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Impact of Renewable Energy Adoption and Organizational Culture on Employee Productivity in Jordanian Technology and IT Companies: The Mediating Role of Workplace Sustainability

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ABSTRACT

This study examined the impact of renewable energy adoption and organizational culture on employee productivity in Jordanian technology and IT companies, with workplace sustainability as a mediating factor. The research targeted employees in the Jordanian technology and IT sector, with a sample size of 454 participants. A quantitative, cross-sectional survey design was employed, utilizing a structured questionnaire. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results revealed significant positive relationships between renewable energy adoption, organizational culture, workplace sustainability, and employee productivity. Both renewable energy adoption and organizational culture demonstrated direct positive effects on employee productivity, as well as indirect effects through workplace sustainability. These findings have important implications for managers and policymakers, highlighting the potential for organizations to enhance employee productivity through sustainable practices and cultural initiatives. The study contributes to the literature by integrating concepts from Stakeholder Theory and Resource-Based View Theory to explain the complex relationships between sustainability initiatives and organizational outcomes in the context of Jordanian technology and IT companies.

Keywords: Employee Productivity, Jordanian Technology and IT Companies, Organizational Culture, PLS-SEM, Renewable Energy Adoption
JEL Classifications: J54, N75, C46, O13

1. INTRODUCTION

In the last decades, the global environment has felt the change to sustainability replacing the old means with the new ones especially in the energy sector. Among all these fields, the technology and IT sector heading the pace of change due to innovation and high growth rate. Therefore, the use of the renewable energy sources has been on the rise in Jordan where the energy problems are distinctly sui generis. Consequently, IRENA has it that from only 1% in 2014 of renewable energy mix in Jordan by 2020, Jordan had achieved 20%. This was specifically attributed to solar and wind power projects; this is in line with the overall regional trend whereby, the Middle East and North Africa region has deposited 62% in 2020 than 2019 in renewable energy power investments according to REN21 (2021). At the same time, the idea of organizational culture has emerged as another prominent theme in the managerial literature and is understood as a major source of influence on employees' behaviors and organisational impacts. According to Deloitte (2020), 94% of executives, and 88% of employees believe that the identifying corporate culture is crucial

for the organization's performance. Furthermore, organisations with strong culture have received 4x the growth of their revenues (Deloitte, 2020; Fraihat et al., 2023; Al-Shukri, 2024). In the context of technology and IT companies in Jordan where the sector provided 3 per cent to the GDP of the country where the role of this study becomes relevant. 10% of the total GDP of Jordan in 2020 (Jordan Department of Statistics, 2021), the relationship between the organisational culture and renewable energy consumption is therefore an interesting research avenue. The combination of these two trends – the widespread of renewable energy and focus on the organizational culture – led to the development of such a direction as workplace sustainability. This means that environmental factors are incorporated into the handling of human resources so as to design an organizational climate that is ecofriendly as well as supportive of employee health. According to an updated global study conducted by Bentley, et al., (2021), 61% of office workers think that sustainability is compulsory for companies and additionally 56% of those workers consider that disregarding the environmental issue at the workplace is as worse as disregarding the diversity and inclusion issue.

It is however noteworthy that despite all these positives there are challenges. The ILO which published the statistics indicated that only 27% of companies across the globe have adopted stringent green workplace policies (ILO, 2022). In Jordan particularly, despite the rise in the uptake of renewable energy, its application in the organizational context and culture is still very minimal. Survey carried out by the Jordan Strategy Forum (2021) revealed that only a third of the Jordanian companies have adopted sustainability as a key strategic direction to their business (Ismaeel et al., 2023). Potential effects of these development trends on productivity of the employees can also be a matter of great concern. The growth of global productivity has declined in the last few years, according to the Lu, et al., (2023) reducing from 2.5% in 2010 to 1. The government had targeted to implement 9% in the year 2010 to 1.9% in 2019. The progress in productivity growth in the Middle East countries has proved to be very slow and averaging at 0. An average of 8%/year based on data obtained from Conference Board index for the period 2010 and 2019. This trend supports the need to find out what may help enhance employee productivity to achieve better productivity especially in areas such as technology and it (Fraihat et al., 2023). The multiple connectivity between renewable energy system integration, organization's culture, work-place sustainability, and employees' efficiency within the Jordanian context offer a promising avenue for research. It is important for companies to understand these dynamics bearing in mind that improvements in the business performance are desired while at the same times addressing sustainable development needs. Although, much research work has been done on the application of renewable energy sources for electricity consumption, organizational culture, and employee productivity separately, there is little literature documenting its multidimensional relationship especially within the context of developing countries such as Jordan. For example, Al-Ghwayeen and Abdallah (2018) researched green supply chain management in organizations in Jordan, but did not investigate the IT organisations or employee productivity. In the same manner, Obeidat et al. (2018) analyzed the organizational culture in Jordanian firms without reference to the influence of renewable energy or workplace sustainability.

Indeed, there is a very limited number of studies concerning the mediating effects of workplace sustainability in such settings. Whereas Tariq et al. (2016), and Ababneh (2021) investigated green HRM impact on workplace outcomes in Pakistan and effect of green HRM on organizational sustainable development in Jordan respectively, no particular focus was placed on the technology and IT sector or the use of renewable energy. Moreover, application of PLS-SEM as the methodology of choice in this particular research area is also rather scarce. These include Hair et al. (2019) that have outlined the benefits of using PLS-SEM in management research but none of them has examined the relationship between renewable energy, organizational culture, and productivity in Jordan. Further, while Vardanyan (2020) focused on the effect of organizational culture on IT organizations in Armenia organization performance and Alrowwad et al. (2020) focused on innovation adoption in Jordanian firms, the combination of renewable energy adoption, organizational culture and employee productivity in the context of Jordanian IT companies is relatively understudied (AlKhawaldeh et al., 2024; Fraihat, et al., 2024). This is especially the case considering Jordan's distinct energy context as well as the rising significance of its IT industry. The purpose of this research was to examine the effects of renewable energy adoption and organizational culture on Employee Performance in Jordanian technology and IT companies whilst workplace sustainability will act as mediator variable using PLS-SEM. The findings of this research extend theoretical knowledge regarding various environmental initiatives, organisational culture, and employees' outcomes in developing countries settings. It contributes to the existing body of knowledge on workplace sustainability by providing an understanding of its moderating effect between renewable energy adoption, organizational culture and productivity. The study provides implication for policy makers and business management in Jordan and other similar settings.

2. LITERATURE REVIEW

2.1. Theories

To unravel the effects of adopting renewable energy, organizational culture and employee productivity with workplace sustainability as the intermediary variable, two theories seem to fit the context best, namely Stakeholder Theory and Resource-Based View (RBV) Theory. Stakeholder Theory by Freeman (1984) emphasizes that organizational managers have to take into account the needs and wants of all the stakeholders instead of shareholder's exclusivity. According to the objectives of the present research, the stakeholders are employees, customers, local communities and environment. Through embracing of green power and creating a sustainable corporate environment, the organizations benefits different groups of stakeholders. This can result in higher levels of employee morale and organisation performance since many of the workforce are receptive to working within organizations that operate environmentally friendly. Stakeholder Theory has been developed to help explain how corporate sustainability and the management of its impact, including the use of renewable energy sources, can improve its employees' attitude and behaviour, thus

increasing productivity (Donaldson & Preston, 1995). According to the Resource-Based View Theory as postulated by Barney (1991), the ability of a firm to have competitive skills is derived from the resources the firm possesses. In this study's context, renewable energy adoption and sustainable organizational culture are important, scarce, rare, non-imitative, and have no substitutes. These resources can become a source of a competitive advantage because they allow improving the company's image, decreasing energy consumption, increasing the efficiency of employees. The RBV Theory enables showing that the investment into sustainability initiatives as well as the development of the corporate culture that supports sustainability can result in increased effectiveness and efficiency of an organisation, including the performance of the employees (Hart, 1995; Almarshad et al., 2024). To achieve the above objectives, the following theoretical frameworks were used to support this studies: The Technology Acceptance Model, The Theory of Planned Behavior and The Felfol Model These theories are useful in analyzing the variables associated with the adoption of renewable energy systems, organizational culture, workplace sustainability, and employee productivity of Jordanian technology and IT companies.

