

Article

Linking Sustainable Design and Social Sustainability Performance of Chemical Manufacturing Firms: Moderating Role of Islamic Work Ethics

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Abstract: This study examines the impact of sustainable design on firms' social sustainability performance, and the moderating role of Islamic work ethics in this relationship. 344 chemical manufacturing organisations in Malaysia were invited to participate in a survey. Data from 130 completed questionnaire sets were subjected to partial least square (PLS) analysis. The results demonstrated significant effect of sustainable design on social sustainability performance. It was also shown that Islamic work ethics moderate the relationship between sustainable design and social sustainability performance. Al-Quran and hadith were used to support this study to link the relationships of the variables under study, particularly in the context of chemical manufacturing organisations in Malaysia. The present study has furnished significant theoretical contributions of how the Natural-resource-based view theory and stakeholder theory could be incorporated into the present proposed framework with the inclusion of the moderating role of Islamic work ethics, and eventually enrich the findings of extant research. As for practical contributions, businesses in the chemical industry would make well-informed decisions about which eco-friendly practices, particularly sustainable design, to adopt in order to attain social sustainability performance and successfully implement Islamic work ethics. Direction for future research is also recommended.

Keywords: sustainable design; social sustainability performance; Islamic work ethics; chemical manufacturing organisation; partial least square



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1. Introduction

Sustainability has become a crucial problem in recent years due to the organisation's goal to gain a competitive advantage [1]. Businesses with sustainability-related initiatives can gain a competitive edge and provide value to their businesses over the long run [2]. If businesses do not make an effort to implement a corporate sustainability plan, they run the risk of being driven out of business [3]. Organisations must cultivate a strong sense of social responsibility and the need of going green [4]. When making decisions, businesses must carefully consider the effects of the environment on society [5]. A large number of businesses are responding to the call from societies and governments across the globe to ensure the long-term viability of their operations by focusing on social sustainability, as evidenced by Mani et al. [6] and Abdul Aris et al. [7]. Besides, instilling morals and principles into a company's culture is essential for ensuring long-term success in the marketplace [7]. Organisations that want to adopt sustainability should adhere to a set of rules and guidelines, including those relating to environmental protection and ethical behaviour [8]. Work ethics must be ingrained into organisational culture for sustained company success as the answer to the world's economic dilemma [9].

Preceding research has discovered the importance of Islamic work ethics in the modern era as a component of Islamic thought that is advantageous for every generation as ethics is a direction that people follow in their decision-making process and creates a feeling of comfort and a better response to society [10]. In light of this, it is important to evaluate how religious values and beliefs affect sustainability [11]. In the competitive environment of today, the success that is measured by the maximisation of short-term profits is no longer considered to be a sustainable form of achievement. Instead, the success that is measured by the incorporation of Islamic work ethics into decision-making and strategy is regarded as crucial [12]. Islam places a high priority on protecting both the natural and social environments to ensure human survival. This concern is also tied to the health of the entire earthly biosphere [13].

Apart from the importance of green practices, Islamic work ethics must also be inculcated to achieve corporate sustainability [14]. Neglecting ethical aspects when providing goods and services to the public may have a direct impact on an organization's social sustainability [15]. Studies have posited that an organisation plays a significant and decisive role in establishing the ethical conduct of an individual employee [12]. In the Malaysian context, work ethics is seen as a guideline to carry out tasks for all employees [16]. Furthermore, although there are many opportunities for employees to contribute to an organisation, there are also situations that require them to engage in behaviours that can cause harm and prevent the organisation from achieving its goal [16]. Abul [14] stated that the Islamic approach is more agreeable to environmental protection; since the environmental and sustainability issues are related to ethical business, a business should have a serious commitment to Islamic ethics.

The question of what drives businesses to embrace sustainability initiatives has been the subject of past studies, but until recently, they focused almost exclusively on the developed world or developing countries, ignoring Southeast Asia, where many businesses, including those in Malaysia, are located [17]. Secondly, minimal research has been done on how Islamic work ethics affect business sustainability in the long run [18,19]. Although there is some theoretical and conceptual work on the moderating effects of Islamic work ethics on organisational linkages, empirical research on these topics is sparse [18]. Third, there is a dearth of studies on Islamic work ethics in developing nations, with a particular emphasis on Malaysia [19,20]. Even though work ethics has been studied a lot, there have not been many studies on religiously based values, especially Islamic work ethics [21]. This is especially the case in developing nations [20,22,23]. Besides, there is an imbalance of the sustainability components (economic, environmental, and social), this is because social sustainability has not been addressed in the same manner as the other two [24]. Cai and Choi [25] highlighted the importance of creating a balance between environmental, social, and environmental sustainability in an organisation. A higher understanding and awareness of the social component and its associated challenges may greatly improve the company's performance, hence enhancing its triple bottom line of sustainability [24]. Accordingly, the following research questions are developed:

- RQ1 What is the relationship between sustainable design and social sustainability performance?
- RQ2 What is the relationship between Islamic work ethics and social sustainability performance?
- RQ3 Does Islamic work ethics moderate the relationship between sustainable design and social sustainability performance?

This research furnishes significant theoretical contributions of how the stakeholder theory and natural-resource-based perspective theory as the findings supported by both the Al-Quran and hadith can be incorporated into a single framework with the inclusion of the moderating role of Islamic work ethics, to enrich the findings of extant research. The study highlights that Islamic work ethics play a robust and noteworthy role in impacting the social sustainability performance of chemical manufacturing firms. Further, the result demonstrates that sustainable design has a significant effect on social sustainability

performance, and Islamic work ethics moderate the relationship between the two. As the exploration of these relationships has been very limited, the present efforts mark a novel contribution to the literature. As for practical contributions, the empirical findings clarify the effect of sustainable design and Islamic work ethics on social sustainability performance and provide guidance to businesses in the chemical industry in making well-informed decisions about which eco-friendly practices, particularly sustainable design, to adopt in order to attain social sustainability performance and successfully implement Islamic work ethics. Malaysia was part of the development of the Sustainable Development Goals (SDGs) that began in late 2014 [26]. There are several SDGs highlighted by the Malaysian government for all industries in the country to achieve, specifically in terms of social sustainability performance, by 2030. The highlighted goals include the increase in the retention of the health workforce; improved water quality by minimising the release of hazardous chemicals; increase in water-use efficiency across all sectors; enhanced access to clean energy research and technology; achieve environmentally sound management of chemicals and all forms of waste throughout the life cycle that significantly reduces their release to air, water, and soil for minimal adverse impacts on human health and the environment; and reduction in waste generation by encouraging companies to adopt sustainable practices and integrate sustainability information into their reporting cycle [26].

Manufacturing companies are under increasing pressure from society and the government to ensure environmental safety as a result of ecological problems [27]. Concerning to these SDGs, it is important for every industry in Malaysia, especially the chemical manufacturing industry, to achieve social sustainability performance by practising sustainable design with the moderating role of Islamic work ethics. The chemical manufacturing industry is regarded as one of Malaysia's most significant industries by the Federation of Malaysia Manufacturers (FMM) due to its large contribution to the country's GDP [28]. Industry leaders in the chemical sector are having trouble incorporating sustainability into management, R&D, the supply chain, and operations, as reported by Hutt et al. [29] and Lozano et al. [30]. This is despite the fact that doing so is essential for meeting customers' demands for environmentally friendly and efficient chemical products and processes [31]. For many nations, including Malaysia, chemical waste is still an important policy motivator [29]. If appropriate solutions to deal with this issue are not put into place, the industry's viability may be harmed. Hence, this study aims to examine the effect of sustainable design on firms' social sustainability performance, and the moderating role of Islamic work ethics in this relationship.

The ensuing section presents the literature review, and the third section explains the methodology employed. Section four details the results, and a discussion of the findings appears in section five. Implications of the study and future research directions are identified in the final section.

2. Literature Review

2.1. Natural-Resource-Based View Theory

The natural-resource-based view theory by Hart [32] explains how an organisation engages with its surrounding environment. This was done in response to the limitations of the resource-based view theory [33]. According to the notion of natural resources, a company's interaction with its environment could add to its' competitive edge [32]. According to Ong et al. [34], the natural-resource-based view theory recognised the significance of developing expertise that enables businesses to be environmentally friendly, as well as the extent to which the environment affects organisations in today's intensely competitive business environment. Furthermore, Hart [32] pointed out that to maintain a competitive edge in the future, businesses must be able to support environmentally friendly economic activity. Increased organisational productivity and decreased operating expenses would follow from the implementation of green practices, as suggested by the natural-resource-based view theory [32,33], leading to enhanced financial performance [34].

The natural-resource-based view theory was used in this study given the focus of this on green practices at the organisational level that involved an interaction with the environment to achieve corporate sustainability performance in terms of improved productivity and lower operational cost. The successful implementation of green practices leads to better environmental protection and subsequently, improves social performance, resulting in a better competitive advantage.

2.2. Stakeholder Theory

The stakeholder theory by Brockett and Rezaee [35] asserted that stakeholder pressures encourage businesses to prioritise social and environmental responsibility. Keeping good ties with the organisation's stakeholders is in everyone's best interests [36]. Businesses that have high levels of participation from stakeholders are more likely to engage in sustainable business practices, thereby showing their commitment to environmentally responsible business and community policies. The study also found that corporations practising sustainability are more likely to invest in stakeholder-valued initiatives that are not directly related to profit [17]. Consequently, relationships between organisations that are mutually beneficial, and reciprocal should be taken into account while dealing with stakeholders [37]. Interactions between stakeholders and organisations can take the form of cooperation, consultation, participation, and the sharing of information [38,39]. Many parties (environmental NGOs, suppliers, employees, community members, and shareholders) and firms must be involved in processes, products, and systems [40].

