THE PUBLIC ROLE OF GREEN PERFORMANCE AND COMPETITIVE ADVANTAGES ON SUSTAINABILITY: ANALYSIS OF THE IMPORTANCE OF GREEN ORGANIZATIONAL CULTURE AND GREEN INNOVATION IN COMPANIES

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ABSTRACT

Due to globalization and rapid technological development, improving efficiencies in a production system and an environmental management system at the same time is critical to long-term sustainability. This study tried to examine the relationship between some Green Company Concepts such as Green Organizational Culture, Green Innovation, and Green Performances and Competitive Advantage, as well as Sustainable Performances. This study gathered the data from 101 companies that are working in different sectors such as food production, education, pharmacy, and others. This study uses a quantitative approach and regression in analyzing process. The results show that Green Organizational Culture has a significant positive impact on Green Innovation. Green Innovation also has a significant positive impact on both Green Performance and Competitive Advantage. This study also proves that both Green Performance and Competitive Advantage have a significant positive impact on Sustainable Performance. The conclusion, contribution, and limitations are also discussed.

Keywords: *Green Organizational Culture, Green Innovation, Green Performances, Competitive Advantage, Sustainable Performances, Sustainability*

A. INTRODUCTION

Globalization and rapid technological development have led to a better society, but this also led to increasing concern about the environment quickly

evolves the market environment and compels businesses to pursue green strategies (García-Machado & Martínez-Ávila, 2019; Wang, 2019). This promotes the development of the concept of an 'Environmental Management System.' Zhou et al., (2018) have stated that improving efficiencies in an industrial production system and an environmental management system at the same time is critical to long-term sustainability. The Environmental Management System (EMS) plays a big part in supervising environmental issues and how to deal with them.

A case from China has proved that governmental agencies are unable to effectively supervise the discharge of high salinity wastewater due to a lack of a comprehensive management system (Shi et al., 2021). Another research also stated that companies with strong Environmental Management Systems have a significant advantage in finding relevant environmental aspects and defining goals to start identifying Key Performance Indicators(Lo-Iacono-Ferreira et al., 2018). These results proved how EMS plays a big role in helping companies to improve their firm performance and reach sustainability. However, not many companies are focusing on environmental issues. The fact that many companies do not give attention to sustainability properly can be proven by nature's situation.

According to Environmental Sustainability, we are on track to produce 27 billion tons of solid waste by 2050 as a result of a business environment that prioritizes rapid product production and turnover for maximum profits. Unchecked CO2 emissions are expected to contribute to a two-degree Celsius temperature increase by 2050, causing sea levels to rise and catastrophic weather events to become more common (*The Importance of Environmental Awareness When Running a Business*, n.d.). If this situation is not addressed, our Earth may be jeopardized and sustainable development can not be achieved. With these facts in mind, companies nowadays should give proper attention to sustainability.

Environmental concerns are becoming increasingly important in the manufacturing industry as decision-makers face growing public sensitivity, stricter environmental regulations, and increasing shareholder pressure to preserve the natural environment (El-Kassar & Singh, 2019; Wang, 2019; Ren et al., 2022). Consequently, companies need to rethink their business activities that will focus on environmental sustainability. Some of the efforts that companies asserted building green culture and motivating managers or leaders to develop their capacity in Green Transformational Leadership (Verma & Kumar, 2021). This type of leadership has been proven to increase employees' thinking, engagement, and innovation (Begum et al., 2022). Besides that, Green Transformational Leadership has been categorized as visionary leadership that was found to positively influence organizational pride and organizational citizenship behavior (Ismail et al., 2021). Thus, visionary leadership, in this case, Green Transformational Leadership, might impact employees' thinking, engagement, and behavior that can lead to more efficient work resulting in higher performance and reaching sustainability.

The increase in environmental concern also led the companies to change their focus on nature's preservation. Chaudhary (2020) stated that organizations have recently realized that the sustainability of their operations is dependent on the continuous supply of natural resources. Stakeholders have put pressure on

organizations to adopt environmentally friendly business practices in recent years, making it critical to identify green practices that boost sustainability (Mousa & Othman, 2020). This makes the environment become the center of attention in achieving sustainability. Hence, companies must begin incorporating EMS, as the center of building green companies, into their daily operations.

To apply EMS in business activities, it should be started by building the culture, it is called Green Culture. It is stated that EMS has an internal force that impacts the existence of Green Culture in the company and can lead to benefits in many areas such as financial, environment, and even reputation (Muktiono & Soediantono, 2022). Isensee et al., (2020) stated that organizational culture, environmental sustainability, and digitalization have an impact on the business development of Small and Medium-Sized Enterprises (SMEs). Dimensions associated with organizational culture (e.g., attitudes, norms, assumptions) give a sense of identity and determine behavior. Pham et al., (2018) also mentioned in their research that it is very important to apply green management in companies by building its culture because it will impact how employees work and it will lead to environmental sustainability. Environmental sustainability has evolved into a critical tool for firms' competitive advantage. Hence, companies must undergo cultural transformation to maintain a competitive advantage (Aggarwal & Agarwala, 2021).

Besides culture, innovation is another important aspect for green companies to build their systems and reach sustainability. Innovation is an important factor for a company to achieve sustainability. Popescu Nicoleta et al., (2020) stated that in a competitive, ever-changing environment, innovation is a critical activity for the development and survival of businesses in any industry. Innovation, in all of its forms, can contribute to lower product production costs and thus selling prices, ensuring the creation of a significant competitive advantage for construction companies and beyond. However, nowadays, ‘only’ innovation is not enough to make companies sustainable since they are now very dependent on the environment. This is a gap that Green Innovation hopes to fill. Tang et al., (2018) stated that Green Innovation captures advancements in product design and manufacturing processes that save energy, reduce pollution, minimize waste, and reduce a company's negative environmental impact.

Good innovation will lead companies to a Competitive Advantage. Studies stated that a company is said to have a competitive advantage when it implements a value-generating strategy that is not simultaneously applied by current or potential competitors (Newbert, 2008; Peteraf & Barney, 2003). As previously mentioned, companies need to have at least one competitive advantage to reach sustainability or survived. Distanont & Khongmalai (2018) have proved in their studies that Green Innovation indeed played an important part for companies in reaching Competitive Advantage which will help them win the fierce competition of business. Another study from Gürlek & Tuna (2018) also confirmed that Green Innovation is also reinforced through Green Innovation and Culture. Based on this reality, it can be concluded that the relationship between the three variables (Green Organizational Culture, Green Innovation, and Competitive Advantage) is very important to be controlled if companies want to reach sustainability.