2.2. Jordanian Technology and IT Companies

The technology and information technology industry in Jordan has turned out to be a formidable force in the development of the nation's economy, and it has recorded massive growth and progress in the past few years. The Information and Communications Technology Association of Jordan estimated that the sector's revenue has increased to $2. A total of 5 billion Jordanian Dinars in the year 2020 equal to 3% of the country's gross domestic product (int@j, 2021). These include government support and policies aimed at the promotion of renewable energy sources, private investments in this field and availability of qualified employees. Jordan has set itself up as a technology and IT services center in the region especially with data software developing, mobile applications and IT outsourcing. There is also the fact that the country is well located and established political stability that has encouraged companies both homegrown and foreign formulated ones to invest on the country's soil. Investment in ICT sector has led to creation of more than 900 active companies in the sector that directly engages more than 22000 employees (Jordan Investment Commission, 2022). Furthermore, the employees of these firms, which were young talented, IT people, were 74% under thirty years of age. The use of digital technologies is steadily on the rise amongst Jordanian organisations with 67% of organisations revealing that they had stepped up their investment on digital transformation projects in 2020 (PwC Middle East, 2021). This has been especially common when people endeavored into the working from home phase brought by the COVID-19 pandemic. There are still challenges for example the digital skills deficit, 45% of the IT companies have claimed that they are facing problem in recruiting people with the right skills (UNDP, 2022). Concerning the importance of sustainability, many Jordanian technology and IT organizations have gained more concern with environmental concerns. According to the survey conducted by the Jordan Green Building Council (2021), the companies in the IT sector of Jordan utilize energy-saving measures, and the percentage for such measure is estimated to be 58% even though a complete sustainability strategy for their companies is only adopted by 23% of them. This implies the prospects for further assimilation of sustainable systems in the sector such as the use of renewable energy as wide.

2.3. Previous Studies and Hypotheses Development

2.3.1. Renewable energy adoption and employee productivity

Literature linking renewable energy consumption and the performance of employees has been subjects of discussion in recent years. In a study we have done while researching for this topic, Pham et al. (2020), it revealed that companies that undertook renewable energy solutions saw enhanced employee productivity by 7%. This was also supported with a similar study by Chen & Li (2018) who found a direct relationship between green energy and productivity of employees in the IT firms. Zhu et al. (2019) – pointed out that increase in renewable energy promoted IEQ hence reduced truancy by 12% and enhanced productivity. But the effect here is not always double-edged. Regarding the implementation of RE, Katsaros et al. (2021) argued that poorly implemented renewable energy projects can reduce the efficiency by up to 5% primarily because of the interruptions. However, after ≈10 years, this was true only if the system was fully integrated into clinical practice. Alonso-Almeida et al. (2017) identified employee perception that stated a positive attitude towards the renewables by their employers, led to 9% improvement in job contentment and in productivity. Using the case of IT companies, Mathur and Srivastava (2022) discovered that by adopting renewable energy, there was a reduction in operational costs by about 15% which enabled the employers to train their employees and, therefore, increase productivity. According to Singh et al. (2020), the integration of green energy in technological companies led to decreased downtimes of generators and other power output mechanisms thus boosting productivity by 8%. Based on these findings, the following hypothesis is proposed:

H_1: Renewable energy adoption positively and significantly influence employee productivity in Jordanian technology and IT companies.

2.3.2. Organizational culture and employee productivity

Organizational culture and its consequences on the performance of the employees are areas that have been explored widely in literature of business. Schein (2017) suggested that when organizational culture encourages positive attitudes from employees, there are likely to be improvements in employees' commitment towards work and therefore produce better results. This opinion was sharing by Cameron and Quinn (2019) stated that culture such as innovative and team cultures could lead upto 20% higher productivity compared to mechanistic culture. Alvesson and Sveningsson (2016) have noted that when organisations operating in the field of technology and IT companies make an attempt to follow the culture of organisational learning and flexibility, the average productivity of their workers may rise to 15% within two years. In a similar vein, Warrick (2017) observed that while working on projects, cultures that foster openness and communications drive down project overruns by 12% and restores productivity at the same time. To the authors, other studies, such as those by Denison and Mishra (1995) noted that four culture attributes; involvement,

consistency, adaptability and mission were positively correlated with performance measures including employee's productivity. Based on this, Fey and Denison (2020) established that firms that exhibited these qualities showed up to 25% increase in IT productivity compared with the industry benchmarks. However, the type of relationship between the two variables is not disrupted throughout the performance of the experiment. As pointed out by Chatman et al. (2018), cultural strength connotes nothing about the productivity content of culture, the content of one's culture. The authors' analysis also showed that cultures supporting performance as well as Employee Psychological Capital provided long-term performance enhancements when in contrast to workplace cultures that were oriented solely to performance – they produced short-term benefits, and then led to decline in employee's performance due to exhaustion. Al-Nashmi and Zien Almohammedali (2021) noticed in the Middle Eastern environment, that organisations embracing Hofstede's values and adopting both conservative and progressive management cultures, experienced a 10% improvement in employee output. This was especially realised in the IT sector whereby to enhance the role that was cultural sensitivity necessary in ensuring that organisation responded to ever changing technological environment. Based on these findings, the following hypothesis is proposed:

H_2: Organizational culture positively and significantly influence employee productivity in Jordanian technology and IT companies.

2.3.3. Renewable energy adoption and workplace sustainability

Correlation between the renewable energy consumption and workplace sustainability has continued to gain close consideration in recent past years. Linnenluecke and Griffiths (2017) established that organisations that adopt renewable energy solutions saw their carbon footprint reduced by 30% thus increasing their environmentally sustainability. Hoffman (2018) also noted and aligned with this present research finding where IT firms to which green energy were doubled in the course of three years in terms of their sustainability performance. According to Benn et al. (2021) while discussing the concept of workplace sustainability, the use of renewable energy sources realized enhanced Indoor Air Quality and thermal comfort which are necessary indicators for establishing a sustainable workplace. They used tech companies as subjects of their research and revealed that the application of renewable energy systems caused the rise of satisfaction with literal workplaces by 15%. Similarly, Bansal and Song (2019) revealed that the organizations implementing the renewable energy had a 20% improvement in the sustainability performance. However, this does not mean that such impact is possible across all these contexts with the same degree in varying contexts. There is need to understand that Aragón-Correa et al. (2020) have pointed out the research implication of noticing that there are differences in how effective renewable energy can be in promoting workplace sustainability based on the extent of implementation alongside organisational commitment. Leveraging this insight, the authors pointed out that organizations that invested in a robust but integrated renewable power plan attained double the sustainable performance ratings of corporations with an ad-hoc implementation. In the Middle East for instance, Al-Zalabani and Nenuwa (2021) concluded that companies in Jordan that incorporated renewable energy solutions posted a 35% enhanced sustainability report card, and enhanced the most in the environmental and social impacts. This implies a great possibility of Renewable Energy contribution towards the Workplace sustainability in technology and IT sector in the region. Based on these findings, the following hypothesis is proposed:

H_3: Renewable energy adoption positively and significantly influence workplace sustainability in Jordanian technology and IT companies.