The stakeholder theory in this study was related to the relationship between green practices and social sustainability performance with the presence of Islamic work ethics. Theoretically, organisations with high stakeholder engagement are more likely to achieve social sustainability, which means that the organisations support the sustainable development of their business and their neighbouring communities. The stakeholder theory advocated the importance of treating all stakeholders with fairness, honesty, and even generosity while practising sustainable design in achieving social sustainability performance. It is the role of all stakeholders to follow the organisational ethical codes during business operations.

2.3. Social Sustainability Performance

The definition of social sustainability is unclear and it is not well known and recognized by people [41]. One of the key elements indicated for the sustainability of the organisations is the building of social capital. The concept of social sustainability in business management is referred to by a variety of terms [42]. Maintaining or enhancing the quality of life for the next generations is the focus of the social aspect of business sustainability [43]. In essence, social performance, sometimes called the social bottom line, is the achievement of an organisation's social goal in consideration of societal interests by incorporating recognised social principles and carrying out social responsibilities [35]. In addition to meeting legal requirements, socially responsible businesses would also consider the welfare of their employees, customers, and the community when making operations decisions [44]. Practices that provide a risk-free workplace, care for workers, provide competitive pay and benefits, and invest in their professional and personal growth are all examples of socially responsible business practices [43].

2.4. Sustainable Design

Design for sustainability, also known as sustainable product design, is a strategy that is generally accepted and implemented by many organisations. The goal of this strategy is to boost profitability, product quality, social benefits, market potential, and environmental performance. Increasing the effectiveness of the design and production of services and goods can result in circumstances where all parties get the benefit [45]. Businesses are motivated to improve their standing on the sustainability scale by partnering directly with

customers on eco-design [46]. Product design can aid ongoing initiatives by providing “more sustainable” options, thereby influencing change for the better [47].

Providing empirical evidence that sustainability strategies, such as sustainable design, have a beneficial influence on organisational performance is one way in which organizations can benefit from pursuing sustainability [48]. When developing any kind of environmentally friendly product design, businesses need to prioritise environmental initiatives and enhance their level of dedication to green efforts if they want to engage effectively with their clients and their vendors [49]. According to the findings of Majerova [50], the degree to which a product is environmentally friendly affects the purchasing decisions made by the vast majority of respondents. Chan [51] found that designing environmentally friendly products and services was seen as an important step taken by a manager as it does not harm human health and thus it must be practised by an organisation. Based on past research findings, this study posits that:

H1: *Sustainable design has a positive effect on the social sustainability performance of chemical manufacturing firms.*

2.5. Previous Study Related to Islamic Contexts

Several studies related to the Islamic context have been conducted previously by researchers. For example, in terms of financial performance, Abu Bakar and Rosbi [52] investigate the monotonic correlation diagnostics of share price volatility for a Malaysian Shariah-compliant Islamic bank. The Islamic banking system is said to be unique in that it prohibits the use of interest and gambling in all transactions. Abu Bakar et al. [53] study the cryptocurrency framework diagnostics from an Islamic finance perspective in terms of bitcoin system transactions.

Meanwhile, Bara [54] studies the ethics of lecturers in Indonesia. Some researchers also relate Islam to the environment and the social sustainability context. Using the Islamic viewpoint on social sustainability as an example, Table 1 is presented. In Islam, accessible natural resources must be utilised in a balanced manner with concern for society’s social and economic well-being, particularly when conducting business activities [55].

Table 1. Examples of Islamic perspectives on social sustainability.

Hadith
“Help your brother whether he is the oppressor or the oppressed. If he is an oppressor, prevent him from doing it, for that will be helping him, and if he is oppressed he should be helped (against the oppressor)”. “Your employees are your brethren over whom Allah (S.W.T) has given you authority. So if one of you has his brother under his control, you should feed him with the like of what you eat and clothe him with the like of what you wear. You should not overburden him with the like of what you eat and clothe him with the like what you wear. You should not overburden him with what he cannot bear, and if you do so, help him in his job”. “Every Muslim must pay sadaqah (charity)”. A companion asked, “What about someone who has nothing to give?” The Prophet replied, “Then let him do something with his two hands and benefit himself. That will be charity.” A companion asked, “But what if he cannot do that?” The Prophet replied, “Then he can help someone who is needy”. They asked, “What if he cannot do even that?” The Prophet replied, “Then he should enjoin the doing of good”. Still again they asked, “But what if he cannot do that?” The Prophet replied, “Then he should refrain from evil, for that is a form of charity”.

The various studies that have been done in terms of the Islamic context have motivated this research to study the moderating role of Islamic work ethics on the relationship between sustainable design and social sustainability performance. The presence of Islamic work ethics may help chemical manufacturing organizations achieve social sustainability performance through environmental practices such as sustainable design.

Islamic Work Ethics

The Quran, as well as the Prophet Muhammad's (S.A.W) teachings and examples, are the fundamental basis for Islamic work ethics. When it comes to organisational outcomes like performance, work ethics tend to have a positive impact on an organisation's success [56]. According to Bensaid et al. [11], the morals of Islam, such as showing kindness, exercising gentleness and mercy, and providing solace to others, enhance the state of humanity as a whole. The collective influence of Islamic work ethics, according to Ali et al. [57], inspires social contracts and promotes a sharper emphasis on achieving organisational tasks and goals. These organisations tend to foster a stronger sense of responsibility and attachment among their staff members [58].

Therefore, there has been considerable support for Islamic work ethics' potential to boost the standard of work and productivity in businesses [59]. For instance, an empirical study by Abbasi, Rehman, et al. [60] discovered a favourable correlation between Islamic work ethics and organisational performance. An organisational culture that is infused with Islamic work ethics has been shown to increase productivity over the long run [60]. Abbasi, Mir, et al. [61] also showed how Islamic work ethics have a good impact on organisational performance. According to Yunus et al. [62], workers who uphold Islamic work ethics will go above and beyond to see that organisational goals are reached and, as a result, higher performance results are attained. Similarly, Berrone et al. [63] asserted that performance results will reflect acting ethically at work.

According to the rules imposed by governmental organisations, the use of ethical business practices can strengthen connections with customers and suppliers and improve efficiency [64]. An organisational culture that is infused with Islamic work ethics has been shown to increase productivity over the long run [60]. Marina et al. [65] found that the use of Islamic work ethics would assure its long-term sustainability, which would be advantageous to an organisation as well as its linked parties, the community, and the government. Al mamun et al. [66] found that the sustainability performance of enterprises was positively correlated with the presence of positive traits like responsibility and accountability.

Accordingly, the following is postulated:

H2: *Islamic work ethics has a positive effect on the social sustainability performance of chemical manufacturing firms.*

2.6. The Moderating Role of Islamic Work Ethics on Sustainable Design and Social Sustainability Performance

The Quran, as well as the teachings and examples set by the Prophet Muhammad (S.A.W), exhort individuals to work toward protecting the natural world [67]. Green and sustainable development care are already incorporated into Islamic teachings, as stated by Bashirun et al. [67]. This is because Islamic teachings offer guidelines that function in a holistic system that recognises the relationships between the various aspects of life and modern society. Islamic business ethics, as outlined in the Qur'an and Sunnah, have several positive effects on those involved in the business world. These include improved productivity and efficiency; a decrease in waste; a family business owner's reluctance to engage in dishonest or unethical practices; a decrease in corruption and abuse of power; improved treatment of employees and their rights; increased consultation and cooperation among colleagues; and a rise in initiative and creativity [68].

Establishing the elements influencing pro-environmental behaviour is important, especially when formulating effective policies to improve the attitude shift essential to conserve the natural environment, enhance business performance, and promote social sustainability [69]. Literature has begun to give more credence to the function that religion plays in preserving the natural environmental system [70–73]. Beyond the overall idealistic view of the beneficial influence of religious principles or ethics on environmental conservation, Mohamad et al. [74] provided evidence of the possible contribution that religious communities could make to encouraging green behaviour. As a result, businesses must adopt green policies while upholding Islamic work ethics to ensure their survival [67].

Islamic work ethics have long been recognised for their moderating effects. Islamic work ethics, for example, are a crucial element in strengthening the considerable correlation relationship between entrepreneurial behaviour and organisational success. According to the findings of Kareem et al. [19], who studied small and medium-sized enterprises (SMEs) in Nigeria, implementing Islamic work ethics increases productivity, enhances the quality and creates a positive environment for employees. Islamic work ethics supports quality and sustained success in management approaches because managers who model Islamic work ethics urge their people to work hard, be trustworthy, innovative, and dedicated to their jobs and organisations [19]. Gómez-Bezares and Gómez-Bezares [75] found that business sustainability can be well-founded on human rights and ethics and it can promote a real development. Besides that, Vavik and Keitsch [76] agreed that a responsive design practice should emphasise design ethics and virtues. It is implied that practising a high level of Islamic work ethics in an organisation should positively enhance the relationship between sustainable design and social sustainability performance. Therefore, this study put forth that:

H3: *Islamic work ethics moderates the relationship between sustainable design and the social sustainability performance of chemical manufacturing firms.*

Based on the above discussion, the research framework is depicted in Figure 1.

