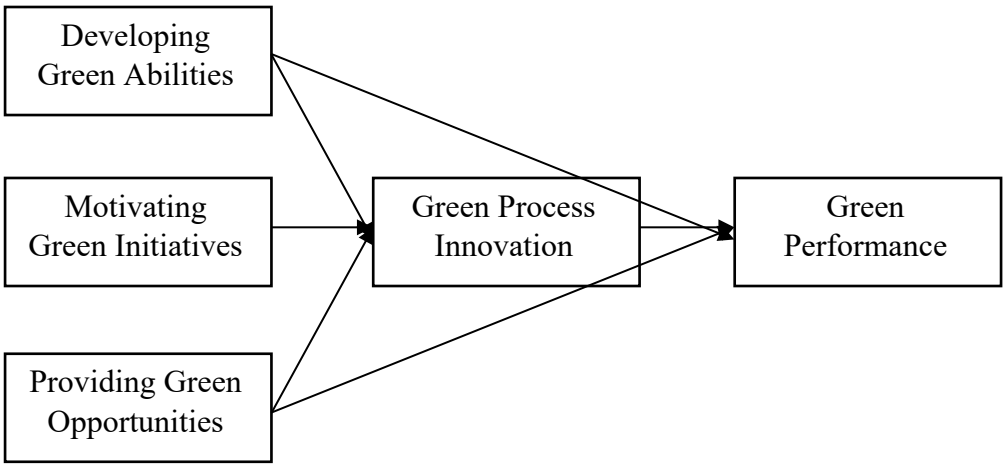

Figure 1. Research Model

Based on the research model made, it can be concluded on the hypothesis in this study as follows:

H1: Green Capability Development has a significant positive effect on Green Performance.

H2: Green Initiative Motivation has a significant positive effect on Green Performance.

H3: Green Opportunities have a significant positive effect on Green Performance.

H4: Green Capability Development has a significant positive effect on Environmentally Friendly Process Innovation.

H5: Green Initiative Motivation has a significant positive effect on Environmentally Friendly Process Innovation.

H6: Green Opportunities have a significant positive effect on Environmentally Friendly Process Innovation.

H7: Environmentally Friendly Process Innovation has a significant positive effect on Green Performance.

H8: Green Capability Development has a significant positive effect on Green Performance through the mediation of Environmentally Friendly Process Innovation.

H9: Green Initiative Motivation has a significant positive effect on Green Performance through the mediation of Environmentally Friendly Process Innovation.

H10: Green Opportunities have a significant positive effect on Green Performance through the mediation of Environmentally Friendly Process Innovation.

4. Empirical Findings/Result

Based on the questionnaire data in this research, there were 250 questionnaires distributed to employees. Phillips Ltd, Panasonic Ltd, TDK Electronics Indonesia Ltd in Batam City. The characteristics of respondents in this study were measured by gender. The sample was measured based on male and female gender. Based on the

results of the questionnaire, there were 140 male respondents with a percentage of 56%, and 110 female respondents with a percentage of 44%.

Respondents in this study were then categorized based on the respondent's age, where age significantly influenced the success of this research. Based on the results of the questionnaire, the age range under 25 years is in the highest position with a percentage of 51.2%**,** and at least those aged over 50 years with a percentage of 0.4%. The final category of respondents that influences the success of this research is the final education category. In this study, respondents with a Bachelor's degree were in the highest position with a percentage of 35.2% and respondents with a Master's degree were in the lowest position with a percentage of 1.2%.

