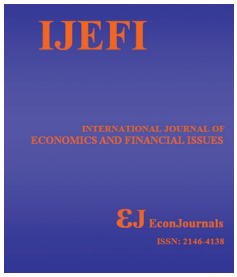

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Sustainable Procurement Practices and Organisational Performance of Small and Medium Enterprises in Ghana

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ABSTRACT

This study empirically examines the predictive relationship between sustainable procurement practices and its dimensions (staff competence, sustainable IT infrastructure and top management support) and the performance of Small and Medium Enterprises (SMEs). Using the explanatory research design, structured questionnaires were administered to 317 managers and owners of selected SMEs. The Structured equation modeling (SEM) via Smart PLS 4.0 was used for analyzing and testing the hypotheses. The findings show that top management support and sustainable IT infrastructure have moderately significant and positive impact on SMEs performance whilst staff competence did not have any statistically significant effect on SMEs performance. Even though staff competence did not have a statistically significant effect on SME performance in this context, managers and owners should not avoid training and developing staff competence as it may translate in affecting other aspects of business operation not accounted for by SME performance. Through the lens of the institutional theory, resource-based theory and the theory of altruism, the study proves the predictive relationship between sustainable procurement practices and small and medium enterprises in Ghana.

Keywords: Organizational Performance, Sustainable Procurement Practices, Staff Competence, Sustainable IT Infrastructure, Top Management Support, SMEs
JEL Classification: H57

1. INTRODUCTION

In the International Business Machine (IBM) Global Business Service Report (as cited in Hisam et al., 2022), sustainable procurement is seen as being based on the idea that organizations can concurrently benefit from elements of profitability, environment, and society accordingly. Events like the energy crises and the prevalent consumerist culture, which promotes a high demand for raw resources by both individuals and organizations, have often occurred throughout the years. Recycling and conservation efforts have taken center stage because of the dwindling availability of raw resources. Due to growing environmental concerns around the world, many businesses, including SMEs, are now considering sustainable practices in every aspect of their operations. These practices have also been regulated in many developed countries where codes of conduct, laws, and regulations have been imposed (Kassaneh et al., 2021). The Department for Environment, Food, and Rural Affairs (2006) is quoted by the Chartered Institute of Procurement and Supply (CIPS) (2014) as saying that sustainable procurement is a process whereby organizations meet their need for goods, services, works, and utilities in a way that achieves value for money on a whole life costing basis in terms of producing benefits for the organization, society, and the economy while minimizing environmental harm.

Small and Medium Enterprises (SMEs) are non-subsidiary, autonomous businesses with fewer employees than a specific threshold (Maticiuc, 2018). Despite differences between national systems, 250 employees appear to be the most typical upper limit. This is also the maximum allowed within the European Union. SMEs also have a financial component to them. The maximum yearly turnover for SMEs is EUR 40 million, and/or the maximum

balance-sheet valuation is EUR 27 million (Maticiuc, 2018). It is nearly universally acknowledged that SMEs are crucial to Ghana's and Africa's social and economic growth. SME promotion is a top priority in the policy agendas of the majority of African nations since it is well-known throughout the continent. Without question, SMEs serve as the breeding ground for the next wave of African entrepreneurs. The United Nations Industrial Development Organization (UNIDO) estimates that SMEs make up more than 90% of all officially registered enterprises in Africa.

In an effort to increase the rate of growth in an economy like ours, many policymakers have made small and medium-sized businesses one of their top priorities. These businesses have been recognized as the key to achieving the growth goals of emerging middle-income nations like our country. A sizable share of the urban labor population receives employment and income from SMEs, which also contribute significantly to overall output (Adjabeng and Osei, 2022). According to Samuel et al. (2014), SMEs in many developing nations employ roughly 22% of the adult population. Additionally, SMEs frequently use locally available raw resources that might otherwise go unused and generate less foreign cash. They activate and make use of previously inactive financial resources, such as family savings. SMEs actively foster local expertise via their operations (Adjabeng and Osei, 2022) and the recruitment methods (Carbonell et al., 2020).

According to certain research, an organization's sustainability may be measured on three different levels: Compliance with legal obligations, cost and waste reduction, risk mitigation, and brand and reputation protection (Settembre-Blundo et al., 2021). According to Mena et al. (2021), the practice of sustainable procurement has a number of advantages, including adding value to an organization's procurement and supply chain operations, enhancing the organization's brand, reducing waste, improving resource efficiency, and ensuring that costs and procedures are kept to a minimum and processes are more efficient. Chkanikova and Scroufe (2021) went on to show that, in some cases, sustainability also lowers the level of business risk. Economic outcomes, including profitability, liquidity, growth, and stock market success, have been the only metrics used to measure organizational performance across time (Hamann and Schiemann, 2021; Nassè, 2019).