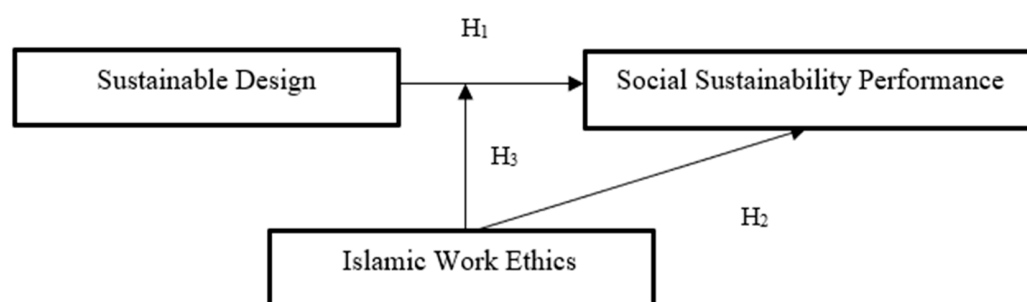


Figure 1. Research framework.

3. Research Methodology

3.1. Samples and Procedure

The chemical manufacturing industry is one of the important industries in the manufacturing sector, which was highlighted in the Malaysia Plan given its important economic role. However, the presence of chemicals in many products potentially contributes to negative effects on sustainability, such as public health and the environment. There were 366 manufacturing organisations listed in the FMM report. Samples were collected using a stratified random sampling procedure. In total, 130 chemical manufacturing firms in Malaysia received questionnaires to complete. The Federation of Malaysian Manufacturing included these organisations in its directory of members. In this study, participants' responses were ranked on a five-point Likert scale, where participants could provide a score between 1 (strongly disagree) and 5 (strongly agree).

The self-administered questionnaire method was chosen for this study given its numerous advantages [77]. Typically, respondents complete self-administered surveys [77,78], whereby the respondents themselves are in charge of reading the questions and providing answers [79,80]. Comparing self-administered questionnaires to interview questions, respondents are more likely to give truthful responses [81]. This method is always faster and cheaper than conducting an interview, and it reduces the likelihood of social desirability bias without sacrificing the sensitivity of the data being collected [77]. Due to the prevalence of sustainability problems in the chemical manufacturing sector, it was chosen as the focus of this research [82].

Statistical power analysis has been widely used to calculate the sample size for PLS [83–85]. Statistical power analysis, specifically G-Power 3.1, was used to calculate the

required sample size for this study. Chuan [86] highlighted the significance of using the formula of Cohen's statistical power analysis for higher accuracy to base decisions on the research findings with confidence. The analysis provides improved calculation of effect size and graphic options, supports both distribution-based and design-based input modes, and offers all types of power analyses for users [85]. Accordingly, the required minimum number of samples from the target population of this study was 107 respondents.

3.2. Measurement Development

The majority of the measurement items used in this study were adapted so that they were appropriate for the sample. The content's applicability as well as the items used for measurement were examined for their level of clarity. An expert opinion session was held among chief executive officers of chemical manufacturing companies and Academics to get their advice regarding the enhancement of these measuring items. Additionally, focus group discussions with managers and executives of organisations that manufacture chemicals were held. The participants were also asked to rate how relevant and clear the survey questions and measurement items were. This was done to help improve the produced instrument. The results of the expert opinion and focus group discussions led to adjustments to the measuring items. In this study, a total of 33 different measures were used to assess the study's variables. Table 2 details the measurement items employed in this study.

Table 2. Number and sources of measurement items.

Variable	Number of Items	Source(s)	Likert Scale
Sustainable Design	10	Adarsha & Prathap [87]; Esty & Winston [88]; Krajnc & Glavic [89]; Zhu et al. [90]	1–5
Social Sustainability Performance	6	Chow & Chen [91]	1–5
Islamic Work Ethics	17	Ali [92]; Yousef [93]	1–5
Total	33		

3.3. Statistical Technique

The Partial Least Square-Structural Equation Modelling (PLS-SEM) was used for data analysis. PLS-SEM, a second-generation technology utilised more often in research to address the limitations of the first-generation technique, has seen a rise in popularity in recent years [85]. Because of its many benefits, including the low degree of unexplained variance, lack of distributional assumptions, and strong statistical power, the PLS-SEM method was employed [85].

4. Results

4.1. Organisation Profile

Of the 130 chemical manufacturing firms, 26.2% engaged in the production of other chemicals goods that are not elsewhere classified, 20.8% produces cleaning and polishing preparations, perfumes and toilet preparations, and soap and detergents, a mix of types (19.2%), printing ink, paints, mastics, similar coatings, vanishing (13.1%), botanical products, pharmaceuticals and medicinal chemicals (8.5%), basic chemicals except nitrogen and fertilisers (4.6%), other agro-chemical products and pesticides (3.8%), basic plastics, as well as synthetic rubber (3.1%), nitrogen compounds and fertiliser (0.8%) and lastly, man-made fibres (0%). In terms of the firm size, small-size firms with 74 or fewer employees have the highest percentage (47.7%), followed by the medium size firms that have 75 to 200 employees (29.2%). The large-size firms with 201 or above employees have the lowest proportion (23.1%). Meanwhile, the age distribution of businesses shows that 84.6% of the

firms are from 41 years old or more, 10% are from 21 to 30 years old, 4.6% are from 10 years old or less, and 0.8% are from the ages of 31 and 40 years.

4.2. Missing Values

The case of missing values occurs when a respondent either purposely or inadvertently fails to answer one or more question(s) [85]. When the number of cases of missing data exceeds 15%, the observation is typically removed from the data file (Hair et al., 2014). For this study, five questionnaire sets were removed, as the number of cases of missing data exceeded the suggested limit of 15% [85].

4.3. Outliers

Outliers refer to observations with an extreme value on one variable (a univariate outlier) or a strange combination of scores on two or more variables (multivariate outlier) that distort statistics [94]. The outliers can be determined based on the results of 5% trimmed mean. The 5% trimmed mean refers to the mean that exists in the case of the removal of 5% of the extreme ends (2.5% of the bottom and 2.5% of the top). Hence, in order to assess the possible influence of outliers, the 5% trimmed mean of each measure was evaluated, as compared to its corresponding mean. Table 3 presents the results of 5% trimmed mean of the items in this study, which revealed that all data were free from outliers.

Table 3. Results of 5% trimmed mean.

Variables	Measurement Items	Mean	5% Trimmed Mean
Sustainable Design (SD)	SD1	3.385	3.406
	SD2	3.508	3.551
	SD3	3.469	3.509
	SD4	3.769	3.842
	SD5	3.585	3.650
	SD6	4.077	4.154
	SD7	3.608	3.645
	SD8	3.539	3.568
	SD9	3.515	3.543
	SD10	3.546	3.586
Islamic Work Ethics (IWE)	IWE1	4.423	4.350
	IWE2	4.361	4.521
	IWE3	4.423	4.521
	IWE4	4.300	4.470
	IWE5	4.123	4.521
	IWE6	4.331	4.402
	IWE7	4.332	4.350
	IWE8	3.777	3.940
	IWE9	3.562	3.970
	IWE10	4.246	4.128
	IWE11	3.708	3.987
	IWE12	4.139	4.205
	IWE13	3.900	4.410
	IWE14	4.146	4.402
	IWE15	3.915	3.842
	IWE16	4.085	3.611
	IWE17	3.931	4.308
Social Sustainability Performance (SOP)	SOP1	4.207	3.748
	SOP2	3.884	4.188
	SOP3	3.869	3.940
	SOP4	3.953	4.197
	SOP5	3.738	3.782
	SOP6	3.692	3.727

4.4. Common Method Variance

Common method variance should be examined when all data are collected via self-administered questionnaires and when both predictor and criterion variables are obtained from the same person [95]. For this study, Harman's single factor test was performed to examine the common method variance. The tabulated results in Table 4 revealed that the largest variance explained by an individual factor was 36.029%, which indicates that common method variance does not affect the results (less than 50%) [96].

Table 4. Results of common method variance.

Extraction Sums of Squared Loadings		
Total	% of Variance	Cumulative %
29.904	36.029	36.029

4.5. Descriptive Analysis

The results of the descriptive analysis in this study focused on the responses of the respondents on sustainable design, Islamic work ethics, and social sustainability performance. Table 5 details the descriptive analysis.

Table 5. Descriptive results.

Label	Statements	Mean	Standard Deviation
Sustainable Design			
SD1	"The company designs products that reduce consumption of materials".	3.385	0.910
SD2	"The company designs products that reduce consumption of energy".	3.508	0.958
SD3	"The company designs products that reuse, recycle, and recover materials and component parts".	3.469	0.974
SD4	"The company designs products that avoid or reduce the use of hazardous products in the manufacturing process".	3.769	1.008
SD5	"The company cooperates with consumers for eco-design".	3.585	1.105
SD6	"The company designs products that meet environmental regulations and safety standards".	4.077	0.912
SD7	"The company designs products that have the least weight and capacity that reduces the time consumption".	3.608	0.936
SD8	"The company designs products that have the least capacity for the area stores".	3.539	0.925
SD9	"The company designs products that require the least energy for the transportation process".	3.515	0.085
SD10	"The company designs products that are easy to set up for users in the most energy-saving way".	3.546	0.933
Average Score		3.701	0.808
Social Sustainability Performance			
SOP1	"The company improved health and safety for employees or community".	4.207	0.784
SOP2	"The company recognised and acted on the need to fund local community initiatives".	3.884	0.886
SOP3	"The company protected claims and rights of aboriginal people or local community".	3.869	0.820
SOP4	"The company showed concern for the visual aspects of the organisation's facilities and operations".	3.953	0.766
SOP5	"The company communicated the organisational environmental impacts and risks to the general public".	3.738	0.911
SOP6	"The company considered the interests of stakeholders in investment decisions by creating a formal dialogue".	3.692	0.833
Average Score		3.891	0.647

Table 5. Cont.