Table 2. Table of Demographic Characteristics of Respondents

Gender	**Total Respondents**	**Percentage**
Male	140	56
Female	110	44
Total	250	100
Age		
<25 years	128	51,2
25 years to 30 years	84	33,6
31 years to 40 years	32	12,8
41 years to 50 years	5	2
>50 years	1	0,4
Total	250	100
Education		
Junior High School	0	0
Senior High School	61	24,4
Diploma	75	30
Bachelor	88	35,2
Master	3	1,2
Other	23	9,2
Total	250	100

Source: Data Processed (2023)

Table 3. Validity Test Results

Variable	**Pearson Colleration**	**Information**
X1.1	0,782	Valid
X1.2	0,807	Valid
X1.3	0,852	Valid
X1.4	0,870	Valid
X1.5	0,857	Valid
X2.1	0,830	Valid
X2.2	0,709	Valid
X2.3	0,867	Valid
X2.4	0,811	Valid
X3.1	0,791	Valid
X3.2	0,719	Valid

X3.3	0,704	Valid
X3.4	0,683	Valid
Z1.1	0,691	Valid
Z1.2	0,773	Valid
Z1.3	0,759	Valid
Z1.4	0,786	Valid
Y1.1	0,774	Valid
Y1.2	0,776	Valid
Y1.3	0,759	Valid
Y1.4	0,751	Valid

Source: Data Processed (2023)

The validity test produces a value above 0.3 and a significance value below 0.05 so that the variables green performance, green capability development, green initiative motivation, green opportunities, and environmentally friendly innovation processes are significant and the question can be said to be valid.

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Information
Developing Green Abilities (X1)	0,890	Reliable
Motivating Green Initiatives (X2)	0,819	Reliable
Providing Green Opportunities (X3)	0,691	Reliable
Green Process Innovation (Z1)	0,739	Reliable
Green Performance (Y1)	0,763	Reliable

Source: Data Processed (2023)

Based on the reliability tests carried out, it shows value*Cronbach's Alpha* all the variables tested were above 0.6 so the variables green performance, green capability development, green initiative motivation, green opportunities, and environmentally friendly innovation processes were declared proven.

Table 5. Determination Test Results for Model Equation 1

Model	Adjusted R Square
1	0,321
a. Predictors: (Constant), Providing Green Opportunities (X3), Developing Green Abilities (X1), Motivating Green Initiatives (X2)	
b. Dependent Variable: Green Performance (Y1)	

Source: Data Processed (2023)

The determination test shows that the R Square value is 32.1% for the green capability development variable, green initiative motivation, and green opportunities explaining the green performance variable. Meanwhile, 67.9% is explained by other variables from outside the research model.

Table 6. Determination Test Results for Model Equation 2

Model	Adjusted R Square
1	0,552
a. Predictors: (Constant), Providing Green Opportunities (X3), Developing Green Abilities (X1), Motivating Green Initiatives (X2)	
b. Dependent Variable: Green Process Innovation (Z1)	

Source: Data Processed (2023)

The determination test shows an R Square value of 55.2%, the variables green capability development, green initiative motivation, and green opportunities explain the environmentally friendly innovation process variables. Meanwhile, 44.8% is explained by other variables from outside the research model.

Table 7. Determination Test Results for Model Equation 3

Model	Adjusted R Square
1	0,509
a. Predictors: (Constant), Green Process Innovation (Z1), Developing Green Abilities (X1), Providing Green Opportunities (X3), Motivating Green Initiatives (X2)	
b. Dependent Variable: Green Performance (Y1)	

Source: Data Processed (2023)

The determination test shows an R Square value of 50.9%. The green capability development variable, green initiative motivation, green opportunities, and environmentally friendly innovation processes explain the green performance variable. Meanwhile, 49.1% is explained by other variables from outside the research model.

Table 8. F Test Results for Model Equation 1

Model		Sig.
1	Regression	.000[b]
	Residual	
	Total	
a. Dependent Variable: Green Performance (Y1)		
b. Predictors: (Constant), Providing Green Opportunities (X3), Developing Green Abilities (X1), Motivating Green Initiatives (X2)		

Source: Data Processed (2023)

The F test produces a significance value of 0.000, where the value is below 0.05 which means H_0 is rejected, the hypothesis is accepted, which means that the variables of green capability development, green initiative motivation, and green opportunities from this research have a significant effect on the green performance variable simultaneously.