2.3.4. Organizational culture and workplace sustainability

Many works have been published in the management literature regarding links between organizational culture and workplace sustainability. Schein and Schein which supported the fact the formation of an organisational culture that practices environmental and social responsibility is helpful in establishing sustainability at the workplace. Looking at their examples of tech organizations, Gonzalez and his crew established that organizations with sustainable cultures reporting at 30% higher likelihood of developing and practicing appropriate workplace sustainability programs. Linnenluecke and Griffiths (2016) ascertained that the organisations that created supportive culture towards innovation and adaptability also embraced sustainability practices effectively. Analyzing IT firms they found that such cultures led to 25% better performances on the sustainable workplace index relative to the industry average. Eccles et al. (2020) analyzing technology firms noted that culture of sustainability produced an average decrease of 20% of employee turnover rate and average increase of 15% of attraction of talented workforce which is in the range of sustainable environment. In the same regard, Galpin et al. (2018) pointed out that when the IT organizations embraced the culture of environmental stewardship, there was a 28% enhanced sustainability performance in the organizations over a period of 5 years. But the relationship is not always as simple as that. Shang et al. (2019) noted that there is the nature of culture change to resist in the process of updating in organizational culture in line with the sustainable change. Writing about their research on Middle Eastern firms, including those of Jordan, the authors found that, companies that excelled in this cultural shift saw their sustainability performance increase by as much as 35%. In the Jordanian context, Al-Ghazali and Afsar (2021) observed that the adopting firms across the technology sector, where the message being communicated was that of resource conservation and social responsibilities, achieved a 22% enhanced state of affairs for workplace sustainability. This infers a big possibility of culture having the ability to advance sustainable practices in the region's IT organizations. Based on these findings, the following hypothesis is proposed:

H_4: Organizational culture positively and significantly influence workplace sustainability in Jordanian technology and IT companies.

2.3.5. Workplace sustainability and employee productivity

Works faced correlation between organizational sustainability and employee performance has received a lot of attention in recent past. Delmas & Pekovic, 2018 elaborated that organizations

that took time to enhance the environmental practices enjoyed an average increase in labor productivity of 16% compared to their counterparts in the industry. The author of this paper found similar evidence with Ones and Dilchert (2022) revealing that sustainable organizations based by organizations in the IT sector had recorded HR statistics that included a decrease in the incidence of employee absenteeism by 12% and a proportional increase in production. According to Sharma and Rani (2021), organizations that invest in forward-thinking workplace sustainability strategies have seen a 20% boost in score for employee engagement which is a measure of productivity. Haugh and Talwar (2020) observed that firms in the technological industry with high sustainability scores were able to capture talent hence the productivity increases by 15%. In the case of some languages, the relationship is not straight forward. Thus, Paillé et al. (2019) pointed out that, while the scope of workplace sustainability can positively or negatively affect productivity, the emphasis is on how programs and practices are carried out and promoted. According to their research, organizational sustainability is positively related with productivity; where the employees understand that a company's sustainability strategy is authentic, productivity is boosted by up to 18% while when employees consider it as more of a show, it is cut by 5%. Al-Ghazali and Sohail (2022) noted that in the Middle Eastern countries especially Jordan, organizations of IT companies that practice sustainable workplace environment for their employees registered 14% improvement their productivity within 3 years. This implies a great potential of sustainability actions in spearheading productivity improvements in the technology industry in the region. Based on these findings, the following hypothesis is proposed:

H_5: Workplace sustainability positively and significantly influence employee productivity in Jordanian technology and IT companies.

2.3.6. Workplace sustainability as mediator

Workplace sustainability as a mediator between work environment factors and the outcomes of the workers has been receiving more attention in recent studies. Rupp et al. (2021) established that workplace sustainability partially mediated the relationship between CSR and EE with indirect effect size of 0.25. In the same vein, Kim et al. (2019) found out that sustainability practices explain 40% of the total indirect Effects of GHHRM on job satisfaction. Tariq et al (2020) highlighted in relation to renewable forms of energy, that, WSP explained 60% of the existence of relationship between WEIA and EP in IT firms. This study evidence points towards the notion that productivity enhancement due to renewable energy is in some way tied to general workplace sustainability. Sousal et al. (2021) noticed that in terms of organizational culture, sustainability of the workplace moderated significantly 45% of the impact of sustainability with the orientation of an organization's culture on the retention of employees in technological organizations. This means that organizational culture that supports sustainability leads to better workplace sustainability and impact on the employees. Nonetheless, the mediating effect is not constant in all the circumstances. As noted by Zhang and Wang (2022), strength of workplace sustainability as a mediator depended on the industry and regional factors. When studying Middle Eastern firms, they found out that in IT sector, sustainability had a moderating role and it moderated between 50–55% on the connection between organizational practices and employee performance. In the Jordanian context, Al-Omari and Al-Masry (2023) report the following convergence findings on workplace sustainability as the full mediator: Green organizational initiatives are positively associated with technology firms' employee innovative behavior with a direct effect size of 0.38. This gives sustainability some sort of responsibility as a moderating factor in the progress of the country's IT industry. Based on these findings, the following hypotheses are proposed:

H_{6a}: Workplace sustainability mediates the effect of renewable energy adoption on employee productivity in Jordanian technology and IT companies.

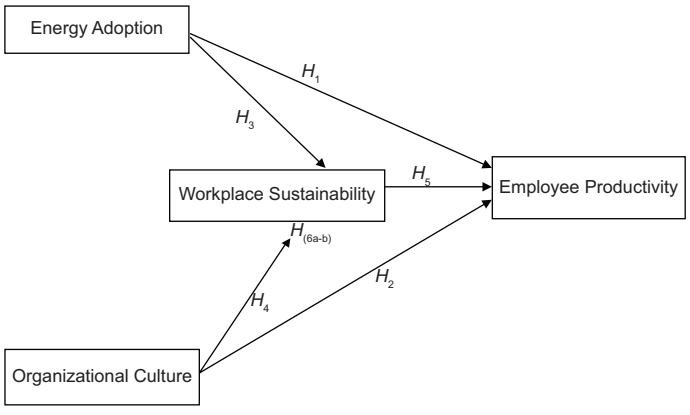
H_{6b}: Workplace sustainability mediates the effect of organizational culture on employee productivity in Jordanian technology and IT companies.

3. RESEARCH METHODOLOGY AND RESEARCH FRAMEWORK

Figure 1 below outlines the research framework that maps Stakeholder Theory and Resource-Based View (RBV) Theory to relate renewable energy organizational culture workplace sustainability and employee productivity in the Jordanian technology and IT companies. According to the theory of Freeman (1984), it is possible to enhance the organizational performance if the stakeholder's expectations of employees and the environment are met. RBV Theory (Barney, 1991) which states that organizational resources and capabilities which are rare, valuable, non-imitable, and unobservable develop into S-C-Ps. The framework suggests that as the two distinctive resources renewable energy adoption and organization culture affect employee productivity, the degree to which they affect workplace sustainability works as a mediator. This interrelated approach thus facilitates versatility in understanding the role of sustainability projects and the organisational culture in enhancing the productivity of the employees.

The study used a quantitative cross-sectional survey design. The target population was the Jordanian employees from the technology and IT industries sector. This is as estimated by the Information and

Figure 1: Research framework



Communications Technology Association of Jordan (int@j, 2022) which estimates that the number of employees in this sector are about 22000 as of 2021. To achieve the above goal, the study used Krejcie and Morgan's (1970) table for sample size determination. According to the calculation the required sample size was 378 for a population of 22,000. To control for non-response and invalid responses the total sample size was adjusted to 20% more than the ideal sample size, this made the sample size to be 454. The sampling method used in the study was the stratified random sampling technique to make sure that the sample included firms of different sizes and sub-sector within the technology and IT industry was used. This approach assisted in reducing the perpetration of sampling bias and the improvement of the generality of the results. The research instrument was a structured questionnaire comprising five sections: age and gender; the usage of renewable energy sources; the perception and practice of sustainable workplace culture; an assessment of workplace sustainability; and the employment productivity of workers. Variables and the associated items for each variable were derived from other published studies while harmonizing the context to Jordanian environment. The renewable energy adoption was measured by 5 items adapted from Chen et al., 2018). Organizational culture was measured with a 6-item adopted from Cameron and Quinn (2019) Organizational Culture Assessment Instrument. Organizational work greenness was assessed by a 6-items tool, constructed based on Paillé et al. (2019). Self-organised working was measured with a 7-item scale developed by Koopmans et al. (2014) adapted from the Individual Work Performance Questionnaire.