Sustainability is the ultimate goal of every company. Sustainability contains all the characteristics of a good corporate such as having good performances financially, socially, and even environmentally, which has been stated by many practitioners as well as researchers (Amrutha & Geetha, 2020; Mousa & Othman, 2020; Ren et al., 2022; Saunila et al., 2019; Yacob et al., 2019). Companies that reach sustainability also mean that they already have a competitive advantage, one which keeps them at the top position of the competition(Jia et al., 2018; Mishra, 2017; Yusliza et al., 2020). Hence, once companies have been proven to reach sustainability, besides they have reached their ultimate goal, they also can be known as 'Good Corporate'.

As a result, this study aims to explore the impacts of Green Organizational Culture on Green Performance, Competitive Advantage, and Sustainable Performances. This research also attempts to explore the effect of Green Organizational Culture on Green Innovation. This research will present an overview of the role of Green Organizational Culture and Green Innovation in achieving Sustainable Performance that is not only about economic performance, but also about the environment and society. The role of Green Performance and Competitive Advantage will also be explained considering its importance in achieving sustainability amid increasingly fierce economic competition.

This study also adds the concept of Green Performance which has not been examined much in sustainability studies. Tuan (2021) stated in the introduction of his research that despite the importance of teams in translating strategies into tactics and implementing the tactics, research has failed to examine green performance at the team level. Hence this study would like to fill this gap in the study of green performance in companies by examining its team and individual levels. This study will also examine Green Performance's impact on Sustainable Performance and how it is impacted by Green Innovation. Hence, this study will give a bigger picture of the impact of Green Culture and Green Innovation helping companies reach Green Performance and Competitive Advantage that will lead them to Sustainable Performances.

B. LITERATURE REVIEW

Based on the background regarding Green Innovation and Sustainable Performances that has been explained in the previous part, this study chose five main variables which are *Organizational Green Culture, Green Innovation, Green Performance, Competitive Advantage, and Sustainable Performances,* to be examined further.

Organizational Green Culture

According to Afum et al., (2020), it is quietly new for practitioners to discuss Organizational Green Culture. However, some studies have defined what Green Organizational Culture (hereafter will be abbreviated to GOC) as based on previous studies that explore Green Companies. For example, Afum et al., (2020) defined Organization Green Culture, based on the definition of Organizational Culture as values, principles, and ideas that determine an organization's behavior and actions concerning the natural environment. García-Machado & Martínez-Ávila (2019) described Green Culture as a present climate ideology based on

science, politics, and aesthetics that promotes sustainable economic and ecological development. Gürlek & Tuna (2018) described GOC as the pattern of shared basic assumptions about environmental management and environmental problems.

Based on those definitions, we derived our interpretation of OGC as a set of beliefs, values, and standards of companies based on science, politics, and aesthetics regarding the natural environment that encourages long-term economic and ecological development. Symbols, social stereotypes, and shared values are all part of green organizational culture. Individuals' usual behaviors are shaped by their beliefs, values, and norms concerning environmental management (Ching-Hsun Chang, 2015).

Green Innovation

Since companies nowadays are applying green strategy to their business activities, hence the concept of 'Green Innovation' is created. Green innovation can be defined as innovation that can minimize environmental impacts while still achieving a company's environmental goals and generating environmental benefits (Song et al., 2021). Another research identifies Green Innovation as a type of innovation whose main objective is to avert environmental damage while also enabling businesses to meet new consumer demands, create value, and increase yields (Albort-Morant et al., 2017). Green innovation is linked to a business's green management agenda, which encourages green performance (Sobaih et al., 2020).

Based on those definitions, we derived Green Innovation as an innovation type that has the main objective which is to prevent environmental damages while also creating business values for companies. Several previous studies have found that environmentally innovative businesses are hugely successful (Singh et al., 2020). Green innovation benefits both businesses and society as a whole (Tang et al., 2018). Since the importance of environmental responsibility is growing, public institutions and policymakers should motivate companies and individuals to incorporate these practices into their daily activities and businesses.

Green Performance

Before explaining Green Performance, this study must ensure that the concept of Green Performance is different from Environmental Performance which is one of the indicators of Sustainable Performance. If Environmental Performance is one of the indicators of Sustainable performance that will be achieved if companies can meet certain conditions regarding environmental issues, Green Performance was associated with issues relating to encouraging businesses to obtain important environmental certifications (Wang, 2019; Yu et al., 2017). Some research divided Green Performance into two parts: individually and the group examined (Boiral & Paillé, 2012; Tuan, 2021). In this study, we are focusing on Green Performance on both teams and individually in engaging, helping, and taking initiatives in preserving the environment.

Competitive Advantage

Studies stated that a company is said to have a competitive advantage when it implements a value-generating strategy that is not simultaneously applied by current or potential competitors (Newbert, 2008; Peteraf & Barney, 2003).

Another study stated that a Competitive Advantage is any value that a business provides that motivates its customers (or end-users) to buy its products or services over its competitors and that poses an obstacle for actual or potential direct competitors to imitate (Christensen, 2010). Those resources or values should be valuable, rare, limited mobility, and inimitable (Wang, 2019). Based on these definitions, we defined Competitive Advantage as any value provided by a company that is hardly imitated by potential competitors and motivates its customers (or end-users) to purchase its products or services over competitors.

A study by Porter (1985) defines several characteristics of a good competitor. If it fulfills all these characteristics, then companies can be said to be good competitor or already has a good Competitive Advantage. Below are the characteristics mentioned in the study:

1. Credible and feasible.
2. Knowing the company's weaknesses.
3. Understand the rules of the game in business competition. Not reckless and have a strategic plan.
4. Have realistic assumptions.
5. Know the prices that will be offered in the competition.
6. Have a strategy that can maintain or strengthen the elements desired by the company. An example of such a strategy would be emphasizing quality or differentiation rather than cutting the price of goods.
7. Focus or limit existing strategies to develop the company.
8. Have goals that are in line with the company's vision and mission.
9. Have strategic stakes and ROI targets in the industry, neither too high nor too low.

To find out whether a company already has a Competitive Advantage, it is necessary to have an analysis based on the above characteristics or other similar measurements. In essence, the company must have better overall quality than its competitors.

Sustainable Performances

Many business leaders are becoming increasingly aware of the importance of being socially and environmentally responsible in their operations (Caiado et al., 2019). A more sustainable supply of products and services generally requires an integration of new technologies, changes in practice/behavior, and new business models (Bradley et al., 2020). The term "sustainable development" or "sustainability" first appeared when the goal of public order recorded advances for continuous economic growth (Radu, 2012). The World Commission on Environment and Development defined sustainable development as "meeting the needs and aspirations of the present without risking future generations' ability to meet their own needs." (Malik et al., 2020). Afum et al., (2020) stated that Sustainable performance ensures that firms holistically balance their economic, environmental, and social performance (SP) goals.

1. Economic performance is frequently measured using both operational and financial results.
2. Environmental Performance is achieved when companies reduce their solid and water waste, carbon emissions, use of contaminated and harmful inputs,

frequency of environmental accidents, and overall environmental impact of a firm's activity.