Table 89 F Test Results for Model Equation 2

Model		Sig.
1	Regression	.000[b]
	Residual	
	Total	
a. Dependent Variable: Green Process Innovation (Z1)		
b. Predictors: (Constant), Providing Green Opportunities (X3), Developing Green Abilities (X1), Motivating Green Initiatives (X2)		

Source: Data Processed (2023)

The F test produces a significance value of 0.000, where the value is below 0.05 which means H_0 is rejected, the hypothesis is accepted, which means that the variables of green capability development, green initiative motivation, and green opportunities from this research have a significant effect on the environmentally friendly process innovation variable simultaneously.

Table 10. F Test Results for Model Equation 3

Model		Sig.
1	Regression	.000[b]
	Residual	
	Total	
a. Dependent Variable: Green Performance (Y1)		
b. Predictors: (Constant), Green Process Innovation (Z1), Developing Green Abilities (X1), Providing Green Opportunities (X3), Motivating Green Initiatives (X2)		

Source: Data Processed (2023)

The F test produces a significance value of 0.000, where the value is below 0.05 which means H_0 is rejected, the hypothesis is accepted, which means that the variables of green capability development, green initiative motivation, green opportunities, and environmentally friendly process innovation from this research have a significant effect on the green performance variable simultaneously.

Table 11. t Test Results Model Equation 1

Model		t	Sig.
1	(Constant)	10,32	0,000
	Developing Green Abilities (X1)	1,399	0,163
	Motivating Green Initiatives (X2)	-0,712	0,477
	Providing Green Opportunities (X3)	7,241	0,000
a. Dependent Variable: Green Performance (Y1)			

Source: Data Processed (2023)

Table 12. t Test Results Model Equation 2

Model		t	Sig.
1	(Constant)	6,262	0,000
	Developing Green Abilities (X1)	2,32	0,021
	Motivating Green Initiatives (X2)	2,961	0,003

Providing Green Opportunities (X3)	7,405	0,000
a. Dependent Variable: Green Process Innovation (Z1)		

Source: Data Processed (2023)

Table 13. t Test Results Equation Model 3

Model		t	Sig.
1	(Constant)	7,652	0,000
	Developing Green Abilities (X1)	0,199	0,843
	Motivating Green Initiatives (X2)	-2,634	0,009
	Providing Green Opportunities (X3)	3,533	0,000
	Green Process Innovation (Z1)	9,766	0,000
a. Dependent Variable: Green Performance (Y1)			

Source: Data Processed (2023)

The t-test results indicate that Providing Green Opportunities (X3) significantly influences green performance (Y1) with t = 7.241 and p = 0.000. Meanwhile, Developing Green Abilities (X1) (t = 2.32, p = 0.021) and Motivating Green Initiatives (X2) (t = 2.961, p = 0.003) significantly affect green process innovation (Z1). On the other hand, Motivating Green Initiatives (X2) (t = -2.634, p = 0.009), Providing Green Opportunities (X3) (t = 3.533, p = 0.000), and Green Process Innovation (Z1) (t = 9.766, p = 0.000) all play significant roles in influencing green performance (Y1).

5. Discussion

The Effect of Developing Green Abilities on Green Performance

The t-test results show the green capability development variable has a significance value of 0.163 above 0.05, where H_0 is accepted and the hypothesis is rejected, which means the green capability development variable does not affect on green performance. Although employees in such electronics companies develop green capabilities, the actual implementation of such knowledge and skills can be an obstacle. If no action is taken to implement the learned sustainable practices, then the development of green capabilities will have no impact on green performance. The development of green capabilities must be connected to real actions in daily practice (Sibian & Ispas, 2021).

The Effect of Motivating Green Initiatives on Green Performance

The t-test results show the motivation variable for green initiatives has a significance value of 0.477 above 0.05, where H_0 is accepted and the hypothesis is rejected, which means the motivation variable for green initiatives has no effect on green performance. Green motivation alone is not enough to achieve significant green performance. If employees only have green motivation but do not take real action to change electronic company practices or policies, then this motivation will not have an impact on green performance. The importance of linking green motivation with concrete actions that lead to sustainable practices (Purnama & Nawangsari, 2019).