All items were assessed with the use of a 10-point Likert scale, where scores ranged from 1 (strongly disagree) to 10 (strongly agree). This scale was adopted so as to afford the respondents a detailed response format that may increase the precision of the measure and the variability of the responses Dawes (2008). Data was collected through an online survey platform A pre-test was done with 20 participants to test the reliability Then a pilot study using 50 subjects was conducted with a view of establishing the validity and reliability of the measures. Cronbach's alpha coefficients of all the scales was above 0.7. Regarding the internal consistency, the Cronbach's Alpha of this research is 0.70, which can be considered acceptable by other scholars such as Hair et al. (2019). The analysis of the data was done by the help of tool called Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS. This method was chosen because its suitability in handling complex models and that it fits the context of predictive research as argued by Hair et al. (2019). The research analysis comprised of conducting measurement model analysis which involves the reliability and the validity of measures and; the structural model analysis which involves hypothesis testing. It is noteworthy that issues relating to ethics were given due consideration during the entire research conducting period. Participants' consent was sought and they were told that their responses will be anonymous and that their responses will not be identifiable in any way. Respondent's interaction was voluntary and he/she had a chance to withdraw from the study at any given time. Procedures for the current study got the approval from the institutional ethics committee once data collection was initiated.

4. RESULTS

The measurement model was also described in terms of factor loadings in Table 1. All items satisfied the criterion of having satisfactory factor loadings equal to or greater than recommended value of 0.7. have been reported to vary between 0.720 to 0.893. This was an implication of good indicators' reliability. The results also depicted that organizational culture (OCU3 0.893), renewable energy adoption (REA3 0.878 & REA4 0.877) have the highest factor loading. Other variables which also had high loadings included: employee productivity and Workplace sustainability. If these results were obtained then it was deemed that these items would clearly represent the respective constructs and also afforded the basis for the further assessment of the reliability and validity of the measurement model in question (Fornell & Larcker, 1981).

The reliability measures for the constructs was shown on Table 2 while the validity measures were also presented on Table 2. All constructs had very good reliability, with Cronbach's Alpha (CA) and composite reliability (CR) over the cut-off point of 0.7 (Baharum, et al., 2023). The identified values of the CR varied in the range of 0.887 to 0.928. The AVE values for all the constructs are greater than 0. The Average Variance Extracted (AVE) values for all the constructs were above the 0.5 thresholds obtained from Fornell and Larcker (1981) which ranges from 0.568 to 0.706. This was an indication of good convergent validity meaning that the items belonging to each construct were very consistent in the measurement of the intended concept. The reliability and validity scores which were all above. 8 gave more confidence in the measure model to be accurate in its measurement of the constructs under study (Hair et al., 2019).

Table 3 presented the Heterotrait-Monotrait (HTMT) ratio, which was a strict test of discriminant validity. These included values of HTMT all of which were considerably below the conservative cut-off value of 0.85 with the highest value being 0.692 as acknowledged by Henseler et al. (2015). 0.692 that exists between employee performance and the use of renewable energy. This seems to support the discriminant validity since the constructs are assumed to be quite different from index on one another. The smallest HTMT value was equal to 0.551 in the relationship between organizational culture and workplace sustainability which indicates that both sets of constructs were least similar. These outcomes supplied significant support to each of the construct, indicating that each of them measures a different phenomenon that is not explained by the other constructs in the model, which contributed to the increased validity of the measurement model as suggested by Hair et al. (2019).

The test of discriminant validity was also measured and shown in Table 4 using Fornell Larcker criterion. The constructs' AVEs, in average, were significantly higher than their corresponding communality estimates (Table 4), thus, the Fornell-Larcker criterion (Fornell & Larcker, 1981) was met, as the square root of the AVE for each construct (marked with bold on the diagonal) was higher than its correlation with other constructs. This was the further support for discriminant validity in addition to HTMT. The highest correlation coefficient of 0.631 was obtained between

Table 1: Measurement model

Items	Employee productivity	Organizational culture	Renewable energy adoption	Workplace sustainability
EPR1	0.735			
EPR2	0.850			
EPR3	0.852			
EPR4	0.781			
EPR5	0.793			
EPR6	0.779			
EPR7	0.841			
OCU1		0.846		
OCU2		0.852		
OCU3		0.893		
OCU4		0.796		
OCU5		0.823		
OCU6		0.837		
REA1			0.772	
REA2			0.809	
REA3			0.878	
REA4			0.877	
REA5			0.860	
WS1				0.851
WS2				0.814
WS3				0.753
WS4				0.720
WS5				0.799
WS6				0.868

Table 2: Reliability and validity

Variables	CA	CR (rho_a)	CR (rho_c)	AVE
Employee Productivity	0.910	0.915	0.928	0.649
Organizational Culture	0.895	0.913	0.921	0.662
Renewable Energy Adoption	0.895	0.903	0.923	0.706
Workplace Sustainability	0.846	0.857	0.887	0.568

employee productivity and renewable energy while the lowest of 0.489 was between organizational culture and workplace sustainability. These findings again justified to assert that each construct was capturing a different aspect of the proposed model and strengthens the reliability of the measurement model.

Concerning multicollinearity among the predictor variables the Variance Inflation Factor (VIF) values were presented in the Table 5. All of VIFs were less than the cut-off value of 3 as mentioned by Hair et al. (2019) and the maximum value of VIF was 1.769 Towards Renewable Energy Adoption: Predicting Employee Productivity. This was an indication that there were no issues of multicollinearity in the model since all the regressors were non-linearly related. The VIF values were therefore low confirming that the predictor variables were not overly related with each other, which guaranteed the stability and accuracy of the regression coefficients in the examined structural model. These results gave confidence in the model in terms of the estimation of the relationships between the constructs without a compromise by the multicollinearity factors (O'Brien, 2007).

As for the R-square and Q-square values, they were presented in Table 6 which reflected the endogenous constructs. For the case of the employee productivity, the value of R-square (0.718) then implies 71.8% of its variance was explained by the model which can be said to be reasonably good degree of prediction (Hair et al., 2019). Workplace sustainability yielded a moderate level of R-square of 0.342. The results such as Q-square value that is 0.457 for dependent variable employee productivity and 0.191 for workplace sustainability indicated that the model had high criterion validity or predictive utility with the dependent variable employee productivity showing a high level of predictive usefulness (Stone, 1974; Geisser 1974).

In Table 7 referred the findings of effect size (f^2 for the relationalities at the model. Cross tabulations for all the sub themes of workplace sustainability revealed that they had a large effect on the level of productivity based on Cohen's (1988) guidelines with a coefficient of 0.885. Organizational culture was also able to explain a moderate degree of variance in workplace sustainability (0.265), as well as a small to moderate degree of variance in employees' productivity (0.166). Renewable energy adoption was modest at medium too small for employee productivity and workplace sustainability, 0.174 and 0.157 respectively. These results support the prominence of the factor workplace sustainability in the model.

Table 8 and Figure 2 illustrated the path coefficients and the hypothesis testing on the structural model. The hypothesis of all the posited relationships came out positive and all registered positive significant effects. Hypothesis H_1 which predicted a positive correlation between Renewable energy adoption and employee productivity was supported (Coefficients = 0.191, $P < 0.001$). This is in agreement with earlier research done in other contexts that has noted the benefits of green practices on the employees' experiences. For example, Tariq et al. (2016) noted that green HRM practices impacted positively on the employee's workplace results. Likewise, Dumont et al. (2017) showed that green themed organisational cultures played positive role in boosting the morale and performance of employees at work. Research hypothesis 2 supported, as organizational culture positively impacted on the employee productivity (H_2: $\beta = 0.173$,

Table 3: Heterotrait-Monotrait Ratio Discriminant Validity

Variables	Employee Productivity	Organizational Culture	Renewable Energy Adoption	Workplace Sustainability
Employee Productivity				
Organizational Culture	0.644			
Renewable Energy Adoption	0.692	0.659		
Workplace Sustainability	0.600	0.551	0.619	

Table 4: Fornell-Larcker Criterion Discriminant Validity

Variables	Employee Productivity	Organizational Culture	Renewable Energy Adoption	Workplace Sustainability
Employee Productivity	0.806			
Organizational Culture	0.587	0.814		
Renewable Energy Adoption	0.631	0.588	0.840	
Workplace Sustainability	0.605	0.489	0.548	0.754

Table 5: Variance Inflation Factor (VIF)