3. Social Performance ensures that a company's social mission is accomplished and is measured by employee safety and health, improved community quality of life, vocation training for community members, and training of employees among others.

Hypotheses Development

Green Organizational Culture (GOC) and Green Innovation (GI)

As previously mentioned, GOC is a set of beliefs, values, and standards of companies based on science, politics, and aesthetics regarding the natural environment that encourages long-term economic and ecological development (Afum, Agyabeng-Mensah, & Owusu, 2020; García-Machado & Martínez-Ávila, 2019; Gürlek & Tuna, 2018). While Green Innovation is an innovation type that has the main objective which preventing environmental damages while also creating business values for companies (Albort-Morant et al., 2017; Sobaih et al., 2020; Song et al., 2021).

Generally, organizational culture did impact the innovation system in companies (Chu et al., 2019). In green companies' settings, previous studies have proven Green Innovation strategy is based on a GOC, which consists of the firm's behavior and environmental support norms (Wang, 2019). The study by Yang et al., (2017) stated that Green culture has a direct and positive impact on the effectiveness of green innovation. Another study by García-Machado & Martínez-Ávila (2019) stated that green innovation acts as a mediator variable in the relationship between green culture and environmental performance which means as GI increases it will enhance the impact of GOC on environmental performance.

Based on previous studies, it can be concluded that leaders in organizations with a culture that focuses on the environment are more likely to implement environmental protection policies, which increases organizational green innovation. Consequently, this study proposed the first hypothesis below:

H1: Green Organizational Culture (GOC) give a significant and positive impact on Green Innovation (GI)

Green Innovation and Green Performance

The concept of Green Performance in this study is focusing on how individuals and teams engage, help, and take initiatives in preserving the environment. Hence, it is very different from environmental performance which is one of the indicators of sustainable performance. There are still not many studies that analyzed Green Performance in companies. A study by Boiral & Paillé (2012) proposed an instrument that has been developed and validated for measuring organizational environmental citizenship behavior (OCBE). This instrument is used in a study by Wang (2019) to measure the engagement and initiatives of companies individually or in a group. In the same study, it stated that Green Innovation acts as a mediator in the relationship between GOC and Green Performance. This result also has been confirmed by a study from Luu (2020) who also stated that Green crafting (Green Innovation) functioned as a mediator for the relationship between green climate and individual green performance. Since there is still little research that examined Green Performance individually

and in a group, this study would like to enrich the current study to give more perspective in measuring Green Performance in companies. Based on this finding and reality, we proposed the second hypothesis below:

H2: Green Innovation (GI) give a significant and positive impact on Green Performance (GP)

Green Innovation and Competitive Advantage

Competitive Advantage is any value provided by a company that is hardly imitated by potential competitors and motivates its customers (or end-users) to purchase its products or services over competitors. To achieve sustainable development, innovation is a strategic tool to win this important competition for the improvement, creation, and enhancement of business to create competitive advantages equal to or better than competitors (Anning-Dorson, 2018; Distanont & Khongmalai, 2018; Udriyah et al., 2019). These results of studies are also applied to Green Innovation. Gürlek & Tuna, (2018) stated that Green Innovation has a significant impact on increasing Competitive Advantage which will be resulting in a higher chance for the company to reach sustainability. Wang (2019) also stated that Green Innovation acts as a mediator in the relationship between GOC and Green Performance. Another study from El-Kassar & Singh (2019) also confirmed that Green innovation practices positively influence competitive advantage and organizational as well as environmental performance. Based on these results, we proposed the third hypothesis as below:

H3: Green Innovation (GI) give a significant and positive impact on Competitive Advantage (CA)

Green Performance and Sustainable Performances

There is not much research that examined Green Performance as their variable. However, some researchers have proved that Green Performance is indeed giving a significant impact on Sustainable performance (Boiral & Paillé, 2012; Tuan, 2021). Based on these results, this study proposed the fourth hypothesis which is:

H4: Green Performance (GP) give a significant and positive impact on Sustainable Performances (SP)

Competitive Advantage and Sustainable Performances

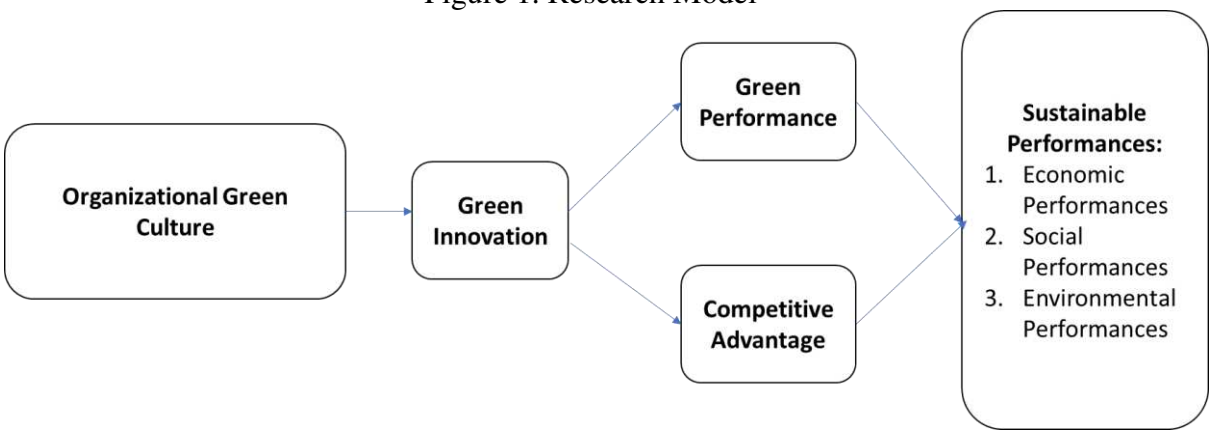
Research conducted by Abeysekara et al., (2019) stated that Competitive Advantage has a positive and significant effect on firm performance. Rhee & Stephens (2020) also found that Competitive Advantage has a significant influence on performance in the business context in South Korea. This shows that Competitive Advantage helps companies create better value for customers, therefore contributing to increased performance. These results also have been confirmed by other studies which stated that Competitive Advantage has played an important part in achieving sustainability in companies both directly and indirectly, acting as a mediator (Agyabeng-Mensah et al., 2020; Anwar et al., 2018; Kiyabo & Isaga, 2020). Based on these results, we proposed the fifth hypothesis as below:

H5: Competitive Advantage (CA) give a significant and positive impact on Sustainable Performances (SP)

Research Model

According to the five proposed hypotheses above, this study creates a research model as seen in Figure 1 below.