The Effect of Providing Green Opportunities on Green Performance

The t-test results show the green opportunity variable has a significance value of 0.000 below 0.05, where H_0 is rejected and the hypothesis is accepted, which means the green opportunity variable influences green performance. Green opportunities often drive innovation in more sustainable products and services. In response to increasing market demands for environmentally friendly solutions, electronics companies can develop products that are more energy efficient, longer lasting, easily recyclable, or use renewable raw materials. By exploiting green opportunities, companies can expand their product and service offerings, achieve competitive differentiation, and improve overall green performance (Syafari, 2022).

The Effect of Developing Green Abilities on Green Process Innovation

The t-test results show the green capability development variable has a significance value of 0.021 below 0.05, where H_0 is rejected and the hypothesis is accepted which means the green capability development variable influences on environmentally friendly process innovation. The development of green capabilities facilitates collaboration and expands the network of individuals or innovation teams. Through training, seminars, and forums related to green capabilities, electronics company employees have the opportunity to interact with other stakeholders who share the same interests and knowledge. Collaboration and expanded networks open the door to the exchange of ideas, the discovery of new technologies, and inspiration from various sources that can encourage environmentally friendly innovation processes (Muisyo & Qin, 2021).

The Effect of Motivating Green Initiatives on Green Process Innovation

The t-test results show the motivation variable for green initiatives has a significance value of 0.003 below 0.05, where H_0 is rejected and the hypothesis is accepted which means the motivation variable for green initiatives has an influence on environmentally friendly process innovation. Green motivation encourages employees in this electronics company to look for new and creative solutions to facing environmental challenges. When employees have intrinsic motivation to contribute to sustainability and sustainable practices, they are more likely to use their creativity to generate innovative ideas that can reduce negative impacts on the environment. Green motivation triggers thinking outside the box and the exploration of solutions that have never been thought of before (Sari & Handayani, 2020).

The Effect of Providing Green Opportunities on Green Process Innovation

The t-test results show the green opportunity variable has a significance value of 0.000 below 0.05, where H_0 is rejected and the hypothesis is accepted which means the green opportunity variable influences environmentally friendly process innovation. Nowadays, more and more people care about the environment and use environmentally friendly electronic products. Electronics companies that want to meet this demand must develop more efficient and sustainable production processes. This encourages innovation in production technology, such as the use of more environmentally friendly raw materials, energy efficiency in production, and waste reduction (Huo et al., 2022).

The Effect of Green Process Innovation on Green Performance

The t-test results show that the environmentally friendly process innovation variable has a significance value of 0.000 below 0.05, where H_0 is rejected and the hypothesis is accepted, which means that the environmentally friendly process innovation variable influences green performance. Based on research conducted on employees, environmentally friendly process innovation can provide a competitive advantage for electronics companies. Consumers are increasingly choosing environmentally friendly electronic products and services and companies that can provide electronic products with a lower environmental footprint have an advantage in an increasingly environmentally conscious market. Process innovations that contribute to a company's green performance can also be a powerful source of differentiation, which differentiates the company from its competitors and enhances its brand image (Purnama & Nawangsari, 2019).

The Effect of Green Process Innovation on Developing Green Abilities and Green Performance

The t-test results show the green capability development variable has a significance value of 0.843 above 0.05, where H_0 is accepted and the hypothesis is rejected, which means that the green capability development variable does not effect on green performance through environmentally friendly process innovation variables. Green capability development focuses more on increasing individual understanding and skills related to environmental issues. Meanwhile, green process innovation involves changes in operational methods and practices that are more environmentally sustainable and efficient. Although developing green capabilities can provide an important knowledge base, green performance through green process innovation requires further efforts to change and improve overall operational practices (Pham et al., 2019).