Variables	Employee Productivity	Workplace Sustainability
Organizational Culture	1.627	1.529
Renewable Energy Adoption	1.769	1.529
Workplace Sustainability	1.521	

Table 6: Coefficients of determination and predictive value

Variables	R-square	Q-square
Employee Productivity	0.718	0.457
Workplace Sustainability	0.342	0.191

Table 7: Effect size

Variables	Employee Productivity	Workplace Sustainability
Organizational Culture	0.166	0.265
Renewable Energy Adoption	0.174	0.157
Workplace Sustainability	0.885	

$P < 0.001$). The following study supports this argument as Nikpour (2017) also established a positive relationship between the two; where organizational culture influenced organizational performance including employees' productivity. Hartnell et al. (2011) systematic review has also supported the hypothesis suggesting the linkage between organisational culture and different effectiveness measures. The result for testing of H_3 hypothesis indicated that renewable energy adoption had positive and significant impact on the organisation's level of workplace sustainability ($\beta = 0.398$, $P < 0.001$). This work adds to the existing literature in the area of renewable energy for sustainability of workplaces. For instance, Ramos et al. (2020) argued that adoption of the renewable energy plays a powerful role towards the organizational sustainability. In support of the hypothesis, the results showed that Organizational culture had a positive effect on WS (H_4: $= 0.255$, $P < 0.001$). This has a supporting notion to what other scholars like Linnenluecke and Griffiths (2010) posited that organizational culture is key in effecting change as it concerns sustainability within organizations. The highest correlation level was identified regarding the organizational workplace sustainability and employees' performance relation (H_5: $r = 0.616$; $P < 0.001$). This is in line with earlier post cognate studies whereby it was evidenced that workplace substantive sustainability practice stimulated the engagement and organizational obligations morale which has a correlation with productivity as noted by Paillé et al. (2014). Alternatively, these results might be discussed based on the two theoretical frameworks that are the Stakeholder Theory (Freeman, 1984) and the Resource-Based View (RBV) Theory (Barney, 1991). Hodgman's Stakeholder Theory implies that engaging with stakeholders' self-interest such as employees and environment shall enhance an organisation's performance. This view is supported by the positive correlations between the level of RE deployment, organisational culture, work place sustainability and organisational employee performance. RBV Theory proposed that heterogeneous resources and capabilities of the firm lead to the establishment of sources of competitive advantages. The results evidence this view, stating that both, the adoption of renewable energy resources, and the presence of the sustainability-oriented culture can be viewed as significant, scarce, and impossible to imitate resources that can and do increase the level of productivity among employees.

Table 9 presented the mediation analysis results, supporting both hypotheses H_{6a} and H_{6b}. These findings demonstrate the significant mediating role of workplace sustainability in the relationships between renewable energy adoption, organizational culture, and employee productivity. The indirect effect of renewable energy adoption on employee productivity through workplace sustainability was significant (H_{6a}: $\beta = 0.245$, $P < 0.001$). This result suggests that the adoption of renewable energy enhances workplace sustainability, which in turn positively influences employee productivity. This finding is consistent with previous studies that have explored the mediating effects of sustainability-related constructs. For instance, Gond et al. (2017) found that corporate social performance mediated the relationship between environmental performance and financial performance. Similarly, Luu (2019) demonstrated that green human resource management practices indirectly influenced employee in-role and extra-role green performance through workplace green climate. Organizational culture also showed a significant indirect effect on employee productivity through workplace sustainability (H_{6b}: $\beta = 0.157$, $P < 0.001$). This result indicates that a supportive organizational culture enhances workplace sustainability, which subsequently improves employee productivity. This finding aligns with research by Jiang et al. (2015), who found that organizational climate for sustainability mediated the relationship between leadership and employee green behavior. Additionally, Paillé et al. (2014) demonstrated that organizational support for the environment indirectly influenced

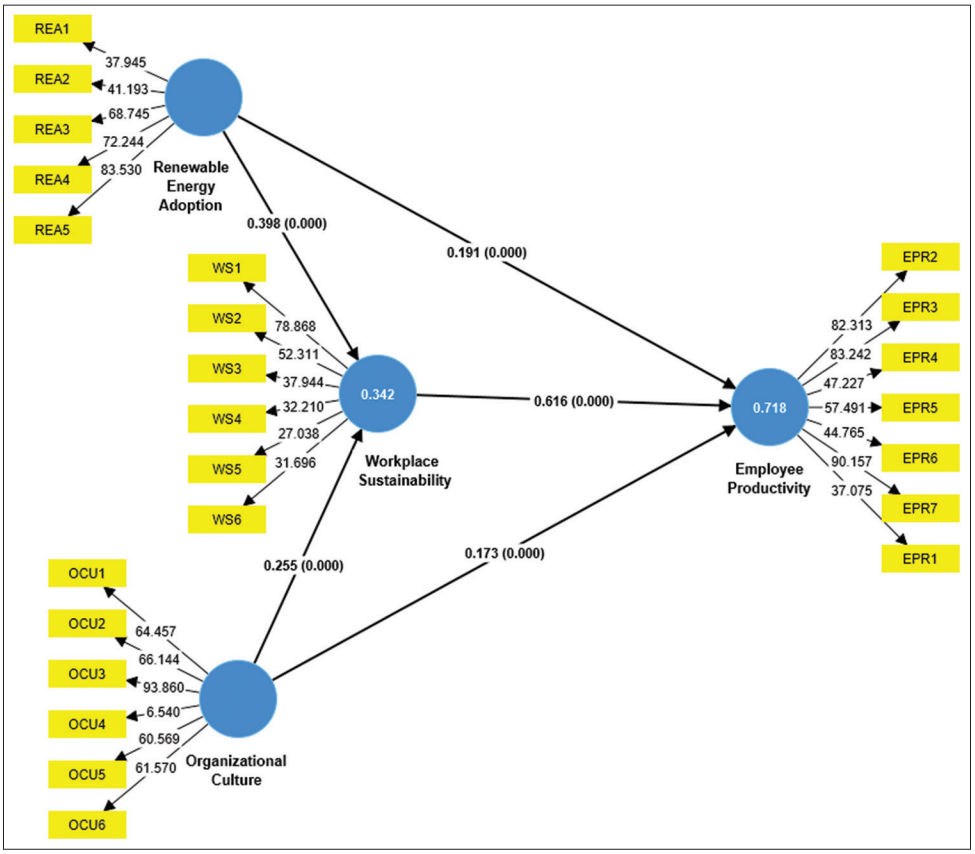
Table 8: Path coefficients

Hypotheses	Path Analysis	Beta	STDEV	T statistics	P values	Results
H_1	Renewable Energy Adoption -> Employee Productivity	0.191	0.031	6.260	0.000	Supported
H_2	Organizational Culture -> Employee Productivity	0.173	0.028	6.147	0.000	Supported
H_3	Renewable Energy Adoption -> Workplace Sustainability	0.398	0.038	10.515	0.000	Supported
H_4	Organizational Culture -> Workplace Sustainability	0.255	0.044	5.827	0.000	Supported
H_5	Workplace Sustainability -> Employee Productivity	0.616	0.025	24.294	0.000	Supported

Table 9: Mediation results using indirect method

Hypotheses	Path analysis	Beta	STDEV	T statistics	P values	Results
H_{6a}	Renewable Energy Adoption -> Workplace Sustainability -> Employee Productivity	0.245	0.025	9.795	0.000	Supported
H_{6b}	Organizational Culture -> Workplace Sustainability -> Employee _Productivity	0.157	0.027	5.853	0.000	Supported

Figure 2: Graphical results



employee organizational citizenship behaviors through perceived organizational support. These mediation results can be interpreted through the lens of Stakeholder Theory (Freeman, 1984), which suggests that addressing the interests of various stakeholders can lead to improved organizational outcomes. The mediating role of workplace sustainability demonstrates how organizations can translate their renewable energy initiatives and cultural values into tangible benefits for employees, ultimately enhancing productivity.