Figure 1. Research Model



C. METHODOLOGY

Sample and Data Collection

This research uses a quantitative approach and the result will be analyzed by both descriptive and inferential statistics. According to Wilcox (2017), the main goal of descriptive statistics is summarizing data in a manner that helps convey some of its important properties in a relatively simple manner. Through descriptive statistics, the results of the research can be summarized without trying to generalize to a larger population of individuals (Leech et al., 2005). Some of the examples of descriptive statistics are summary statistics, cross-tabulations, correlations, t-tests, proportion tests, association statistics, equality-of-variance tests, confidence intervals, nonparametric tests, normality tests, and random number generation, equality of variance tests (Kolenikov et al., 2010).

Since this study uses the quantitative method, hence the data will be collected by using questionnaires that will be distributed to 100 respondents. Those respondents will be the members of management and business association in Indonesia such as AMA (Asosiasi Manajemen Indonesia = Indonesia Management Association), APINDO (Asosiasi Pengusaha Indonesia = Indonesian Businessmen Association), KADIN (Kamar Dagang dan Industri Indonesia = Indonesian Chamber of Commerce and Industry). Apart from those associations, the questionnaires will also be distributed to students who are taking Master's Degree in Management or Business, businessmen, managers, and also stakeholders.

Measurement

All measures consisted of five-point Linkert scales, where 1 = “strongly disagree” and 5 = “strongly agree”, unless otherwise indicated. Each scale was originally designed in English and then translated into Bahasa Indonesia. The scale items which are used in this research are listed in the table below:

Table 1. List of Variables, Indicators, and Items in the Questionnaires

Variables	Indicators	Items
Green Organizational Culture		• Our firm makes a concerted effort to make every employee understand the importance of environmental preservation. • Our firm has a clear policy statement urging environmental awareness in every area. • Environmental preservation is a high-priority activity in our firm. • Preserving the environment is a central corporate value in our firm. • Our firm links environmental objectives with our other corporate goals. • Our firm develops products and processes that minimize environmental impact.
Green Innovation (Singh et al., 2020; Wang, 2019)	Green Product Innovation	• My company uses materials that produce the least pollution. • My company uses materials that consume less energy and resources. • My company uses materials that design environment-friendly products. • My company uses materials that are easy to recycle, reuse, and decompose.
	Green Process Innovation	• The manufacturing processes of my company effectively reduces hazardous substance or waste. • The manufacturing processes of my company effectively reduce the consumption of coal, oil, electricity, or water. • The manufacturing processes of my company effectively reduce the use of raw materials.
	Green Managerial Innovation	• My company redefines operation and production processes to ensure internal efficiency that can help with the implementation. • My company re-designs products or services to meet new environmental criteria or directions.

Green Performance (Boiral & Paillé, 2012; Tuan, 2021)	Individual Green Performance	• In my work, I weigh the consequences of my actions before doing something that could affect the environment. • I voluntarily carry out environmental actions and initiatives in my daily work activities • I make suggestions to my colleagues about ways to protect the environment more effectively, even when it is not my direct responsibility
	Team Green Performance	• Our team weighs the consequences of its actions before doing something that could affect the environment • Our team voluntarily carries out environmental actions and initiatives in its daily work activities. • Our team makes suggestions to its organization and other teams about ways to protect the environment more effectively, even when it is not its direct responsibility • Our team spontaneously gives its time to help other teams take the environment into account in everything they do at work. • Our team encourages other teams to adopt more environmentally conscious behavior. • Our team encourages other teams to express their ideas and opinions on environmental issues. • Our team actively participates in environmental events organized in and/or by our organization. • Our team stays informed of

		our organization's environmental initiatives. • Our team undertakes environmental actions that contribute positively to the image of our organization. • Our team volunteers for projects, endeavors, or events that address environmental issues in our organization.
Competitive Advantage (Wang, 2019)	Innovation Differentiation	• We are constantly investing to generate new capabilities that give us an advantage over our competitors. • Our firm offers that there was a new way of serving customers.
	Market Differentiation	• It is difficult for our competitors to imitate us. • Nobody can copy our corporate routines, processes, and culture.
Sustainable Performances (Afum, Agyabeng-Mensah, Sun, et al., 2020)	Economic Performance	• Improved profits • Sales growth • Return on investment • Return on equity • Return on asset
	Environmental Performance	• Reduction in air emission/ wastewater/solid waste • Decrease in frequency of environmental accidents • Decrease in frequency of environmental accidents • Improvement in the compliance with environmental standards • Minimizes the environmental impact of its activities • Conduct regular environmental audits
	Social Performances	• Improved living quality of surrounding community • Improved workers' occupational health and safety • Improve job satisfaction levels of employees

		• Encourage the development of employee skills • Encourage the development of employee skills

Data Analysis

Once questionnaires are completed, they will be analyzed by using PLS-SEM to test the eight hypotheses. To know the extent of independent variables' effect on dependent variables, we can use path coefficient value and R-square. According to Hair Jr et al., (2016) path coefficients are estimated path relationships in the structural model (i.e., between the constructs in the model). While R-square values are the amount of explained variance of endogenous latent variables in the structural model. The higher the R^2 values, the better the construct is explained by the latent variables in the structural model that point at it via structural model path relationships. High R^2 values also indicate that the values of the construct can be well predicted via the PLS path model.

The accepted value for path coefficients is above 0.3. A value that is in the range of 0.3-0.49 indicates a moderate correlation, while a value above 0.5 indicates a strong correlation. For R-square, the value of 0.25 indicates a weak effect, 0.5 indicates a moderate effect, and 0.75 indicates a strong effect (Hair et al., 2014; Hair Jr et al., 2016). To test those eight hypotheses, we can use P-values. P-values can be used to test the significance of the tested hypotheses. The hypotheses will be significant if the P-values are below 0.05.

D. RESULTS AND DISCUSSION

The questionnaires are distributed to 101 participants who came from different companies. Some of them are managers, leaders, or CEO. The companies are also varied in different sectors such as the food industry, education, pharmacy, and others. Before analyzing, the questionnaires must be tested its reliability and validity.

For the reliability test, the value of Cronbach Alpha can be used to verify the reliability of the questionnaires. The acceptable values of Cronbach Alpha should be around 0,60 and 0,70. In more advanced stages of research, values between 0.70 and 0.95 can be considered satisfactory. Values greater than 0.95 are undesirable because they indicate that all of the indicator variables are measuring the same phenomenon and are thus unlikely to be a valid measure of the construct (Jr et al., 2018). For the validity test, we can use the outer model. There are two criteria to assess whether the outer model meets the requirements of convergent validity for the reflective construct, firstly, loading values should be above 0.70, and secondly, the p-value must be below 0.05 to show that the loading values are significant (Jr et al., 2018). Though ideally, the value of cross-loading is above 0.70, the value of 0,50 ~ is still acceptable (Wilcox, 2017). After questionnaires are being tested, we can continue to analyze the results.

First is the reliability test, below is the table that shows the value of Cronbach Alpha in every variable in this research.