The Effect of Green Process Innovation on Motivating Green Initiatives and Green Performance

The t-test results show the motivation variable for green initiatives has a significance value of 0.009 below 0.05, where H_0 is rejected and the hypothesis is accepted, which means that the motivation variable for green initiatives has an influence on green performance through environmentally friendly process innovation variables. Green motivation can increase the attraction and commitment of employees. Phillips Ltd, Panasonic Ltd, TDK Electronics Indonesia Ltd in Batam City. Employees who feel involved in sustainable business practices tend to be more satisfied and committed to achieving the company's green performance goals. Green motivation can also increase employee pride in the electronics company where they work because they feel they are contributing to positive environmental solutions through environmentally friendly innovation processes (Hossen et al., 2021).

The Effect of Green Process Innovation on Providing Green Opportunities and Green Performance

The t-test results show the green opportunity variable has a significance value of 0.000 below 0.05, where H_0 is rejected and the hypothesis is accepted, which means the green opportunity variable has an influence on green performance through environmentally friendly process innovation variables. Green opportunities often involve the adoption of more efficient and environmentally friendly technologies, processes, and business practices. Through a green innovation process, electronics companies can identify and implement solutions that reduce the use of resources, energy, and raw materials, and minimize waste and emissions. By improving operational efficiency, electronics companies can achieve better green performance, reduce costs, and increase productivity (Moradeke et al., 2021).

6. Conclusion

This research concludes that the development of green capabilities and green motivation does not effect green performance. If employees from electronics companies have developed green capabilities and have green motivation but have not yet applied it to everyday life, then it will not have an impact on green performance. With green opportunities, electronics companies are often encouraged to innovate environmentally friendly services and products that can improve overall green performance. Through training, seminars, and forums related to green capabilities, electronics company employees have the opportunity to gain inspiration from various sources that can encourage environmentally friendly innovation processes.

Employees who are motivated by this seminar will contribute to the company and tend to use their creativity to produce innovative ideas that can reduce negative impacts on the environment. Nowadays, more and more people care about the environment and use environmentally friendly electronic products. Electronics companies that want to meet this demand must develop environmentally friendly production processes. Companies that can to provide electronic products with a lower environmental footprint have an advantage in an increasingly environmentally conscious market.

Green capability development focuses more on increasing individual understanding and skills related to environmental issues. Meanwhile, green process innovation involves changes in operational methods and practices that are more environmentally sustainable and efficient. Green motivation becomes influential on green performance after adding environmentally friendly innovation process variables as mediation because companies should involve employees in environmentally friendly innovation processes. Employees who feel involved in sustainable business practices tend to be more satisfied and committed to achieving the company's green performance goals. Through an environmentally friendly innovation process, electronics company employees can have the opportunity to identify and implement solutions that reduce the use of resources, energy, and raw materials, as well as minimize waste and emissions to achieve green performance within the company.

This study only involved employees of Philips Ltd, Panasonic Ltd, and TDK Electronics Indonesia Ltd in Batam City in testing the effect of mediating environmentally friendly process innovations on green capability development, green initiative motivation, green opportunities, and green performance. Further research can be directed to employees in companies with different fields and different cities, where many companies in other cities still have not implemented green resource management.

Based on the conclusions above, several suggestions need to be conveyed, namely for companies to make this research as an assessment of green performance in companies and still see the influence of green capability development, green motivation, and green opportunities. With this research, it is hoped that the company will continue to develop green innovation processes and products that will be used by the community. After that, future research, is expected to use and add samples or variables that are not contained in this study to obtain more accurate data and results.

References:

Aniqoh, N., Probosari, N., Sutanto, H., & Kunci, K. (2022). Pengaruh Green Training , Green Performance Management , dan Green Employee Involvement terhadap Organizational Citizenship Behavior For Environment Pada Karyawan di Waroeng Pohon. *Irwns*, 13–14.