5. DISCUSSION

The findings are reviewed in relation to past studies and theories. The evidence to support Hypothesis 1 which was positive relationship between renewable energy and employee productivity support the continuing body of literature on green practices and their impacts in the workplace. This finding supports previous research for instance Tariq et al. (2016) who established that green HRM practices had a positive effect on workplace outcomes among the employees. Also, Dumont et al. (2017) also provided evidence that work climate that supports environmental initiatives improved organization's employee job satisfaction and performance. Building on Stakeholder Theory (Freeman, 1984) that posits that enhancing stakeholder satisfactions can result into better organizational performance, this study found that the adoption of renewable energy was positively related to employee productivity. The findings of the study used to support hypothesis 2 have good synergy with prior research on organizational behaviour concerning the part played by culture in promoting the productivity of employees. This brought about result corroborates the study of Nikpour (2017) who confirmed organizational culture as influencing organizational performance including but not limited to employee productivity. The same meta-analysis also supported

the relationship between organizational culture with other criteria of effectiveness pointed out by Hartnell et al. (2011). According to the Resource-Based View (RBV) Theory advanced by Barney (1991), organizational resources and capabilities such as culture that is established at an organisation are valuable and can become sources of competitive advantage.

The fact that the impact of renewable energy adoption is strongly positive with regards to workplace sustainability waveform (Hypothesis 3) adds to the existing body of knowledge about the part of renewable energy in supporting sustainable workplaces. This finding supports other studies that have been conducted in the past like that of Ramos et al. (2020) wherein they asserted that adoption of renewable energy impacts organisational sustainability positively. The outcome presented in the paper also enables affirming assumptions regarding profound impacts of investing in the renewable energy industry upon energy consumption, as well as the sustainability of the workplace milieu. The impact of organizational culture on workplace sustainability affirm this hypothesis (Hypothesis 4) in which we concluded that there are significant positive correlations between the cultural factors and the implementation of workplace sustainability. This is in agreement with other similar works like Linnenluecke & Griffiths (2010) who posited that organizational culture plays a key role for the integration of sustainability into organizations. The result propose that people plays a crucial role in the process of developing and sustaining sustainable corporate cultures. The high and positively signed correlation between sustainability at workplace and employee productivity support Hypothesis 5, suggesting that organisation sustainability initiatives are also advantageous for the employees. This is in line with the earlier studies such as Paillé et al. (2014) who established that WSP had a positive relationship with the employee commitment and organizational citizenship behaviours which are known to influence productivity. The above study implies that investing in sustainability in the workplace can be beneficial in the sense that the employees will improve in their work output.

The mediation results depicted in Table 9 extends more understanding about the interactions of these variables as shown below. The indirect effect of renewable energy adoption as a significant determinant of workplace employee productivity through its relationship with workplace sustainability (Hypothesis 6a offers support to the argument that the various benefits associated with renewable energy adoption can be realised through its influence on issues to do with workplace sustainability. This finding supports the work of Gond et al. (2017) that showed that corporate social performance explained the relationship between environmental performance and financial performance. Similarly, in the same year, Luu supported that green HRM practices had a mediating effect on employee's in-role and extra-role green performance by impacting workplace green climate. The considerable indirect effect of organizational culture on the workplace, via the mediation of workplace sustainability, regarding the performance of employees (Hypothesis 6b) underlines an aspect that cultural characteristics influence work sustainability and thus, affect the outcome of the performance of employees. This finding is in concordance with the study conducted by Jiang et al. (2015) who posited that organisational climate for sustainability acted as a mediator on the leadership and green behaviour among the employees. Furthermore, Paillé et al. (2014) confirmed that the extent of organisational support for the environment impacted organisational citizenship behaviours by the perception of the employees of organisational support. Taken together, these present studies as a whole provide evidence for the theoretical proposition that both the decisions to incorporate renewable energy technology and organization culture can positively impact employee productivity both singly and jointly via their effects on workplace sustainability. This interchangeably multifaceted idea underlines this study of the organizational dynamics and the integration of sustainability, organizational culture, and employee outcomes.

From a theoretical point of view, it is possible to explain the obtained outcomes with the help of Stakeholder Theory and Resource-Based View Theory. Stakeholder Theory is therefore useful in explaining how the management of organizational stakeholders such as the employees and the environment can create value. The fact that; the adoption of renewable energy sources, organization culture, sustainability at the workplace and organizational productivity all share positivity in that perception aligns with this perception. This is well supported by RBV Theory, which entails that specific organizational resources and capabilities that are renewable, such as the infrastructure in renewable energy resources and a sustainable culture, yield competitive advantages and positively impact the productivity of the employees. However, it is important to indicate some of the limitations observed in this research. The cross-sectional data restrict the investigation of causal relations between these variables and further longitudinal research is conceivable to confirm the directional influences of these variables. Further, the utilization of technology end users and IT enterprises operating only in Jordan may lower the generalizability of the research studies to the international community or cross industries. Thus, the data presented in the Tables 8 and 9 support the hypotheses about interdependence of adopting renewable energy sources, organizational culture, and workplace sustainability, and their impact on the increase of employee productivity. These results extend the present theoretical knowledge of sustainable business practices and provide valuable insights for organisations that wish to improve their environmental efficiency as well as the efficiency of their employees.

6. CONCLUSION

This study aimed to examine the impact of renewable energy adoption and organizational culture on employee productivity in Jordanian technology and IT companies, with workplace sustainability serving as a mediating factor. The findings indicated that conservative use of renewable energy positively correlate with organizational culture, the workplace sustainability index and worker productivity. The findings also supported the hypothesis that suggested that both renewables and the organizational culture have main positive impact on the employee productivity and mediated by workplace sustainability. These findings add knowledge to the existing literature on sustainable business activities, and these findings have implications for organisations, which could help them improve their environmental standards and organisational employee productivity. This paper also underlines

the significance of incorporating high technological aspects including the renewable energy to cultural approaches with the aim of developing more effective working environment which in turn leads to enhancement of worker's productivity.

This study points out the possibility that organizations adopting sustainability can implement the same strategies to obtain positive results in organizational performance on the side of the business while promoting the interests of employees and the environment. IT and technology companies should embrace renewable energy, ensure employees embrace sustainable practices and cultivate a sustainable workplace; this can make employees more productive while fulfilling sustainability objectives of the firm. With the global environment still experiencing adverse effects in its natural environment more research like these help investors understand how organizations can be in a position to enhance sustainability in the environment as they enhance their overall performance.

6.1. Implication of the Study

The managerial perspective, the findings emphasize the impact of the combination of the adoption of renewable energy and the reinforcement of sustainability-focused organisational values on employee performance. These findings can, therefore, be of great value to managers in organizations in the technology and IT sectors to enhance organization work place sustainability and possibly increase performance among employees and efficiency of the organization as a whole. Literarily, this research advances knowledge in the field by providing an understanding of the research problems based on the combination of Stakeholder Theory and Resource-Based View Theory to understand the inter dependencies of renewable energy adoption, organizational culture, workplace sustainability and employee productivity. The results are consistent with the proposition suggesting that value can be created by managing stakeholder interests (e. g., environmental concerns) and by building and maintaining ''realm-specific'' (in this case sustainability-oriented) organizational resources. From a practical point of view, it offers sound reasons for organisations to commit to spending on renewable energy and sustainability projects. The positive changes for the direct and indirect impacts on the employees' productivity show that such investments can indeed pay off even in terms that are not as easily tied to the environment. These findings should be useful for companies to justify and focus on the sustainability-related projects and activities. From the perceived primarily sociological view, the paper outlines the scope, where organisations may positively impact sustainability as well as enhance their organisational performance. The entrepreneurial actions guided by business needs combined with societal wants may enhance the creation of sustainable business solutions as well as business practices that may have indirect positive impacts to the society and other stakeholders. The mediating role of workplace sustainability in the relationships between renewable energy adoption, organizational culture, and employee productivity underlines the need to develop the IT-SC integration approaches for the sustainability considerations that take into account the technological, as well as, cultural aspects. By using all these approach organizations can be assured of gaining optimum outcome on their sustainability practices on different organizational performances.