Table 2. Cronbach Alpha Values for Reliability Test

Cronbach's alpha coefficients				
GOC	**GI**	**GP**	**CA**	**SP**
0.938	0.914	0.920	0.735	0.930

As previously mentioned, the value between 0.70 and 0.95 in Cronbach Alpha is considered satisfactory. Values greater than 0.95 are undesirable because they indicate that all of the indicator variables are measuring the same phenomenon and are thus unlikely to be a valid measure of the construct (Jr et al., 2018). It means the questionnaires are reliable and satisfactory because according to Table 2, due to all values in Table 2 are in the range of 0.7 to 0.95.

The second is a validity test by using the value of cross loading and P-Value. Below is the table that shows the cross-loadings and P-value of the tested questionnaires in reliability.

Table 3. Cross Loading Values.

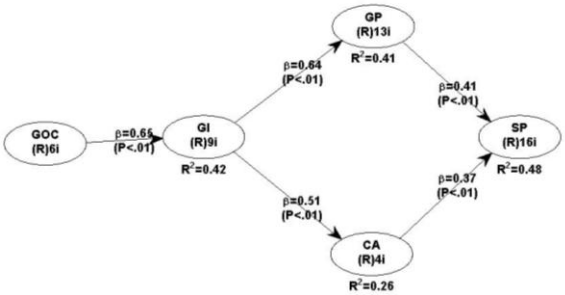
	GOC	**GI**	**GP**	**CA**	**SP**
GOC1	0.866	-0.123	0.120	-0.092	0.050
GOC2	0.882	-0.066	0.068	-0.039	-0.020
GOC3	0.942	-0.037	0.078	-0.067	0.006
GOC4	0.924	0.028	-0.185	0.018	0.069
GOC5	0.888	0.123	-0.014	0.081	-0.161
GOC6	0.734	0.088	-0.074	0.122	0.067
GI1	-0.096	0.803	-0.111	-0.111	0.018
GI2	-0.270	0.781	-0.118	0.047	-0.041
GI3	0.140	0.823	0.037	-0.126	-0.116
GI4	0.207	0.880	-0.107	0.025	-0.112
GI5	0.120	0.854	-0.051	0.030	-0.037
GI6	-0.355	0.699	-0.025	-0.002	0.255
GI7	-0.410	0.572	0.149	0.232	0.064
GI8	0.292	0.789	0.052	-0.023	0.027
GI9	0.197	0.718	0.249	-0.006	0.009
GP1	0.003	-0.552	0.659	-0.303	0.524
GP2	0.110	-0.402	0.630	-0.014	0.112
GP3	0.145	-0.083	0.630	-0.078	0.220
GP4	0.083	0.089	0.643	-0.046	0.138
GP5	0.181	0.044	0.767	-0.184	0.149
GP6	0.189	-0.090	0.778	-0.186	-0.059
GP7	-0.004	0.125	0.721	-0.253	0.091
GP8	0.016	0.080	0.788	0.208	-0.425
GP9	-0.095	0.004	0.788	-0.139	-0.025
GP10	0.003	-0.167	0.763	-0.057	0.027
GP11	-0.122	0.156	0.768	0.301	-0.255
GP12	-0.269	0.185	0.772	0.403	-0.152

GP13	-0.239	0.618	0.579	0.351	-0.224
CA1	0.138	0.006	0.202	0.676	0.058
CA2	-0.138	0.207	0.149	0.649	0.290
CA3	-0.038	-0.066	-0.123	0.825	-0.148
CA4	0.034	-0.102	-0.161	0.824	-0.128
SP1	-0.103	-0.095	-0.368	0.546	0.634
SP2	-0.162	-0.138	-0.350	0.522	0.653
SP3	0.149	-0.190	-0.190	0.112	0.753
SP4	0.057	-0.190	-0.207	0.200	0.790
SP5	0.068	-0.230	-0.074	0.124	0.769
SP6	0.088	0.314	-0.210	-0.178	0.779
SP7	0.163	0.418	-0.124	-0.058	0.703
SP8	0.225	-0.059	0.047	-0.079	0.621
SP9	0.151	-0.024	-0.036	-0.220	0.756
SP10	0.096	-0.120	0.065	0.101	0.559
SP11	0.101	-0.269	0.217	-0.022	0.706
SP12	-0.097	0.176	-0.137	-0.001	0.709
SP13	0.076	-0.071	0.178	0.084	0.732
SP14	-0.370	0.227	0.450	-0.363	0.655
SP15	-0.322	0.124	0.489	-0.303	0.677
SP16	-0.185	0.129	0.327	-0.421	0.688

According to Table 3 above, all the cross-loading values are mostly above 0.70, while others are still acceptable because they are above 0.5. It means the questionnaires are valid and can be analyzed.

In the analysis part, three figures need to be paid attention to. They are path coefficient, P-Value, and R^2. According to Jr et al., (2018) path coefficients are estimated path relationships in the structural model (i.e., between the constructs in the model). While R-square values are the amount of explained variance of endogenous latent variables in the structural model. The higher the R^2 values, the better the construct is explained by the latent variables in the structural model that point at it via structural model path relationships. High R^2 values also indicate that the values of the construct can be well predicted via the PLS path model. The results of the analysis process are shown in the picture below.

Figure 2. Results of the Analysis



Based on Figure 2 above, we can see a symbol β which represents the value of the path coefficient. A path coefficient is the partial correlation coefficient between a dependent variable and an independent variable that has been adjusted for other independent variables in path analysis and structural equation modeling. Path coefficient represents the strength of independent variables' impact on dependent variables that can only be applied in this study or sample's population. On the other hand, P which is the symbol for P-Value is representing the significance of the path coefficient. It means to know whether the hypotheses proposed are accepted or not, it will be determined by the P-value (Jr et al., 2018). The acceptable value for P-value is below 0.05 to show that the path coefficients are significant (Jr et al., 2018). Hence, since all the P-values in Figure 2 are below 0.5 and it signifies the significance of the path coefficient, **it means all the hypotheses proposed in this study are accepted.** Now, let us break down every hypothesis one by one.

First, in this study, it is found that the path is coefficient. between Green Organizational Culture and Green Innovation is 0.65 which is positive and significant. This result supports previous studies which stated that culture does have an impact on innovation and creativity in companies (Chu et al., 2019; García-Machado & Martínez-Ávila, 2019; Wang, 2019). Organizational culture represents and establishes the management principles for employees to follow (Tian et al., 2018). Green Organizational Culture motivates employees to study and work in a 'green mindset', hence it triggers green innovation in companies. Since employees need to consider environmental aspects when they are working, hence they will try to explore both internal and external factors (learning culture) to maintain their performance as well as improve environmental health (Tian et al., 2018). Thus, it sparks their innovation capability while working.