Ardiana, E., & Fitria, A. (2021). Pengaruh E-Filling, Modernisasi Sistem Perpajakan, Pemahaman Pajak, Sanksi Perpajakan Terhadap Kepatuhan Pelaporan. *Jurnal Ilmu Dan Riset Akuntansi*, *10*, 10. http://jurnalmahasiswa.stiesia.ac.id/index.php/jira/article/view/4054/4066

Bos-Nehles, A., Townsend, K., Cafferkey, K., & Trullen, J. (2023). Examining the Ability, Motivation and Opportunity (AMO) framework in HRM research: Conceptualization, measurement and interactions. *International Journal of Management Reviews*, *February*, 1–15. https://doi.org/10.1111/ijmr.12332

Burhanuddin, B. (2022). The Effect of Achievement-Motivation-Training, Religiosity, and Resilience on Employee Performance. *Quantitative Economics and Management Studies*, *3*(4), 661–666. https://doi.org/10.35877/454ri.qems1049

Delmonico, D., Jabbour, C. J. C., Pereira, S. C. F., de Sousa Jabbour, A. B. L., Renwick, D. W. S., & Thomé, A. M. T. (2018). Unveiling barriers to sustainable public procurement in emerging economies: Evidence from a leading sustainable supply chain initiative in Latin America. *Resources, Conservation and Recycling*, *134*(February), 70–79. https://doi.org/10.1016/j.resconrec.2018.02.033

G, T. E., & Alhazami, L. (2023). Pengaruh Green Process Innovation Terhadap Company Performance (Studi Pada The Body Shop Outlet Emporium Mall). *Business and Investment Review*, *1*(3), 211–222. https://doi.org/10.61292/birev.v1i3.32

Green, P., Resource, H., & Ghrm, M. (2023). *JIMEA | Jurnal Ilmiah MEA (Manajemen , Ekonomi , dan Akuntansi) Dan Kepuasan Kerja Dalam Mempengaruhi Kinerja Karyawan Di Masa Pandemi Covid-19 Jimea | Jurnal*

Ilmiah MEA (Manajemen , Ekonomi , dan Akuntansi). *7*(1), 458–471.

Harma, U., Dompak, T., Batam, U. P., Soeprapto, J. R., Kuning, M., Batam, U. P., Soeprapto, J. R., & Kuning, M. (2020). *Pengelolaan Limbah Bahan Berbahaya dan Beracun Ditinjau Dari Aspek Hubungan Industrial dan Corporate Social Responsibility*. 10–16.

Hossen, M., Islam, R., & Tumpa, A. S. (2021). *Can Green Management Practices Ensure Environmental Sustainability ? A Firm-Level Study on Readymade Garments Sector of Bangladesh*. *2*, 20–34.

Humairoh, P., & Hermawan, A. A. (2023). The Influence of Green Human Resources Management on Green Performance: The Role of Levers of Control. *Call Paper: Strategic Management & Entrepreneurship Toward The New Normal Era*, *1*(March), 41–57.

Huo, X., Azhar, A., Rehman, N., & Majeed, N. (2022). The Role of Green Human Resource Management Practices in Driving Green Performance in the Context of Manufacturing SMEs. *Sustainability (Switzerland)*, *14*(24). https://doi.org/10.3390/su142416776

Jonny, J., & Banjar, H. (n.d.). *Implikasi dan pengelolaan limbah elektronik*. *3814*(20217), 116–119.

Moradeke, F. T., Ishola, G. K., & Okikiola, O. L. (2021). Green Training and Development Practices on Environmental Sustainability: Evidence from WAMCO PLC. *Journal of Educational Management & Social Sciences*, *1*(2), 1–19. https://doi.org/10.48112/jemss.v1i2.212

Muchsinati, E S, & Jeanny, J. (2021). Pengaruh Training and Development, Performance Appraisal, Reward System terhadap Employee Performance dengan Job Satisfaction sebagai Mediasi pada Hotel …. *CoMBInES-Conference on Management …*, *1*(1), 2178–2190. https://journal.uib.ac.id/index.php/combines/article/view/4753%0Ahttps://journal.uib.ac.id/index.php/combines/article/download/4753/1438

Muchsinati, Evi Silvana, & Ardiansyah, R. (2023). *The Importance of Implementing E-HRM to Enhance Employee Productivity in Companies*. *03*(02), 918–946.