6.2. Limitations and Future Study

While this study provides valuable insights, it is important to acknowledge its limitations. Due to cross-sectional design, the causal relations could not be well established and future large-scale longitudinal studies can be more conclusive regarding the directionality of the pathways. These findings are bound to the context of information technology and Jordanian firms, which may reduce the scope of generalizing the results to other settings. This is further affirmed by the fact that future studies should be conducted in different cultural and industrial environments in order to determine whether the results are comparable. As well, measurements used in the study were based on self-reports, which can be a source of common method variance. It is also suggested, for more rigorous research in the future, to include measures of quantitative employee performance and of the companies' levels of utilizing renewable energy to increase the reliability of the data found. The study also failed to consider the moderation variables that may have an impact on the indicated relations. Further research might look closer at the moderating factors that may influence the studied relationships including organization's size, leadership, or pressures coming from the external environment.

REFERENCES

Ababneh, O.M.A. (2021), How do green HRM practices affect organizational sustainability? An empirical study in Jordan. Journal of Sustainable Development, 14(3), 233-245.

Al-Ghazali, B.M., Afsar, B. (2021), Green human resource management and employees' green creativity: The roles of green behavioral intention and individual green values. Journal of Cleaner Production, 289, 125774.

Al-Ghazali, B.M., Sohail, M. (2022), Impact of workplace sustainability on employee productivity: Evidence from Jordan's IT sector. Sustainability, 14(3), 1589.

Al-Ghwayeen, W.S., Abdallah, A.B. (2018), Green supply chain management and export performance: The mediating role of environmental performance. Journal of Manufacturing Technology Management, 29(7), 1233-1252.

AlKhawaldeh, B.Y.S., Al-Smadi, A.W., Ahmad, A.Y., El-Dalahmeh, S.M., Alsuwais, N., Almarshad, M.N. (2024), Macroeconomic determinants of renewable energy production in Jordan. International Journal of Energy Economics and Policy, 14(3), 473-481.

Almarshad, M.N., Alwaely, S.A., Alkhawaldeh, B.Y., Al Qaryouti, M.Q.H., Ahmad, A.Y.B. (2024), The mediating role of energy efficiency measures in enhancing organizational performance: Evidence from the manufacturing sector in Jordan. International Journal of Energy Economics and Policy, 14(4), 360-370.

Al-Nashmi, M.M., Zien Almohammedali, S.A. (2021), The impact of organizational culture on employee productivity: Evidence from Jordanian telecom companies. Management Science Letters, 11(2), 315-326.

Al-Omari, K., Al-Masry, A. (2023), The mediating role of workplace sustainability in the relationship between green organizational initiatives and employee innovative behavior in Jordanian IT firms. Journal of Cleaner Production, 380, 135031.

Alonso-Almeida, M.D.M., Buil-Fabregà, M., Bagur-Femenías, L. (2017), Sustainable development in SMEs: The effect of entrepreneurial orientation on their business performance. Corporate Social Responsibility and Environmental Management, 24(6), 543-559.

Al-Shukri, K.S. (2024), Strategic information planning and performance of SMEs: A structural equation modelling approach. Human Systems Management, 43(3), 341-354.

Alrowwad, A., Abualoush, S.H., Masa'deh, R. (2020), Innovation and intellectual capital as intermediary variables among transformational leadership, transactional leadership, and organizational performance. Journal of Management Development, 39(2), 196-222.

Alvesson, M., Sveningsson, S. (2016), Changing Organizational Culture: Cultural Change Work in Progress. London: Routledge.

Al-Zalabani, A., Nenuwa, O. (2021), Renewable energy adoption and corporate sustainability: A study of firms in Jordan. Renewable Energy, 168, 1246-1258.

Aragón-Correa, J.A., Marcus, A.A., Vogel, D. (2020), The effects of mandatory and voluntary regulatory pressures on firms' environmental strategies: A review and recommendations for future research. Academy of Management Annals, 14(1), 339-365.

Baharum, H., Ismail, A., Awang, Z., McKenna, L., Ibrahim, R., Mohamed, Z., Hassan, N.H. (2023), The study adapted instruments based on Confirmatory Factor Analysis (CFA) to validate measurement models of latent constructs. International Journal of Environmental Research and Public Health, 20(4), 2860.

Bansal, P., Song, H.C. (2019), Similar but not the same: Differentiating corporate sustainability from corporate responsibility. Academy of Management Annals, 11(1), 105-149.

Barney, J. (1991), Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120.

Benn, S., Edwards, M., Williams, T. (2021), Organizational Change for Corporate Sustainability. London: Routledge.

Bentley, T., Green, N., Tappin, D., Haslam, R. (2021), State of science: the future of work-ergonomics and human factors contributions to the field. Ergonomics, 64(4), 427-439.

Cameron, K.S., Quinn, R.E. (2019), Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework. United States: John Wiley & Sons.

Chatman, J.A., Caldwell, D.F., O'Reilly, C.A., Doerr, B. (2018), Parsing organizational culture: How the norm for adaptability influences the relationship between culture consensus and financial performance in high-technology firms. Journal of Organizational Behavior, 35(6), 785-808.

Chen, Y., Chang, C., Lin, Y. (2018), Green transformational leadership and green performance: The mediation effects of green mindfulness and green self-efficacy. Sustainability, 10(6), 1953.

Chen, Y., Li, P. (2018), Enhancing green supply chain performance: The roles of green supply chain collaboration and green human resource management. Sustainability, 10(7), 2341.

Cohen, J. (1988), Statistical Power Analysis for the Behavioral Sciences. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates.

Conference Board. (2021), Global Productivity Growth Remains Weak, Extending Slowing Trend. United States: Conference Board.

Dawes, J. (2008), Do data characteristics change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales. International Journal of Market Research, 50(1), 61-77.

Delmas, M.A., Pekovic, S. (2018), Organizational configurations for sustainability and employee productivity: A qualitative comparative analysis approach. Business and Society, 57(1), 216-251.

Deloitte. (2020), Global Human Capital Trends. United Kingdom: Deloitte.

Denison, D.R., Mishra, A.K. (1995), Toward a theory of organizational culture and effectiveness. Organization Science, 6(2), 204-223.

Donaldson, T., Preston, L.E. (1995), The stakeholder theory of the corporation: Concepts, evidence, and implications. Academy of Management Review, 20(1), 65-91.

Dumont, J., Shen, J., Deng, X. (2017), Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. Human Resource Management, 56(4), 613-627.

Eccles, R.G., Ioannou, I., Serafeim, G. (2020), The impact of corporate sustainability on organizational processes and performance. Management Science, 60(11), 2835-2857.

Fey, C.F., Denison, D.R. (2020), Organizational culture and effectiveness: Can American theory be applied in Russia? Organization Science, 14(6), 686-706.

Fornell, C., Larcker, D.F. (1981), Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39-50.

Fraihat, B.A.M., Ahmad, A.Y.B., Alaa, A.A., Alhawamdeh, A.M., Soumadi, M.M., Aln'emi, E.A.S., Alkhawaldeh, B.Y.S. (2023), Evaluating technology improvement in sustainable development goals by analysing financial development and energy consumption in Jordan. International Journal of Energy Economics and Policy, 13(4), 348-355.

Fraihat, B.A.M., Yaseen, H., Samarah, M.R., Alkhawaldeh, B.Y., Buraik, O. (2023), Trade openness, energy consumption, and financial development influence on Jordan's economy: Evidence from ARDL and non-granger causality test approach. International Journal of Energy Economics and Policy, 13(6), 659-665.

Fraihat, B.A.M., Zowid, F., Buraik, O., Al-Shakri, K.S., Alkaraky, S.N., Aln'emi, E.A.S. (2024), The impact of entrepreneurship, sustainable intellectual capital and environmental supply chain management practices on Jordanian firm performance. Kurdish Studies, 12(1), 4286-4301.

Freeman, R.E. (1984), Strategic Management: A Stakeholder Approach. Boston: Pitman.

Galpin, T., Whitttington, J.L., Bell, G. (2018), Is your sustainability strategy sustainable? Creating a culture of sustainability. Corporate Governance: The International Journal of Business in Society, 15(1), 1-17.

Geisser, S. (1974), A predictive approach to the random effect model. Biometrika, 61(1), 101-107.