Next, Green Innovation (GI) has a positive and significant impact on both Green Performance and Competitive Advantage. In this study, the impact of Green Innovation is greater on Green Performance (path coefficient: 0.64, R-squared: 0.41) than on Competitive Advantage (path coefficient: 0.51. R-squared: 0.26). According to Jr et al., (2018), R-squared below 0.3 is considered weak. This is due to other antecedents that might impact Competitive Advantage in companies. Other factors such as culture, strategies, knowledge and risk management, and image might impact Competitive Advantage in companies (Lestari et al., 2020; Saeidi et al., 2019; Wijaya & Suasih, 2020; Zameer et al., 2020). This study supports that Competitive Advantage is a difficult and complex yet very important concept in reaching sustainability (Chandra et al., 2021; Malik et al., 2020; Mishra, 2017).

Lastly, both Green Innovation and Competitive Advantage have a positive and significant impact on Sustainable Performance, though Green Performance has a higher effect than Competitive Advantage. The R-squared in Sustainable Performance is 0.48 which is considered medium. This study supports a previous study that stated Green Performance and Competitive Advantage is very important for the company in reaching sustainability (Afum, Agyabeng-Mensah, & Owusu, 2020; Boiral & Paillé, 2012; Kiyabo & Isaga, 2020). Green Performance might increase the environmental variables in Sustainable

Performance resulting in higher final values. Competitive Advantage also impacts the financial variables in Sustainable Performances, thus increasing the final values of the whole company's performances.

E. CONCLUSIONS

Globalization and fast technological development have resulted in a better society but also resulted in increased concern about the environment. This motivates academics and practitioners to reflect on their activities while considering environmental balance as well as increasing or maintaining their work performances. With these in mind, this study examined the impact of Green Concepts such as Green Organizational Cultures, Green Innovation, and Green Performance on Competitive Advantage and Sustainable Performance. With the hope of creating a comprehensive model that can lead companies to be more responsible for the environment and at the same time, increase or maintain their firm performances.

This study proves that Green Organizational Culture has a positive impact on Green Innovation, while Green Innovation has an impact on both Green Performance and Competitive Advantage positively and significantly. Lastly, this study proves that both Green Performance and Competitive Advantage have a positive and significant impact on Sustainable performance. This study also proves that all mentioned variables can help companies to maintain or even increase their performances as well as keep a healthy balance in their environment. This study creates a comprehensive model that shows the relationship between variables and can help businessmen when they want to work both on their performance and environmental issues. This study contributes to the series of Sustainability studies as well as other important business topics such as Green Companies and Competitive Advantage.

On the other side, this study has some limitations. First, more relationships can be examined between the mentioned variables such as the direct-indirect impact of Green Organizational Culture and Green Innovation on Sustainable Performances. If these relationships are examined, it will create more comprehensive models about Green Companies and Sustainability. Second, other important factors that are related to Competitive Advantage and Sustainability should be examined. Factors such as Knowledge Management, Company Strategies, and Leadership should be added in future studies to create more complete patterns regarding Green Companies and Competitive Advantage.

Future studies also may focus on how to apply Green Organizational Culture effectively. Since product and process management requires an expensive fee and complex process, thus future studies should create a model that can help companies in building Green Organizational Culture and reach sustainability at an affordable price. A study regarding raw materials and alternatives which are categorized as green production will be interesting materials to be examined as a follow-up on the study of sustainability innovation. A study that also focuses on other approaches such as education for reaching sustainability and building Green Organizational Culture will help companies to save more money effectively while improving their performance.

Another suggestion for future studies can be directed towards green standards which are intended to be related to sustainability innovation in each country, which is very different depending on the lifestyle and value of life. The result of this study may establish a standard or guidance for companies to develop their Green Concepts in each country. Also, a future study can be directed to public companies that are either private or state-owned. Will their strategy be the same as the private companies? This study will produce a comparison of the Green Concept between state-owned and private companies. Hence these future studies may also lead to a concept of Green Management that can be applied to every company in all countries in the world.

REFERENCES

Abeysekara, N., Wang, H., & Kuruppuarachchi, D. (2019). Effect of supply-chain resilience on firm performance and competitive advantage: A study of the Sri Lankan apparel industry. *Business Process Management Journal*, *25*(7), 1673–1695. https://doi.org/10.1108/BPMJ-09-2018-0241

Afum, E., Agyabeng-Mensah, Y., & Owusu, J. A. (2020). Translating Environmental Management Practices into Improved Environmental Performance via Green Organizational Culture: Insight from Ghanaian Manufacturing SMEs. *Journal of Supply Chain Management System*, *9*(1), 31–49.

Afum, E., Agyabeng-Mensah, Y., Sun, Z., Frimpong, B., Kusi, L. Y., & Acquah, I. S. K. (2020). Exploring the link between green manufacturing, operational competitiveness, firm reputation and sustainable performance dimensions: a mediated approach. In *Journal of Manufacturing Technology Management* (Vol. 31, Issue 7, pp. 1417–1438). https://doi.org/10.1108/JMTM-02-2020-0036

Aggarwal, P., & Agarwala, T. (2021). Green Organizational Culture: An Exploration of Dimensions. *Global Business Review*, 097215092110498. https://doi.org/10.1177/09721509211049890

Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., & Owusu, D. (2020). The influence of lean management and environmental practices on relative competitive quality advantage and performance. *Journal of Manufacturing Technology Management*, *31*(7), 1351–1372. https://doi.org/10.1108/JMTM-12-2019-0443

Albort-Morant, G., Henseler, J., Leal-Millán, A., & Cepeda-Carrión, G. (2017). Mapping the Field: A Bibliometric Analysis of Green Innovation. *Sustainability*, *9*(6), 1011. https://doi.org/10.3390/su9061011

Amrutha, V. N., & Geetha, S. N. (2020). A systematic review on green human resource management: Implications for social sustainability. *Journal of Cleaner Production*, *247*, 119131. https://doi.org/10.1016/j.jclepro.2019.119131

Anning-Dorson, T. (2018). Innovation and competitive advantage creation. *International Marketing Review*, *35*(4), 580–600. https://doi.org/10.1108/IMR-11-2015-0262

Anwar, M., Rehman, A. U., & Shah, S. Z. A. (2018). Networking and new venture's performance: mediating role of competitive advantage. *International Journal of Emerging Markets*, *13*(5), 998–1025. https://doi.org/10.1108/IJoEM-07-2017-0263

Begum, S., Ashfaq, M., Xia, E., & Awan, U. (2022). Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement. *Business Strategy and the Environment*, *31*(1), 580–597. https://doi.org/10.1002/bse.2911

Boiral, O., & Paillé, P. (2012). Organizational 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

Bradley, P., Parry, G., & O'Regan, N. (2020). A framework to explore the functioning and sustainability of business models. *Sustainable Production and Consumption*, *21*, 57–77. https://doi.org/10.1016/j.spc.2019.10.007

Caiado, R. G. G., Quelhas, O. L. G., Nascimento, D. L. de M., Anholon, R., & Leal Filho, W. (2019). Towards sustainability by aligning operational programmes and sustainable performance measures. *Production Planning & Control*, *30*(5–6), 413–425. https://doi.org/10.1080/09537287.2018.1501817

Chandra, K., Arafah, W., & Basri, Y. Z. (2021). Analysis of the Effect of Green Organizational Culture on Organizational Performance and Competitive Advantages of Green through Green Innovation in Manufacturing Industries. In *Journal of Hunan University (Natural Sciences)*.