Muisyo, P. K., & Qin, S. (2021). Enhancing the FIRM'S green performance through green HRM: The moderating role of green innovation culture. *Journal of Cleaner Production*, *289*, 125720. https://doi.org/10.1016/j.jclepro.2020.125720

Pascasarjana, S., Ibn, U., & Bogor, K. (2023). *anajemen (E*. *14*(3), 504–519. https://doi.org/10.32832/jm-uika.v14i3.15100

Pham, N. T., Tučková, Z., & Chiappetta Jabbour, C. J. (2019). Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. *Tourism Management*, *72*(December 2018), 386–399. https://doi.org/10.1016/j.tourman.2018.12.008

Pham, N. T., Tučková, Z., & Phan, Q. P. T. (2019). Greening human resource management and employee commitment towards the environment: An interaction model. *Journal of Business Economics and Management*, *20*(3), 446–465. https://doi.org/10.3846/jbem.2019.9659

Pratiwi, F. D., Hidayat, D., & Pratama, D. S. (2016). Tingkat Pencemaran Logam

Kadmium (Cd) dan Kobalt (Co) Pada Sedimen di Sekitar Pesisir Bandar Lampung. *Analit: Analytical and Environmental Chemistry*, *1*(01), 61–68.

Purnama, N. D. &, & Nawangsari, L. C. (2019). Pengaruh Green Human Resource Management Terhadap Sustainability Business : Pendekatan Konsep. *Pengaruh Green Human Resource Management Terhadap Sustainability Business*, 32–39.

Rizvi, Y. S., & Garg, R. (2021). The simultaneous effect of green ability-motivation-opportunity and transformational leadership in environment management: the mediating role of green culture. *Benchmarking*, *28*(3), 830–856. https://doi.org/10.1108/BIJ-08-2020-0400

Sari, N. P., & Handayani, S. (2020). Pengaruh Pengungkapan Green Product Innovation dan Green Process Innovation Terhadap Kinerja Perusahaan. *Jurnal Akuntansi AKUNESA*, *9*(1), 1–8.

Sari, P. T., & Rohman, A. (2015). Persepsi Mahasiswa Atas Pengaruh Teknologi Informasi Terhadap Kualitas Informasi Akuntansi Dengan Etika Pengguna Sebagai Variabel Moderasi. *Diponegoro Journal of Accounting*, *4*(2), 543–553.

Shen, J., Dumont, J., & Deng, X. (2018). Employees' Perceptions of Green HRM and Non-Green Employee Work Outcomes: The Social Identity and Stakeholder Perspectives. *Group and Organization Management*, *43*(4), 594–622. https://doi.org/10.1177/1059601116664610

Sibian, A. R., & Ispas, A. (2021). An approach to applying the ability-motivation-opportunity theory to identify the driving factors of green employee behavior in the hotel industry. *Sustainability (Switzerland)*, *13*(9). https://doi.org/10.3390/su13094659

Siburian, N. A., & Sugiarto, A. (2022). *Human Resources Management (Studi Kasus pada Perusahaan Pertambangan)*. *12*(2).

Syafari, M. (2022). Manajemen Sumber Daya Manusia Ramah Lingkungan. *Equator Journal of Management and Entrepreneurship (EJME)*, *10*(03), 145. https://doi.org/10.26418/ejme.v10i03.54929

Tim Penyusun Publikasi Statistik Sektoral Pemerintah Kota Batam Tahun 2022. (2022). *Statistik Sektoral 2022*. 1–370. Dinas Komunikasi Dan Informatika Kota Batam

Yu, W., Chavez, R., Feng, M., Wong, C. Y., & Fynes, B. (2020). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. *International Journal of Production Economics*, *219*, 224–235. https://doi.org/10.1016/j.ijpe.2019.06.013