Label	Statements	Mean	Standard Deviation
Islamic Work Ethics			
IWE1	"The company agrees that laziness at the workplace should be avoided".	4.423	0.825
IWE2	"The company agrees that employees need to be dedicated towards work".	4.361	0.898
IWE3	"The company agrees that good work benefits both company and employees".	4.423	0.796
IWE4	"The company agrees that justice and generosity at the workplace are necessary for the employees".	4.300	0.868
IWE5	"The company believes that employees who produce more than enough to meet company's needs contribute to the prosperity of society as a whole".	4.123	0.907
IWE6	"The company encourages employees to carry out the work to the best of their ability".	4.123	0.801
IWE7	"The company believes that employees foster personal growth and social relations".	4.331	0.741
IWE8	"The company believes that employees' life has no meaning without work".	3.777	0.893
IWE9	"The company believes that more leisure time is not good for society".	3.777	0.983
IWE10	"The company emphasises and encourages human relations in the organisation".	4.246	0.737
IWE11	"The company believes that employees who work are able to control their environment and accomplishment".	3.708	0.919
IWE12	"The company prioritises creative work as a source of happiness and accomplishment".	4.139	0.785
IWE13	"The company believes that employees who work well are more likely to get ahead in life".	3.900	0.806
IWE14	"The company believes that work gives employees the chance to be independent".	4.146	0.769
IWE15	"The company stresses on the importance of employees to meet deadlines at work for success".	3.915	0.940
IWE16	"The company encourages employees to constantly work hard to meet responsibilities".	4.085	0.845
IWE17	"The company believes that work is derived from intention and results, rather than just results".	3.931	0.864
Average Score		4.062	0.602

4.6. Measurement Model Assessment

Internal consistency, indicator reliability, convergent validity, and discriminant validity were evaluated to assess the measurement model because the constructs are reflective [97]. Measurement model assessment results for criterion values of composite reliability (CR), outer loading, and average variance (AVE) are presented in Table 6. Maghsoudi et al. [98] state that evaluations of the validity and reliability of reflective constructs are necessary. The internal consistency can be evaluated with CR [98]. CR values above 0.7 are required according to Bagozzi and Yi [99]. In this study, the CR value is greater than 0.7, it concluded that each of the study variables is reliable and thus the study satisfies the guidelines established by [100].

Table 6. Construct reliability and validity.

Constructs	Items	Loading	Composite Reliability	Average Variance Extracted
Sustainable Design (SD)	SD1	0.771	0.945	0.631
	SD2	0.813		
	SD3	0.727		
	SD4	0.799		
	SD5	0.835		
	SD6	0.717		
	SD7	0.820		
	SD8	0.796		
	SD9	0.851		
	SD10	0.800		
Social Sustainability Performance (SOP)	SOP1	Deleted	0.902	0.648
	SOP2	0.804		
	SOP3	0.825		
	SOP4	0.797		
	SOP5	0.850		
	SOP6	0.745		
Islamic Work Ethics (IWE)	IWE1	0.864	0.953	0.716
	IWE2	0.855		
	IWE3	0.826		
	IWE4	0.870		
	IWE5	0.848		
	IWE6	0.862		
	IWE7	0.885		
	IWE8	Deleted		
	IWE9	Deleted		
	IWE10	0.754		
	IWE11	Deleted		
	IWE12	Deleted		
	IWE13	Deleted		
	IWE14	Deleted		
	IWE15	Deleted		
	IWE16	Deleted		
	IWE17	Deleted		

All suggested loadings have values of 0.7 or above for all items [100]. Items SOP1, IWE8, IWE9, IWE11, IWE12, IWE13, IWE14, IWE15, IWE16, and IWE17 were all removed from consideration due to their low loading values. It is crucial to employ the AVE in evaluating convergent validity [98]. The extent to which different questions measure the same notion that is in the agreement is known as convergent validity, as stated by Amin et al. [101]. All the AVE values in Table 6 are more than the minimum threshold of 0.5, showing that the constructs have reached convergent validity. This is evident by the fact that all the AVE values are over the minimum threshold [102].

The ability of items to discriminate between different constructs or to assess unique concepts is what is meant by “discriminant validity” [101]. Evaluation of discriminant validity using the HTMT criterion is shown in Table 7. As a result of this study, those constructs are considered to have discriminant validity, and as a result, their validity is confirmed.

Table 7. Discriminant validity (HTMT).

Variables	1	2	3
(1) Islamic Work Ethics			
(2) Social Sustainability Performance	0.424		
(3) Sustainable Design	0.355	0.611	

4.7. Structural Model Assessment

Collinearity Assessment

The multicollinearity problem arises when two or more variables are not independent of each other [103] which can be determined through the collinearity assessment in terms of variance inflation factor (VIF). According to Hair et al. [104], VIF of 5 or higher indicates potential collinearity problem. In the structural model, sustainable design and Islamic work ethics were identified as the predictors of social sustainability performance. The results in Table 8 revealed that the values of VIF for all variables were below 5, which indicated that no items in this study were highly correlated. Thus, there was no collinearity problem among the predictors of social sustainability performance.

Table 8. Results of collinearity assessment.

Latent Variables	VIF
Sustainable Design (SD)	1.319
Islamic Work Ethics (IWE)	1.493

After the measurement model's psychometric properties had been validated, the structural model was assessed to examine the linkages between the constructs depicted in Figure 2 utilising the bootstrapping method (5000 resamples). The R^2 and the level of significance of the path coefficients were used to assess the goodness of the structural model [105]. The proposed model explained 34% of the variation in chemical manufacturing firms' social sustainability performance, based on the R^2 values. Sustainable design positively impacted the social sustainability performance of chemical manufacturing firms ($\beta_1 = 0.296$, $t\text{-value} = 3.04$, $p < 0.05$), as shown in Table 9 and Figure 2, thus, H1 was supported. In like manner, the chemical manufacturing firms' social sustainability performance was significantly and positively influenced by Islamic work ethics ($\beta_2 = 0.526$, $t\text{-value} = 7.13$, $p < 0.05$), giving support for H2.

Table 9. Hypothesis testing.

Relationships	Std. Beta	Std. Error	t-Value	Decision
H1 Sustainable Design → Social Sustainable Performance	0.296 *	0.097	3.04	Supported
H2 Islamic work ethics → Social Sustainable Performance	0.526 *	0.074	7.13	Supported

Note: * $p > 0.05$.

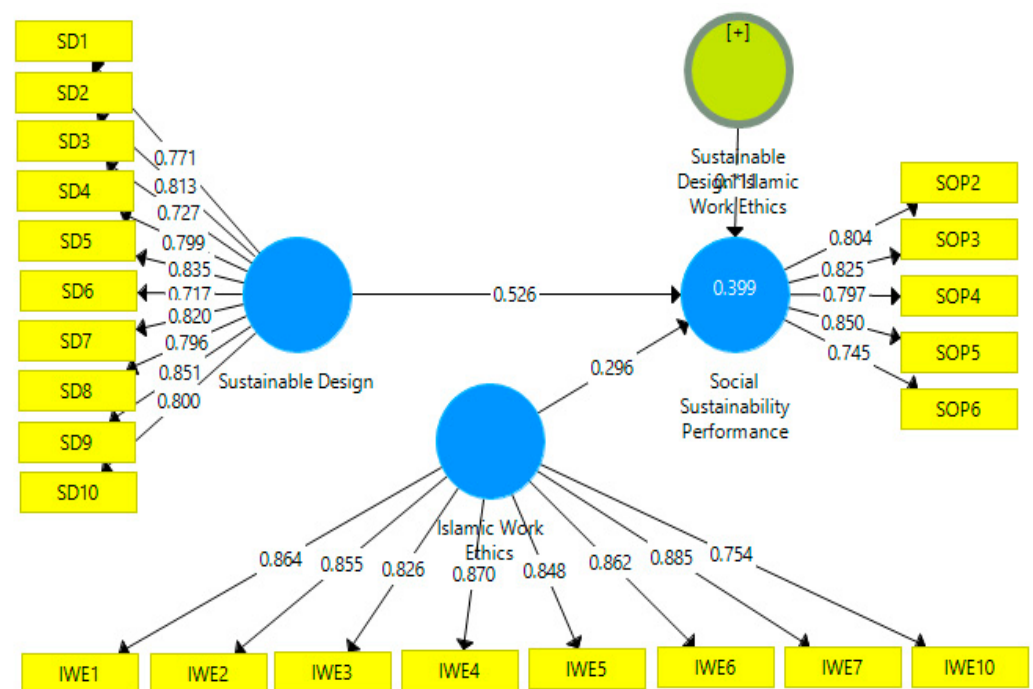


Figure 2. Structural model. The subsequent hypothesis, H3, tests whether Islamic work ethics moderates the relationship between sustainable design and the social sustainability performance of chemical manufacturing firms. The results of the path estimates and t-values, as depicted in Table 10 shows the moderating impact of Islamic work ethics on the relationship between sustainable design and the social sustainability performance of chemical manufacturing firms was found to be significant ($\beta_3 = 0.111$, $t\text{-value} = 1.891$, $p > 0.05$). The cut off value for this particular test is 1.646 as mentioned by Ramayah et al. [106]. Thus, H3 is supported as the t-value for the moderating effect is more than 1.646. This significant value of moderating variable is supported by several scholars such as Jamali et al. [107] and Makhoulfi et al. [108]. Following Dawson's [109] recommendation, an interaction effect was plotted to examine how Islamic work ethics influence the sustainable design and social sustainability performance as a moderator. It is revealed that the connection between sustainable design and social sustainability performance is strengthened by the moderating effect of Islamic work ethics as illustrated in Figure 3.