Chaudhary, R. (2020). Green Human Resource Management and Employee Green Behavior: An Empirical Analysis. *Corporate Social Responsibility and Environmental Management*, *27*(2), 630–641. https://doi.org/10.1002/csr.1827

Ching-Hsun Chang. (2015). Proactive and reactive corporate social responsibility: antecedent and consequence. In *Management Decision* (Vol. 53, Issue 2, pp. 451–468).

Christensen, H. K. (2010). Defining customer value as the driver of competitive advantage. *Strategy and Leadership*, *38*(5), 20–25. https://doi.org/10.1108/10878571011072048

Chu, Z., Wang, L., & Lai, F. (2019). Customer pressure and green innovations at third party logistics providers in China. In *The International Journal of Logistics Management* (Vol. 30, Issue 1, pp. 57–75). https://doi.org/10.1108/ijlm-11-2017-0294

Distanont, A., & Khongmalai, O. (2018). The role of innovation in creating a competitive advantage. *Kasetsart Journal of Social Sciences*. https://doi.org/10.1016/j.kjss.2018.07.009

El-Kassar, A. N., & Singh, S. K. (2019). Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices. In *Technological Forecasting and Social Change* (Vol. 144, pp. 483–498).

https://doi.org/10.1016/j.techfore.2017.12.016

García-Machado, J. J., & Martínez-Ávila, M. (2019). Environmental Performance and Green Culture: The Mediating Effect of Green Innovation. An Application to the Automotive Industry. *Sustainability*, *11*(18), 4874. https://doi.org/10.3390/su11184874

Gürlek, M., & Tuna, M. (2018). Reinforcing competitive advantage through green organizational culture and green innovation. *The Service Industries Journal*, *38*(7–8), 467–491. https://doi.org/10.1080/02642069.2017.1402889

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. SAGE Publications.

Hair Jr, J., Hult, G. T., Ringle, C., & Sarstedt, M. (2016). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). In *Sage*.

Isensee, C., Teuteberg, F., Griese, K.-M., & Topi, C. (2020). The relationship between organizational culture, sustainability, and digitalization in SMEs: A systematic review. *Journal of Cleaner Production*, *275*, 122944. https://doi.org/10.1016/j.jclepro.2020.122944

Ismail, H., El Irani, M., & Kertechian, K. S. (2021). Green HRM and nongreen outcomes: the mediating role of visionary leadership in Asia. *International Journal of Manpower*. https://doi.org/10.1108/IJM-04-2020-0162

Jia, J., Liu, H., Chin, T., & Hu, D. (2018). The continuous mediating effects of GHRM on employees' green passion via transformational leadership and green creativity. In *Sustainability (Switzerland)* (Vol. 10, Issue 9). https://doi.org/10.3390/su10093237

Jr, J. F. H., Black, W. C., Babin, B. J., Anderson, R. E., Black, W. C., & Anderson, R. E. (2018). *Multivariate Data Analysis*. https://doi.org/10.1002/9781119409137.ch4

Kiyabo, K., & Isaga, N. (2020). Entrepreneurial orientation, competitive advantage, and SMEs' performance: application of firm growth and personal wealth measures. *Journal of Innovation and Entrepreneurship*, *9*(1), 12. https://doi.org/10.1186/s13731-020-00123-7

Kolenikov, S., Steinley, D., & Thombs, L. (2010). Statistics in the Social Sciences: Current Methodological Developments. In *Statistics in the Social Sciences: Current Methodological Developments*. https://doi.org/10.1002/9780470583333

Leech, N. L., Barrett, K. C., & Morgan, G. A. (2005). *SPSS for Intermediate Statistics: Use and Interpretation*. Lawrence Erlbaum Associates, Inc., Publishers.

Lestari, S. D., Leon, F. M., Widyastuti, S., Brabo, N. A., & Putra, A. H. P. K. (2020). Antecedents and consequences of innovation and business strategy on performance and competitive advantage of SMEs. *Journal of Asian Finance, Economics and Business*, *7*(6), 365–378. https://doi.org/10.13106/JAFEB.2020.VOL7.NO6.365

Lo-Iacono-Ferreira, V. G., Capuz-Rizo, S. F., & Torregrosa-López, J. I. (2018). Key Performance Indicators to optimize the environmental performance of Higher Education Institutions with environmental management system – A case study of Universitat Politècnica de València. *Journal of Cleaner Production*, *178*, 846–865. https://doi.org/10.1016/j.jclepro.2017.12.184

Luu, T. T. (2020). Integrating green strategy and green human resource practices to trigger individual and organizational green performance: the role of environmentally-specific servant leadership. *Journal of Sustainable Tourism*, *28*(8), 1193–1222. https://doi.org/10.1080/09669582.2020.1729165

Malik, S. Y., Cao, Y., Mughal, Y. H., Kundi, G. M., Mughal, M. H., & Ramayah, T. (2020). Pathways towards Sustainability in Organizations: Empirical Evidence on the Role of Green Human Resource Management Practices and Green Intellectual Capital. *Sustainability*, *12*(8), 3228. https://doi.org/10.3390/su12083228

Mishra, P. (2017). Green human resource management: A framework for sustainable organizational development in an emerging economy. In *International Journal of Organizational Analysis* (Vol. 25, Issue 5, pp. 762–788). https://doi.org/10.1108/IJOA-11-2016-1079

Mousa, S. K., & Othman, M. (2020). The impact of green human resource management practices on sustainable performance in healthcare organisations: A conceptual framework. *Journal of Cleaner Production*, *243*, 118595. https://doi.org/10.1016/j.jclepro.2019.118595

Muktiono, E., & Soediantono, D. (2022). Literature Review of ISO 14001 Environmental Management System Benefits and Proposed Applications in the Defense Industries. *Journal of Industrial Engineering & Management Research*, *3*(2), 1–12. https://doi.org/https://doi.org/10.7777/jiemar.v3i2.271

Newbert, S. L. (2008). Value, rareness, competitive advantage, and performance. In *Strategic Management Journal* (Vol. 29, pp. 745–768).

Peteraf, M. A., & Barney, J. B. (2003). Unraveling The Resource-Based Tangle. *Wiley InterScience*, *24*, 309–323.