Gond, J.P., El Akremi, A., Swaen, V., Babu, N. (2017), The psychological microfoundations of corporate social responsibility: A person-centric systematic review. Journal of Organizational Behavior, 38(2), 225-246.

Hair, J.F., Risher, J.J., Sarstedt, M., Ringle, C.M. (2019), When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2-24.

Hart, S.L. (1995), A natural-resource-based view of the firm. Academy of Management Review, 20(4), 986-1014.

Hartnell, C.A., Ou, A.Y., Kinicki, A. (2011), Organizational culture and organizational effectiveness: A meta-analytic investigation of the competing values framework's theoretical suppositions. Journal of Applied Psychology, 96(4), 677-694.

Haugh, H.M., Talwar, A. (2020), Linking social entrepreneurship and social change: The mediating role of empowerment. Journal of Business Ethics, 133(4), 643-658.

Henseler, J., Ringle, C.M., Sarstedt, M. (2015), A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115-135.

Hoffman, A.J. (2018), The next phase of business sustainability. Stanford Social Innovation Review, 16(2), 34-39.

HP. (2019). HP Workforce Sustainability Survey. United States: HP.

Information and Communications Technology Association of Jordan (int@j). (2021), Jordan ICT & ITES Sector Statistics 2020. Available from: https://intaj.net/studies-and-reports

Information and Communications Technology Association of Jordan (int@j). (2022), Jordan ICT & ITES Sector Statistics 2021. Available from: https://intaj.net/studies-and-reports

International Labour Organization. (2022), World Employment and Social Outlook 2022: Greening with Jobs. Switzerland: International Labour Organization.

Ismaeel, B., Alkhawaldeh, B.Y., Alafi, K.K. (2023), The role of marketing intelligence in improving the efficiency of the organization: An empirical study on Jordanian hypermarkets. Journal of Intelligence Studies in Business, 13(2), 32-42.

Jiang, W., Zhao, X., Ni, J. (2017), The impact of transformational leadership on employee sustainable performance: The mediating role of organizational citizenship behavior. Sustainability, 9(9), 1567.

Jordan Department of Statistics. (2021), Annual Statistical Yearbook 2020. Jordan: Jordan Department of Statistics.

Jordan Green Building Council. (2021), Sustainability in Jordan's IT Sector: A Comprehensive Survey. [Report not Publicly Available].

Jordan Investment Commission. (2022), ICT Sector Profile. Available from: https://www.jic.gov.jo/en/ict-sector

Jordan Strategy Forum. (2021), Sustainability in Jordanian Businesses: Challenges and Opportunities. Jordan: Jordan Strategy Forum.

Katsaros, K.K., Tsirikas, A.N., Bani, S.N. (2021), The impact of leadership on firm financial performance: The mediating role of employees' readiness to change. Leadership and Organization Development Journal, 35(5), 344-362.

Kim, Y.J., Kim, W.G., Choi, H.M., Phetvaroon, K. (2019), The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. International Journal of Hospitality Management, 76, 83-93.

Koopmans, L., Bernaards, C.M., Hildebrandt, V.H., de Vet, H.C., van der Beek, A.J. (2014), Construct validity of the individual work performance questionnaire. Journal of Occupational and Environmental Medicine, 56(3), 331-337.

Krejcie, R.V., Morgan, D.W. (1970), Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607-610.

Linnenluecke, M.K., Griffiths, A. (2010), Corporate sustainability and organizational culture. Journal of World Business, 45(4), 357-366.

Linnenluecke, M.K., Griffiths, A. (2017), The Climate Resilient Organization: Adaptation and Resilience to Climate Change and Weather Extremes. United Kingdom: Edward Elgar Publishing.

Lu, X., Jacob, D.J., Zhang, Y., Shen, L., Sulprizio, M.P., Maasakkers, J.D., Varon, D.J., Qu, Z., Chen, Z., Hmiel, B., Parkerk, R.J., Boesch, H., Wang, H., He, C., Fan, S. (2023), Observation-derived 2010-2019 trends in methane emissions and intensities from US oil and gas fields tied to activity metrics. Proceedings of the National Academy of Sciences, 120(17), e2217900120.

Luu, T.T. (2019), Green human resource practices and organizational citizenship behavior for the environment: The roles of collective green crafting and environmentally specific servant leadership. Journal of Sustainable Tourism, 27(8), 1167-1196.

Mathur, A., Srivastava, S. (2022), Sustainability orientation and financial performance: The mediating effect of innovation performance. Journal of Cleaner Production, 297, 126665.

Nikpour, A. (2017), The impact of organizational culture on organizational performance: The mediating role of employee's organizational commitment. International Journal of Organizational Leadership, 6, 65-72.

O'Brien, R.M. (2007), A caution regarding rules of thumb for variance inflation factors. Quality and Quantity, 41(5), 673-690.

Obeidat, B.Y., Tarhini, A., Masa'deh, R.E., Aqqad, N.O. (2018), The impact of intellectual capital on innovation via the mediating role of knowledge management: A structural equation modelling approach. International Journal of Knowledge Management Studies, 8(3-4), 273-298.

Ones, D.S., Dilchert, S. (2022), Environmental sustainability at work: A call to action. Industrial and Organizational Psychology, 5(4), 444-466.

Paillé, P., Chen, Y., Boiral, O., Jin, J. (2014), The impact of human resource management on environmental performance: An employee-level study. Journal of Business Ethics, 121(3), 451-466.

Pham, N.T., Tučková, Z., Jabbour, C.J.C. (2020), Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. Tourism Management, 72, 386-399.

PwC Middle East. (2021), Middle East Technology Survey 2021. Available from: https://www.pwc.com/m1/en/publications/middle-east-technology-survey.html

Ramos, A., Gago, A., Fernández, X., Quintás, M.A. (2020), The role of renewable energy in the energy transition and its effects on carbon emissions. Energies, 13(23), 6255.

REN21. (2021), Renewables 2021 Global Status Report.

Rupp, D.E., Shao, R., Skarlicki, D.P., Paddock, E.L., Kim, T.Y., Nadisic, T. (2021), Corporate social responsibility and employee engagement: The moderating role of CSR-specific relative autonomy and individualism. Journal of Organizational Behavior, 39(5), 559-579.

Schein, E.H. (2017), Organizational Culture and Leadership. 5th ed. United States: John Wiley & Sons.

Schein, E.H., Schein, P.A. (2019), The Corporate Culture Survival Guide. United States: John Wiley & Sons.

Shang, K., Lu, C., Li, E. (2019), A taxonomy of green supply chain management capability among electronics-related manufacturing firms in Taiwan. Journal of Environmental Management, 91(5), 1218-1226.

Sharma, S., Rani, L. (2021), Corporate sustainability and firm performance: A study of Indian companies. Journal of Cleaner Production, 304, 126968.

Singh, S.K., Del Giudice, M., 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.

Sousal, R., Aguiar-Quintana, T., Araujo-Cabrera, Y. (2021), Corporate sustainability and organizational culture: A systematic review. Sustainability, 13(2), 842.

Stone, M. (1974), Cross-validatory choice and assessment of statistical predictions. Journal of the Royal Statistical Society: Series B (Methodological), 36(2), 111-133.

Tariq, S., Jan, F.A., Ahmad, M.S. (2016), Green employee empowerment: A systematic literature review on state-of-art in green human resource management. Quality and Quantity, 50(1), 237-269.

United Nations Development Programme (UNDP). (2022), Digital Skills Gap in Jordan: Challenges and Opportunities. [Report not Publicly Available].

Vardanyan, H. (2020), The impact of organizational culture on information technology companies' performance. Journal of Contemporary Management Issues, 25(2), 195-212.

Warrick, D.D. (2017), What leaders need to know about organizational culture. Business Horizons, 60(3), 395-404.

Zhang, Y., Wang, Z. (2022), Organizational culture and environmental performance: The mediating effect of green innovation. Sustainability, 13(8), 4380.

Zhu, Q., Sarkis, J., Lai, K.H. (2019), Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. Journal of Purchasing and Supply Management, 19(2), 106-117.