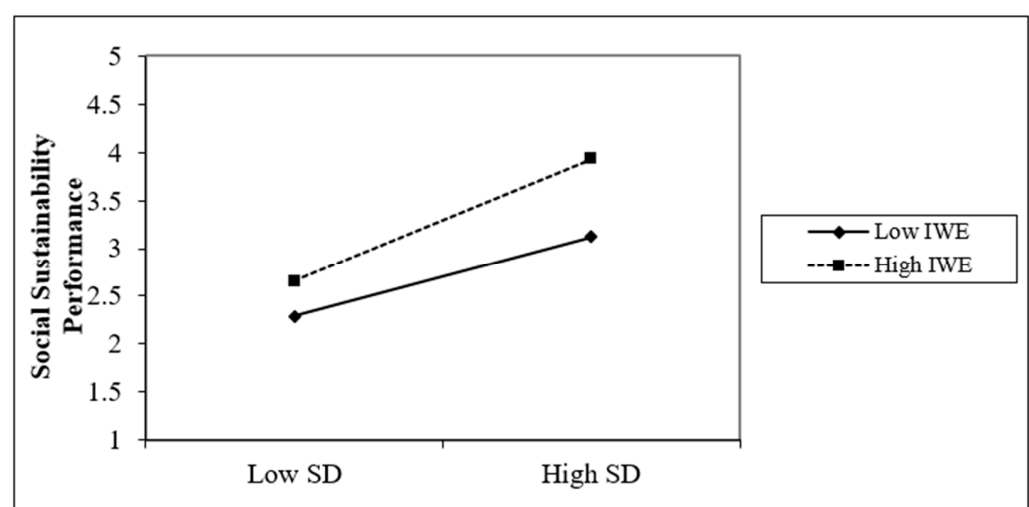


Figure 3. Interaction plot.

Table 10. Moderating role of Islamic work ethics, R^2 changes, and effect size.

Relationship		Std. Beta	Std. Error	t-Value	R^2 Included	R^2 Excluded	f^2	Effect Size
H3	Sustainable Design → Social Sustainable Performance	0.111 *	0.059	1.891	0.399	0.341	0.046	Small

Note: * $p > 0.05$.

5. Discussion

This study confirmed that sustainable design has a positive influence on the social sustainability performance of chemical manufacturing firms. The successful implementation of sustainable design in chemical manufacturing, such as designing products that reduce the consumption of materials and energy, and prevent or reduce the use of hazardous products in the manufacturing process that meet environmental regulations and safety standards, would substantially benefit and sustain the chemical manufacturing organisations. The findings infer that chemical manufacturing firms implement the sustainable design by using environmentally friendly raw materials, using cleaner production technologies and procedures, and conserving resources efficiently, which are proven to sustain their competitive advantage, and hence contribute to social sustainability performance.

By practising sustainable design, chemical manufacturing organisations in Malaysia will achieve social sustainability performance in terms of the need to fund local community initiatives, protect the rights of local communities, show concern for organisations' facilities and operations and communicate the organisational environmental impact to the society. There is empirical evidence that sustainable design has been shown to positively influence the performance of a firm in terms of public health and image, which is advantageous for businesses that prioritise sustainability. This result is supported by Abugu et al., King and Lenox, Kjaeheim, and Zailani et al. [69,110–112] studies. Schoenherr [113] found that pollution prevention such as cleaner production contributes to organisational performance in terms of competitive capabilities. Scholarly works by Maletic et al., Rashid et al., Majerova, Chan and Chen et al. [48–51,114] concur to the significant results of the impact of sustainable design on the performance of a business.

Additionally, Islamic work ethics significantly affect the social sustainability performance of chemical manufacturing firms. Chemical manufacturing firms that implement Islamic work ethics agree that workers should avoid laziness and have to be dedicated towards work, believe that good work benefits all, and agree that justice and generosity are necessary for the workplace. Organisations that practice good ethics are likely to feel more attached and responsible for the organisational success. Islamic work ethics such as dedication to work, justice, and generosity at the workplace improves communication, efficiency, and employee accountability, resulting in a higher competitive advantage for the organisations. Ethics has been linked to positive business outcomes in many studies [115]. Both Krishna et al. [116] and Al Mamun et al. [66] discovered a favourable and statistically significant link between ethical business practices and the success of businesses. Consistent with previous research by Abbasi, Rehman, et al., Abbasi, Mir, et al. and Rafiki et al. [60,61,117], the present study's findings support these earlier investigations. Previous research has also discovered that the adoption of Islamic work ethics has a beneficial effect on firms' outcomes. This significant finding indicates that practising Islamic work ethics improved the social sustainability performance of chemical manufacturing firms, which in turn led to organisational success that benefited all stakeholders. There is no doubt that having a strong code of ethics at work benefits both the employee and the company. Organisations that operate ethically would profit in a variety of ways, including increased employee and community health and safety.

Further analysis was conducted to determine whether Islamic work ethics moderate the connection between chemical manufacturing companies' sustainable design and their social sustainability performance. The empirical results suggested that the considerable

and positive association between sustainable design and the performance of chemical manufacturing firms in terms of social sustainability was strengthened by the presence of Islamic work ethics. When it comes to green practices and sustainability for segmentation approaches, the presence of positive attitudes, such as Islamic work ethics, can be a fruitful attempt to improve the corporate social sustainability performance of organisations, particularly chemical manufacturing organisations in Malaysia. Evidently, Islamic work ethics strengthens the relationship between sustainable design and social sustainability performance of these organisations. This result agrees with those of Kareem et al. [19] as well as Adam [118]. Previous studies have found that Islamic work ethics moderate the connection between environmentally friendly practices and business success. An increasing number of studies have shown the significance of religious beliefs in environmental protection [70–73]. In addition, environmentally friendly practices, such as sustainable design, rely on more than just effective processes and technology for achieving sustainability. They also benefit from the values, mindset, and culture of a firm.

6. Conclusions

In a nutshell, this study examined the effect of sustainable design on firms' social sustainability performance, and the moderating role of Islamic work ethics in this relationship. With regards to its theoretical contribution, natural-resource-based view theory, stakeholder theory, the Qur'an, and hadith were used as the guiding principle.

The proposed model has a robust predictive capacity as it accounted for 34% of the variation in the social sustainability performance of chemical manufacturing firms. The present research findings confirmed sustainable design had a significant effect on social sustainability performance. The findings also confirmed that Islamic work ethics had a moderating effect on the relationship between sustainable design and the social sustainability performance of chemical manufacturing firms. It is proven that, when an employee practices a high level of Islamic work ethics in the implementation of sustainable design, it improves the social sustainability performance of Malaysian chemical firms. Meanwhile, when an employee has low Islamic work ethics, it will affect the firm's social performance of the firm while practising sustainable design. Henceforth, the present study has illustrated how the Natural-resource-based view theory, stakeholder theory, the Qur'an, and hadith could be incorporated into the present proposed framework with the inclusion of the moderating role of Islamic work ethics, and eventually enrich the findings of extant research.

The natural-resource-based view theory was used in this study to explain the relationship between sustainable design and social sustainability performance as this theory considered the relationship between an organisation and the natural environment as a competitive advantage. Meanwhile, Al-Quran and hadith and the stakeholder theory were used to explain the relationships of Islamic work ethics as the moderating variable on the relationship between sustainable design and social sustainability performance in this study. This study successfully proved that the enforcement from the stakeholders to implement green practices and Islamic work ethics contributed to the social sustainability performance of the chemical manufacturing organisations. Both Al-Quran and hadith serve as the main source of Islamic work ethics and the importance of green practices such as sustainable design and Islamic work ethics in achieving social sustainability performance. This is because Islam provides guidelines for every aspect of life, including for the organisational operations including the protection of social sustainability.

In terms of practical contributions, it is the responsibility of every organisation, including chemical manufacturers, to take society into account and protect it by incorporating green practices into their operational procedures, such as sustainable design in order to become a social sustainability industry. The present finding assists managers of chemical manufacturers in the process of incorporating social considerations into business operations as an effective implementation of sustainable design and Islamic work ethics contribute to the effectiveness of social sustainability and production processes. The managers of chemi-

cal manufacturers will have better chances to create and promote eco-friendly practices if companies utilise sustainable design efficiently and effectively. Therefore, they will enhance their competitiveness while also enhancing their performance in terms of sustainability. To achieve success in social sustainability, these organisations need to adapt, and they must do so in a way that takes advantage of the opportunities presented to them by utilising the appropriate strategies.

Moreover, Islamic work ethics should be taken into consideration by managers of chemical manufacturers when formulating relevant policies and management. The implementation of such measures may result in an improvement in the capability of the country's chemical manufacturing firms to contribute positively to society in terms of social sustainability. As a result, managers of chemical manufacturers play a crucial role in cultivating and advancing Islamic work ethics' values and principles to ensure the sustainability of these organisations. It is hoped that such incorporation of Islamic work ethics will lead to an improvement throughout the operations and management in chemical manufacturing firms, which will, in turn, result in those firms making a greater contribution to social sustainability. Without a doubt, businesses that adhere to Islamic work ethics provide a more morally sound and advantageous corporate environment, and they can enhance managerial performance through management by example.