Pham, N. T., Phan, Q. P. T., Tučková, Z., Vo, N., & Nguyen, L. H. L. (2018). Enhancing the organizational citizenship behavior for the environment: the roles of green training and organizational culture. *Management & Marketing*, *13*(4), 1174–1189. https://doi.org/10.2478/mmcks-2018-0030

Popescu Nicoleta, Matt, W., & Steffen, K. (2020). *Importance of Innovation Process for the Organizations*. https://doi.org/10.47310/iarjbm.2021.v02i01.008

Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. Maxwell Macmilla Canada. https://doi.org/10.1007/978-3-319-54540-0

Radu, M. (2012). Empirical Study on the Indicators of Sustainable Performance –

the Sustainability Balanced Scorecard, Effect of Strategic Organizational Change. *Amfiteatru Economic Journal*, *14*(32), 451–469.

Ren, S., Jiang, K., & Tang, G. (2022). Leveraging green HRM for firm performance: The joint effects of CEO environmental belief and external pollution severity and the mediating role of employee environmental commitment. *Human Resource Management*, *61*(1), 75–90. https://doi.org/10.1002/hrm.22079

Rhee, M., & Stephens, A. R. (2020). Innovation-Orientated Technology Assimilation Strategy and Korean SMEs' Enhancing Innovation Capability, Competitive Advantage and Firm Performance. *International Journal of Innovation Management*, *24*(06), 2050081. https://doi.org/10.1142/S1363919620500814

Saeidi, P., Saeidi, S. P., Sofian, S., Saeidi, S. P., Nilashi, M., & Mardani, A. (2019). The impact of enterprise risk management on competitive advantage by moderating role of information technology. *Computer Standards & Interfaces*, *63*, 67–82. https://doi.org/10.1016/j.csi.2018.11.009

Saunila, M., Nasiri, M., Ukko, J., & Rantala, T. (2019). Smart technologies and corporate sustainability: The mediation effect of corporate sustainability strategy. *Computers in Industry*, *108*, 178–185. https://doi.org/10.1016/j.compind.2019.03.003

Shi, J., Huang, W., Han, H., & Xu, C. (2021). Pollution control of wastewater from the coal chemical industry in China: Environmental management policy and technical standards. *Renewable and Sustainable Energy Reviews*, *143*, 110883. https://doi.org/10.1016/j.rser.2021.110883

Singh, S. K., Giudice, M. Del, Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, *150*, 119762. https://doi.org/10.1016/j.techfore.2019.119762

Sobaih, A. E. E., Hasanein, A., & Elshaer, I. (2020). Influences of Green Human Resources Management on Environmental Performance in Small Lodging Enterprises: The Role of Green Innovation. *Sustainability*, *12*(24), 10371. https://doi.org/10.3390/su122410371

Song, W., Yu, H., & Xu, H. (2021). Effects of green human resource management and managerial environmental concern on green innovation. *European Journal of Innovation Management*, *24*(3), 951–967. https://doi.org/10.1108/EJIM-11-2019-0315

Tang, M., Walsh, G., Lerner, D., Fitza, M. A., & Li, Q. (2018). Green Innovation, Managerial Concern and Firm Performance: An Empirical Study. In *Business Strategy and the Environment* (Vol. 27, Issue 1, pp. 39–51). https://doi.org/10.1002/bse.1981

The Importance of Environmental Awareness When Running a Business. (n.d.). Maryville University. https://online.maryville.edu/blog/importance-of-environmental-awareness-when-running-a-business/

Tian, M., Deng, P., Zhang, Y., & Salmador, M. P. (2018). How does culture influence innovation? A systematic literature review. *Management Decision*, *56*(5), 1088–1107. https://doi.org/10.1108/MD-05-2017-0462

Tuan, L. T. (2021). Effects of environmentally-specific servant leadership on green performance via green climate and green crafting. *Asia Pacific Journal of Management*, *38*(3), 925–953. https://doi.org/10.1007/s10490-019-09687-9

Udriyah, Tham, J., & Ferdous Azam, S. M. (2019). The effects of market orientation and innovation on competitive advantage and business performance of textile smes. In *Management Science Letters* (Vol. 9, Issue 9, pp. 1419–1428). https://doi.org/10.5267/j.msl.2019.5.009

Verma, P., & Kumar, V. (2021). Developing leadership styles and green entrepreneurial orientation to measure organization growth: a study on Indian green organizations. *Journal of Entrepreneurship in Emerging Economies*. https://doi.org/10.1108/JEEE-01-2021-0035

Wang, C.-H. (2019). How organizational green culture influences green performance and competitive advantage. *Journal of Manufacturing Technology Management*, *30*(4), 666–683. https://doi.org/10.1108/JMTM-09-2018-0314

Wijaya, P. Y., & Suasih, N. N. R. (2020). The effect of knowledge management on competitive advantage and business performance: a study of silver craft smes. *Entrepreneurial Business and Economics Review*, *8*(4), 105–121. https://doi.org/10.15678/EBER.2020.080406

Wilcox, R. (2017). *Modern Statistics for the Social and Behavioral Sciences: A Practical Introduction* (2nd ed.). CRC Press: Taylor Francis Group.

Yacob, P., Wong, L. S., & Khor, S. C. (2019). An empirical investigation of green initiatives and environmental sustainability for manufacturing SMEs. *Journal of Manufacturing Technology Management*, *30*(1), 2–25. https://doi.org/10.1108/JMTM-08-2017-0153

Yang, Z., Sun, J., Zhang, Y., & Wang, Y. (2017). Green, Green, It's Green: A Triad Model of Technology, Culture, and Innovation for Corporate Sustainability. *Sustainability*, *9*(8), 1369. https://doi.org/10.3390/su9081369

Yu, W., Ramanathan, R., & Nath, P. (2017). Environmental pressures and performance: An analysis of the roles of environmental innovation strategy and marketing capability. *Technological Forecasting and Social Change*, *117*, 160–169. https://doi.org/10.1016/j.techfore.2016.12.005

Yusliza, M. Y., Yong, J. Y., Tanveer, M. I., Ramayah, T., Noor Faezah, J., & Muhammad, Z. (2020). A structural model of the impact of green intellectual capital on sustainable performance. In *Journal of Cleaner Production* (Vol. 249). https://doi.org/10.1016/j.jclepro.2019.119334

Zameer, H., Wang, Y., & Yasmeen, H. (2020). Reinforcing green competitive advantage through green production, creativity and green brand image: Implications for cleaner production in China. *Journal of Cleaner*

Production, *247*. https://doi.org/10.1016/j.jclepro.2019.119119

Zhou, X., Xu, Z., Yao, L., Tu, Y., Lev, B., & Pedrycz, W. (2018). A novel Data Envelopment Analysis model for evaluating industrial production and environmental management system. In *Journal of Cleaner Production* (Vol. 170, pp. 773–788). https://doi.org/10.1016/j.jclepro.2017.09.160