Several limitations were identified in this study. Firstly, this was a cross-sectional study, where the researcher only collected data at a single point of time. Besides that, all data were obtained from a single type of industry, specifically the chemical manufacturing industry. Third, this study only considered the moderating role of Islamic work ethics in the relationship between sustainable design and social sustainability performance.

Future research is recommended to assess different kinds of industries within the manufacturing sector beyond chemical manufacturing industries and expand the size of the sample. With that, a precise picture of the industrial sector's performance in terms of social sustainability, Islamic work ethics, and sustainable design may be acquired. As a result, the findings would provide further insight into how Islamic work ethics and sustainable design affect social sustainability performance in the creation and maintenance of competitive advantages. To determine the direction and extent of causation between variables, a long-term (over three years) investigation should be taken into consideration [119]. Besides, the moderating role of gender, leadership and employees' dynamic are additional aspects that future research should assess [120,121]. Future research using the method of this study is also recommended to test Islamic work ethics as a mediating variable.

In conclusion, it was determined that the results of this study would be useful for chemical manufacturing firms in emerging countries like Malaysia, particularly those considering adopting sustainable design and those with a high interest in promoting green practices among stakeholders. This research would help chemical manufacturing companies safeguard the environment morally and maintain their social and economic viability.

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References

- Kim, K.; Lee, S.-M. Does sustainability affect corporate performance and economic development? Evidence from the Asia-Pacific region and North America. *Sustainability* **2018**, *10*, 909. [CrossRef]
- Bodhanwala, S.; Bodhanwala, R. Does corporate sustainability impact firm profitability? Evidence from India. *Mgmt. Dec.* **2018**, *56*, 1734–1747. [CrossRef]
- Svensson, G.; Ferro, C.; Høgevold, N.; Padin, C.; Sosa Varela, J.C. Developing a theory of focal company business sustainability efforts in connection with supply chain stakeholders. *Int. J. Supply Chain Manag.* **2018**, *23*, 16–32. [CrossRef]
- Sheopuri, A.; Sheopuri, A. Green hr practices in the changing workplace. *Bus. Dimens.* **2015**, *2*, 13–26.
- Amran, A.; Haniffa, R. Evidence in development of sustainability reporting: A case of a developing country. *Bus. Strategy Environ.* **2011**, *20*, 141–156. [CrossRef]
- Mani, V.; Gunasekaran, A.; Papadopoulos, T.; Hazen, B.; Dubey, R. Supply chain social sustainability for developing nations: Evidence from India. *Resour. Conserv. Recycl.* **2016**, *111*, 42–52. [CrossRef]
- Abdul Aris, N.; Othman, R.; Abdul Rahman, S.; Marzuki, M.M.; Chik, W.; Yusof, W.M. Ethical codes as instruments for cooperative sustainability. *Soc. Manag. Res. J.* **2016**, *13*, 30–43.
- Wales, T. Organizational sustainability: What is it, and why does it matter. *Rev. Enterp. Manag. Stud.* **2013**, *1*, 38–49.
- Abbasi, A.S.; Rehman, K.U.; Bibi, A. Islamic work ethics: How it affects business performance. *World Appl. Sci. J.* **2011**, *12*, 312–321.
- Widarwati, E.; Wityasminingsih, E.; Zazim, M. Islamic work ethics (IWE): A new management paradigma for improving business performance. In Proceeding of the 6th International Conference on Management and Muamalah 2019 (ICoMM 2019), Selangor, Malaysia, 10 July 2019.
- Bensaid, B. On Islamic da'wah and sustainable development. *World J. Islam. Hist. Civiliz.* **2013**, *3*, 48–56.
- Tufail, U.; Ahmad, M.S.; Ramayah, T.; Jan, F.A.; Shah, I.A. Impact of Islamic work ethics on organisational citizenship behaviours among female academic staff: The mediating role of employee engagement. *Appl. Res. Qual. Life.* **2017**, *12*, 693–717. [CrossRef]
- Sarkar, I. Islamic values and environmental disquiet. *Philos. Prog.* **2017**, *57*, 29–40. [CrossRef]
- Hassan, A. Islamic ethical responsibilities for business and sustainable development. *Humanomics* **2016**, *32*, 80–94. [CrossRef]
- Jan, A.; Mata, M.N.; Albinsson, P.A.; Martins, J.M.; Hassan, R.B.; Mata, P.N. Alignment of Islamic banking sustainability indicators with sustainable development goals: Policy recommendations for addressing the COVID-19 pandemic. *Sustainability* **2021**, *13*, 2607. [CrossRef]
- Abdullah, A.; Halim, F.W. The influence of work ethic and counterproductive work behaviour of civil servants. *J. Technol. Manag. Bus.* **2017**, *3*, 1–14.
- Mdolo, M.P.; Naghavi, N.; Fah, B.C.Y.; Jin, T.C. Corporate sustainability adoption amongst public listed companies in Malaysia. *Turk. Online J. Des. Art Commun.* **2018**, *8*, 509–517.
- Aida, A.A.A.A.; Maslin, M.; Nik Hasnaa, N.M. The moderating effect of Islamic work ethics on the relationship between knowledge management capabilities and organizational performance at the private higher education institutions in Oman. *J. Theor. Appl. Inf. Technol.* **2016**, *94*, 397–407.
- Kareem, O.; Azmin, A.A.; Tunku Salha, T.A. Does Islamic work ethics strengthen the size of knowledge management and entrepreneurial orientation effects on performance of smes in Nigeria? *Int. J. Soc. Sci. Econ. Res.* **2018**, *3*, 41–64.
- Rokhman, W. The effect of Islamic work ethics on work outcomes. *Elect. J. Bus. Ethics Organ. Stud.* **2010**, *15*, 21–27.
- Wahab, M.A.; Quazi, A.; Blackman, D. Measuring and validating Islamic work value constructs: An empirical exploration using Malaysian samples. *J. Bus. Res.* **2016**, *69*, 4194–4204. [CrossRef]
- Kumar, N.; Che Rose, R. Examining the link between Islamic work ethic and innovation capability. *J. Manag. Dev.* **2010**, *29*, 79–93. [CrossRef]
- Ahmad, M.S. Work ethics: An Islamic prospective. *J. Human Sci.* **2011**, *8*, 850–859.
- Bubicz, M.E.; Barbosa-Póvoa, A.P.F.D.; Carvalho, A. Social sustainability management in the apparel supply chains. *J. Clean. Prod.* **2021**, *280*, 124–214. [CrossRef]
- Cai, Y.-J.; Choi, T.-M. A United Nations' sustainable development goals perspective for sustainable textile and apparel supply chain management. *Transp. Res. E: Logist. Transp. Rev.* **2020**, *141*, 102010. [CrossRef]
- Department of Statistics Malaysia. The Source of Malaysia's Official Statistics. 2018. Available online: https://www.dosm.gov.my/v1/index.php?r=home/index&menu_id=b2ROaWpITmQ5NnAvMHVmRjRkZzIBQT09 (accessed on 10 November 2022).
- Obamen, J.; Omonona, S.; Oni, O.; Ohunye, O. Effect of environmental management practices and sustainability on some selected manufacturing firms in South East Nigeria. *Sustainability* **2021**, *13*, 10372. [CrossRef]
- Federation of Malaysian Manufacturers. *Federation of Malaysian Manufacturers (FMM) Directory of Malaysian Industries*, 48th ed.; FMM: Kuala Lumpur, Malaysia, 2017.

29. Hutt, O.E.; Hornung, C.; Brzozowski, M.; York, M.; Walter, J.; Polyzos, A.; Tsanaktsidis, J.; King, S.; Savage, G.P.; Simpson, G. Sustainable Chemical Manufacture and Economic Prosperity Flowing as One. 2016. Available online: <https://publications.csiro.au/rpr/pub?pid=csiro:EP166347> (accessed on 10 November 2022).
30. Lozano, F.J.; Freire, P.; Guillén-Gozalbez, G.; Jiménez-Gonzalez, C.; Sakao, T.; Mac Dowell, N.; Ortiz, M.G.; Trianni, A.; Carpenter, A.; Viveros, T. New perspectives for sustainable resource and energy use, management and transformation: Approaches from green and sustainable chemistry and engineering. *J. Clean. Prod.* **2016**, *30*, 1–3. [\[CrossRef\]](#)
31. Ganasen, S.; Velaichamy, V. Innovations in green chemistry towards sustainable development. *OIDA Int. J. Sustain. Dev.* **2016**, *9*, 11–1432.
32. Hart, S.L. A natural-resource-based view of the firm. *Acad. Manage. Rev.* **1995**, *20*, 986–1014. [\[CrossRef\]](#)
33. Hart, S.L.; Dowell, G. Invited editorial: A natural-resource-based view of the firm: Fifteen years after. *J. Manag.* **2011**, *37*, 1464–1479. [\[CrossRef\]](#)
34. Ong, T.S.; Lee, A.S.; Teh, B.H.; Magsi, H.B. Environmental innovation, environmental performance and financial performance: Evidence from Malaysian environmental proactive firms. *Sustainability* **2019**, *11*, 3494. [\[CrossRef\]](#)
35. Brockett, A.; Rezaee, Z. *Corporate Sustainability: Integrating Performance and Reporting*, 1st ed.; John Wiley & Sons: Hoboken, NJ, USA, 2012.
36. Nemetz, A.M. A global investigation of government and community stakeholder influences on large company engagement in sustainability. *Int. J. Bus. Manag. Sci.* **2015**, *10*, 1. [\[CrossRef\]](#)
37. Miles, S. Stakeholder: Essentially contested or just confused? *J. Bus. Ethics* **2012**, *108*, 285–298. [\[CrossRef\]](#)
38. Grafé-Buckens, A.; Hinton, A.F. Engaging the stakeholders: Corporate views and current trends. *Bus. Strategy Environ.* **1998**, *7*, 124–133. [\[CrossRef\]](#)
39. Green, A.O.; Hunton-Clarke, L. A typology of stakeholder participation for company environmental decision-making. *Bus. Strategy Environ.* **2003**, *12*, 292–299. [\[CrossRef\]](#)
40. Aragón-Correa, J.A.; Sharma, S. A contingent resource-based view of proactive corporate environmental strategy. *Acad. Manag. Rev.* **2003**, *28*, 71–88. [\[CrossRef\]](#)
41. Lee, K. A systematic review on social sustainability of artificial intelligence in product design. *Sustainability* **2021**, *13*, 2668. [\[CrossRef\]](#)
42. Missimer, M.; Mesquita, P.L. Social sustainability in business organizations: A research agenda. *Sustainability* **2022**, *14*, 2608. [\[CrossRef\]](#)
43. Aktin, T.; Gergin, Z. Mathematical modelling of sustainable procurement strategies: Three case studies. *J. Clean. Prod.* **2016**, *113*, 767–780. [\[CrossRef\]](#)
44. Jan, A.; Marimuthu, M.; Mohd, M.P. The nexus of sustainability practices and financial performance: From the perspective of Islamic banking. *J. Clean. Prod.* **2019**, *228*, 703–717. [\[CrossRef\]](#)
45. United Nations Environment Program. Sustainable Design. 2018. Available online: <http://www.unep.org/resourceefficiency/Society/CommunicationandEducation/tabid/55550/Default.aspx> (accessed on 10 November 2022).
46. Diabat, A.; Khodaverdi, R.; Olfat, T. An exploration of green supply chain practices and performances in an automotive industry. *Adv. Manuf. Technol.* **2013**, *68*, 949–961. [\[CrossRef\]](#)
47. Marchand, A.; Walker, S. Product development and responsible consumption: Designing alternatives for sustainable lifestyles. *J. Clean. Prod.* **2008**, *16*, 1163–1169. [\[CrossRef\]](#)
48. Maletic, M.; Maletic, D.; Dahlgaard, J.J.; Dahlgaard-Park, S.M.; Gomišček, B. Sustainability exploration and sustainability exploitation: From a literature review towards a conceptual framework. *J. Clean. Prod.* **2014**, *79*, 182–194. [\[CrossRef\]](#)
49. Rashid, N.; Jabar, J.; Yahya, S.; Samer, S. State of the art of sustainable development: An empirical evidence from firm's resource and capabilities of Malaysian automotive industry. *Procedia Soc. Behav. Sci.* **2015**, *195*, 463–472. [\[CrossRef\]](#)
50. Majerova, J. Analysis of Slovak consumer's perception of the green marketing activities. *Procedia Econom. Bus. Adm.* **2015**, *26*, 553–560. [\[CrossRef\]](#)
51. Chan, E.S. Managing green marketing: Hong Kong hotel managers' perspective. *Int. J. Hosp. Manag.* **2013**, *34*, 442–461. [\[CrossRef\]](#)
52. Bakar, N.A.; Rosbi, S. Monotonic correlation diagnostics of share price volatility for shariah-compliant Islamic bank: A new insight of Islamic financial engineering. *Int. J. Manag. Sci. Bus. Adm.* **2017**, *3*, 7–16.
53. Bakar, N.A.; Rosbi, S.; Uzaki, K. Cryptocurrency framework diagnostics from Islamic finance perspective: A new insight of bitcoin system transaction. *Int. J. Manag. Sci. Bus. Adm.* **2017**, *4*, 19–28.
54. Bara, D.I.B. The Ethics of Lecturers Based on Islamic Perspective in Al-Washliyah Universities. *J. Innov. Econ. Dev.* **2017**, *3*, 36–43. [\[CrossRef\]](#)
55. Sarkawi, A.A.; Abdullah, A.; Dali, B. The concept of sustainability from the Islamic perspectives. *Int. J. Econ. Bus. Law* **2016**, *9*, 112–116.
56. Jalil, M.A.; Azam, F.; Rahman, M.K. Implementation mechanism of ethics in business organizations. *Int. Bus. Res.* **2010**, *3*, 45–151. [\[CrossRef\]](#)
57. Ali, A.J.; Weir, D. *Islamic Perspectives on Management and Organization*, 1st ed.; Taylor & Francis: Oxfordshire, UK, 2005.
58. Yesil, S.; Sekkeli, Z.H.; Dogan, O. An investigation into the implications of Islamic work ethic (IWE) in the workplace. *J. Econ. Behav. Stud.* **2012**, *4*, 612–624. [\[CrossRef\]](#)
59. Husin, W.N.W. Work ethics from the Islamic perspective in Malaysia. *Eur. J. Soc. Sci.* **2012**, *29*, 51–60.

60. Abbasi, A.S.; Rehman, K.U.; Abbasi, S.H. Islamic work ethics: How they affect shareholder value. *Sci. Int.* **2012**, *24*, 521–530.
61. Abbasi, A.S.; Mir, G.M.; Hussain, M. Islamic work ethics: How it affects organizational learning, innovation and performance. *Actual Probl. Econ.* **2012**, *12*, 471–480.
62. Yunus, O.M.; Rahim, A.R.A.; Shabuddin, A.B.; Mazlan, M. In work ethic of Malaysian civil servants. In Proceedings of the 2nd International Conference on Business and Economic (2nd ICBER 2011), Langkawi, Malaysia, 14 March 2011.
63. Berrone, P.; Surroca, J.; Tribó, J.A. Corporate ethical identity as a determinant of firm performance: A test of the mediating role of stakeholder satisfaction. *J. Bus. Ethics* **2007**, *76*, 35–53. [\[CrossRef\]](#)
64. Certo, S.C. *Modern Management: Quality, Ethics, and the Global Environment*, 5th ed.; Allyn and Bacon: Boston, MA, USA, 1992.
65. Marina, A.; Wahjono, S.I. Business ethics for business sustainability in Muhammadiyah hospital: Evidence from Ponorogo, Indonesia. *J. Ina. Eco. Bus.* **2017**, *32*, 178–189. [\[CrossRef\]](#)
66. Al Mamun, A.; Ibrahim, M.D.; Yusoff, M.N.H.; Fazal, S.A. Entrepreneurial leadership, performance, and sustainability of micro-enterprises in Malaysia. *Sustainability* **2018**, *10*, 1591. [\[CrossRef\]](#)
67. Bashirun, S.N.; Rahman, A.H.A.; Razali, M.M.; Lagiman, N. Employee green behaviour (egb) at work: The moderating effects of Islamic values. *J. Tuah* **2020**, *1*, 128–135.
68. Hanafi, A.G.; Ahmad, H.H. The Effects of Islamic Business Ethics on Family Business in Malaysia. *Int. J. Manage. Sci. Inf. Tech. Account.* **2021**. Available online: https://www.researchgate.net/publication/358741680_THE_EFFECTS_OF_ISLAMIC_BUSINESS_ETHICS_ON_FAMILY_BUSINESS_IN_MALAYSIA (accessed on 10 November 2022).
69. Abugu, J.O.; Nwankwo, C.A.; Musa, A. Pro-environmental behaviour impact on firms' performance and social sustainability. *Contemp. Mark. Res. J.* **2022**, *9*, 18–28.
70. Chappel, C.; Tucker, M.E. *Hinduism and Ecology: The Intersection of Earth, Water and Sky*, 4th ed.; Harvard University Press: Cambridge, MA, USA, 2000.
71. Foltz, R.C.; Denny, F.M.; Baharuddin, A. *Islam and Ecology: A bestowed Trust*, 1st ed.; Harvard University Press: Cambridge, MA, USA, 2003.
72. Hessel, D.T.; Ruether, R.R. *Christianity and Ecology: Seeking the Well-Being of Earth and Humans*, 1st ed.; Harvard University Press: Cambridge, MA, USA, 2000.
73. Williams, D.R.; Tucker, M.E. *Buddhism and Ecology: The Interconnection of Dharma and Deeds (Religions of the World and Ecology)*, 1st ed.; Harvard University Press: Cambridge, MA, USA, 1997.
74. Mohamad, Z.F.; Idris, N.; Baharuddin, A.; Muhammad, A.; Sulaiman, N.M.N. The role of religious community in recycling: Empirical insights from Malaysia. *Resour. Conserv. Recycl.* **2012**, *58*, 143–151. [\[CrossRef\]](#)
75. Gómez-Bezares, A.M.; Gómez-Bezares, F. Catholic social thought and sustainability. Ethical and economic alignment. *J. Risk Financ. Manag.* **2020**, *14*, 11. [\[CrossRef\]](#)
76. Vavik, T.; Keitsch, M.M. Exploring relationships between universal design and social sustainable development: Some methodological aspects to the debate on the sciences of sustainability. *Sustain. Dev.* **2010**, *5*, 295–305. [\[CrossRef\]](#)
77. Bryman, A. *Research Methods and Organization Studies*, 1st ed.; Routledge: London, UK, 2003.
78. Saunders, M.; Lewis, P.; Thornhill, A. *Research Methods for Business Students*, 5th ed.; Pearson Education: London, UK, 2009.
79. Hair, J.F.; Bush, R.P.; Ortinau, D.J. *Marketing Research: Within a Changing Information Environment*, 3rd ed.; McGraw-Hill Education: New York, NY, USA, 2006.
80. Zikmund, W.G.; Babin, B.J.; Carr, J.C.; Griffin, M. *Business Research Methods*, 8th ed.; Cengage Learning: Boston, MA, USA, 2010.
81. Dillman, D.A. *Mail and Internet Surveys: The Tailored Design Method 2007 Update with New Internet, Visual, and Mixed-Mode Guide*, 2nd ed.; John Wiley & Sons: New York, NY, USA, 2007.
82. Ta, G.C.; Meng, C.K.; Mokhtar, M.; Ern, L.K.; Alam, L.; Sultan, M.M.A.; Ali, N.L. Enhancing the regulatory framework for upstream chemicals management in Malaysia: Some proposals from an academic perspective. *J. Chem. Health. Saf.* **2016**, *23*, 12–18. [\[CrossRef\]](#)
83. Cappelleri, J.C.; Darlington, R.B.; Trochim, W.M. Power analysis of cutoff-based randomized clinical trials. *Eval. Rev.* **1994**, *18*, 141–152. [\[CrossRef\]](#)
84. Cohen, J. *Statistical Power Analysis for The Behavioral Sciences*, 2nd ed.; Lawrence Erlbaum Associates: Mahwah, NJ, USA, 1988.
85. Hair, J.F., Jr.; Sarstedt, M.; Hopkins, L.; Kuppelwieser, V.G. Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *Eur. Bus. Rev.* **2014**, *26*, 106–121. [\[CrossRef\]](#)
86. Chuan, C.L. Sample size estimation using Krejcie and Morgan and Cohen statistical power analysis: A comparison. *Penyelidikan* **2006**, *7*, 78–86.
87. Adarsha, K.; Prathap, R. Green supply chain management practices: A case study from Indian manufacturing industry. *Asia Pac. J. Multidiscip. Res.* **2013**, *3*, 1–13.
88. Esty, D.C.; Winston, A. *Green to Gold: How Smart Companies Use Environmental Strategy to Innovate, Create Value, and Build Competitive Advantage*, 1st ed.; John Wiley & Sons: Hoboken, NJ, USA, 2009.
89. Krajnc, D.; Glavič, P. Indicators of sustainable production. *Clean Technol. Environ. Policy.* **2003**, *5*, 279–288. [\[CrossRef\]](#)
90. Zhu, Q.; Sarkis, J.; Lai, K. Confirmation of a measurement model for green supply chain management practices implementation. *Int. J. Prod. Econ.* **2008**, *111*, 261–273. [\[CrossRef\]](#)
91. Chow, W.S.; Chen, Y. Corporate sustainable development: Testing a new scale based on the mainland Chinese context. *J. Bus. Ethics* **2012**, *105*, 519–533. [\[CrossRef\]](#)

92. Ali, A. Scaling an Islamic work ethic. *J. Soc. Psychol.* **1988**, *128*, 575–583. [\[CrossRef\]](#)
93. Yousef, D.A. Islamic work ethic—A moderator between organizational commitment and job satisfaction in a cross-cultural context. *Pers. Rev.* **2001**, *30*, 152–169. [\[CrossRef\]](#)
94. Tabachnick, B.G.; Fidell, L.S. *Using Multivariate Statistics*, 6th ed.; Pearson Education: Boston, MA, USA, 2013.
95. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.-Y. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [\[CrossRef\]](#)
96. Podsakoff, P.M.; Organ, D.W. Self-reports in organizational research: Problems and prospects. *J. Manage.* **1986**, *12*, 531–544. [\[CrossRef\]](#)
97. Esfahani, M.D.; Shahbazi, H.; Nilashi, M. Moderating effects of demographics on green information system adoption. *Int. J. Innov. Technol. Manag.* **2018**, *16*, 1950008. [\[CrossRef\]](#)
98. Maghsoudi, A.; Zailani, S.; Ramayah, T.; Pazirandeh, A. Coordination of efforts in disaster relief supply chains: The moderating role of resource scarcity and redundancy. *Int. J. Logist. Res. Appl.* **2018**, *21*, 407–430. [\[CrossRef\]](#)
99. Bagozzi, R.P.; Yi, Y. On the evaluation of structural equation models. *J. Acad. Mark. Sci.* **1988**, *16*, 74–94. [\[CrossRef\]](#)
100. Hair, J.F., Jr.; Hult, G.T.M.; Ringle, C.; Sarstedt, M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd ed.; Sage Publications: New York, NY, USA, 2016.
101. Amin, M.; Thurasamy, R.; Aldakhil, A.M.; Kaswuri, A.H.B. The effect of market orientation as a mediating variable in the relationship between entrepreneurial orientation and SMEs performance. *Nankai Bus. Rev. Int.* **2016**, *7*, 39–59. [\[CrossRef\]](#)
102. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [\[CrossRef\]](#)
103. Yoo, W.; Mayberry, R.; Bae, S.; Singh, K.; He, Q.P.; Lillard, J.W., Jr. A study of effects of multicollinearity in the multivariable analysis. *Int. J. Appl. Sci. Technol.* **2014**, *9*, 9–14.
104. Hair, J.F.; Ringle, C.M.; Sarstedt, M. PLS-SEM: Indeed a silver bullet. *J. Mark. Theory Pract.* **2011**, *19*, 139–152. [\[CrossRef\]](#)
105. Hair, J.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*, 7th ed.; Pearson College Div: Andover, MA, USA, 2019.
106. Ramayah, T.; Cheah, J.; Chuah, F.; Ting, H.; Memon, M.A. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using smartPLS 3.0: An Updated Guide and Practical Guide to Statistical Analysis*, 2nd ed.; Pearson: Kuala Lumpur, Malaysia, 2018.
107. Makhloufi, L.; Meirun, T.; Belaid, F.; Yaacob, N.A. Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view perspective. *Bus. Strat. Environ.* **2022**, *31*, 425–444. [\[CrossRef\]](#)
108. Jamali, A.; Bhutto, A.; Khaskhely, M.; Sethar, W. Impact of leadership styles on faculty performance: Moderating role of organizational culture in higher education. *Manag. Sci. Lett.* **2022**, *12*, 1–20. [\[CrossRef\]](#)
109. Dawson, J.F. Moderation in management research: What, why, when, and how. *J. Bus. Psychol.* **2014**, *29*, 1–19. [\[CrossRef\]](#)
110. King, A.; Lenox, M. Exploring the locus of profitable pollution reduction. *Manage. Sci.* **2002**, *48*, 289–299. [\[CrossRef\]](#)
111. Kjaerheim, G. Cleaner production and sustainability. *J. Clean. Prod.* **2005**, *13*, 329–339. [\[CrossRef\]](#)
112. Zailani, S.; Govindan, K.; Iranmanesh, M.; Shaharudin, M.R.; Chong, Y.S. Green innovation adoption in automotive supply chain: The Malaysian case. *J. Clean. Prod.* **2015**, *108*, 1115–1122. [\[CrossRef\]](#)
113. Schoenherr, T. The role of environmental management in sustainable business development: A multi-country investigation. *Int. J. Prod. Econ.* **2012**, *140*, 116–128. [\[CrossRef\]](#)
114. Chen, L.; Tang, O.; Feldmann, A. Applying GRI reports for the investigation of environmental management practices and company performance in Sweden, China and India. *J. Clean. Prod.* **2015**, *98*, 36–46. [\[CrossRef\]](#)
115. Luthans, F. The need for and meaning of positive organizational behavior. *J. Occup. Organ. Psychol. Behav.* **2002**, *23*, 695–706. [\[CrossRef\]](#)
116. Krishna, A.; Dangayach, G.; Jainabc, R. Business ethics: A sustainability approach. *Procedia. Soc. Behav. Sci.* **2011**, *25*, 281–286. [\[CrossRef\]](#)
117. Rafiki, A.; Wahab, K.A. Influences of Islamic practices on small firm performance: A study in North Sumatera, Indonesia. *Islam. Bus. Manag. J.* **2013**, *5*, 64–82.
118. Adam, S.B. The role of Islamic work ethics on the relationship between board of directors and performance of Islamic financial institutions in Nigeria: A proposed framework. *Int. J. Res. Sci. Innov. Appl.* **2019**, *3*, 206–211.
119. Lee, K.E.; Mokhtar, M.; Goh, C.T.; Hanafiah, M.M. A conceptual framework for the adoption and implementation of product stewardship in the chemical industries. *Procedia Environ. Sci.* **2015**, *30*, 50–55. [\[CrossRef\]](#)
120. Suki, N.M. Moderating role of gender in the relationship between hotel service quality dimensions and tourist satisfaction. *J. Qual. Assur. Hosp. Tourism* **2014**, *15*, 44–62. [\[CrossRef\]](#)
121. Al Koliby, I.S.; Mohd Suki, N.; Abdullah, H.H. Linking knowledge acquisition, knowledge dissemination, and manufacturing SMEs' sustainable performance: The mediating role of knowledge application. *J. Innov. Knowl.* **2022**, *5*, 185–202. [\[CrossRef\]](#)

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