According to Oyuke and Shale (2014), sustainable procurement procedures (SPP) are increasingly viewed as a crucial component of corporate governance that may enable businesses to advance their economic and social objectives. Sustainable procurement is a comprehensive viewpoint that unequivocally asserts that businesses must satisfy stakeholders' requirements, such as social responsibility, in addition to those of their shareholders in order to maintain their long-term gains and advancement (Ehrgott et al., 2011). For instance, Mazharul Islam and Alharthi (2020) observed that green supply chain management strategies have effectively assisted SMEs in cost reduction while maintaining high levels of customer satisfaction. While previous research stated that SPP is the primary instrument for organizational non-financial performance (Adams et al., 2014; Theron and Dowden, 2017), Sabegh et al., (2019) asserted that green supply chain management methods have helped SMEs in expanding market share and decreasing costs. While other research claimed that SPP had no direct influence on the financial performance of SMEs, the components of SPP have greatly enhanced SMEs' goodwill, brand image, and reputation, which has, in turn, benefited performance (Mazharul Islam and Alharthi, 2020).

However, contemporary academics are studying the idea of sustainable procurement, and the majority of them are examining the potential link between sustainable practices and the organizational success of SMEs (Yee et al., 2021). Alhadid and Abu-Rumman (2014) claimed that green innovation and green process development have a substantial influence on organizational performance. Even though there has been a great deal of study and knowledge regarding sustainable procurement in Ghana and around the globe, it has not yet been fully applied in the sense that Ghana's procurement processes still face a number of difficulties (Etse et al., 2021). Even though there has been a ton of research and information about sustainable procurement in Ghana and around the world, it appears that it has not been fully implemented given the numerous difficulties Ghanaian procurement practices face (Etse et al., 2021). Even in terms of fully implementing sustainable procurement, the majority of these studies were conducted in Western nations (Walker and Brammer, 2012; Etse et al., 2021), where their cultural background differs from that of Ghana.

However, unlike wealthy countries, many SMEs in developing countries have not yet completely implemented the idea of sustainable procurement (Oriade et al., 2021). Mensah (2015) identified a few major obstacles to ethical purchasing methods in Ghana's road sector: insufficient finance, a lack of staffing, logistical constraints, and political influence. To assess the impact of sustainable procurement on the performance of SMEs in Ghana, however, there is scant or no empirical evidence available (Afum et al., 2021).

Once more, the study's conclusions are vital because they will inform implementers and policymakers about the effect of sustainable procurement practices on the performance of SMEs in the Secondi-Takoradi Metropolitan Assembly and across Ghana. It will also assist individuals in positions of authority in comprehending the best approaches to deal with the challenges presented by the implementation of sustainable procurement. It will add to the body of information on the subject under study, help the literature to expand, and provide anybody interested in the topic a place to start.

The following sections of the study provide information on the literature review, research methodology, findings, analysis, conclusions, implications, and suggestions for further investigation.

2. LITERATURE REVIEW

2.1. Theoretical Perspective and Hypotheses Development

2.1.1. Staff competence and performance of SMEs

Blalock et al. (2006) offer an interpretation of competency as a combination of skills and attitude that significantly impacts job

performance and can be evaluated against accepted standards. Similarly, Mulder (2007) defines competency as the integrated set of knowledge, skills, and attitudes that characterize a professional's capabilities. Bhardwaj and Punia (2013) agree with this view, considering competency as a blend of knowledge and skills necessary for effective performance. It is increasingly recognized by organizations that human assets hold substantial value, prompting human resource managers to prioritize hiring the right individuals (Ong'ango, 2019). Competence can be understood as the ability to effectively fulfil a significant requirement while carrying out assigned tasks (Bell and Bryman, 2007). It encompasses the essential elements and fundamentals needed to meet the demands of specific responsibilities or assignments.

In their study, Nderitu and Ngugi (2014) identified the management of organizational performance as a means to drive an organization's progress towards its objectives within the business environment. This involves responding to crises, rectifying faulty systems, replacing ineffective management, and redefining achievable goals. These endeavours are facilitated through the implementation of monitoring techniques, performance evaluation systems, the presence of competent employees with well-defined goals, and the establishment of departments with clear and structured workflows. The adoption of sustainable procurement practices has garnered significant research attention due to its potential to enhance profitability and contribute to overall organizational performance (Silva and Nunes, 2022).

According to Flynn and Black (2011), the theory of altruism suggests that individuals possess an innate motivation to prioritize the well-being of others, even at their own expense. In the context of staff competence as a sustainable procurement practice, the theory of altruism supports the idea that organizations gain benefits by investing in the growth and training of their employees (Peprah et al., 2016). Scholars like Emile Durkheim and C. Daniel Batson, proponents of altruism, argue that acts of selflessness enhance social cohesion and cooperation, leading to positive outcomes for both individuals and organizations (Epps, 2012). Key principles of altruism encompass empathy, selflessness, and the belief that assisting others ultimately benefits the entire community (Feigin et al., 2014). When applied to staff competence in sustainable procurement, the theory of altruism suggests that organizations that prioritize employee development foster a culture of support and collaboration (Peprah et al., 2016; Xing and Starik, 2017). This, in turn, enhances job satisfaction, boosts employee engagement, and improves overall performance. Competent staff members are better equipped to make sustainable decisions, implement eco-friendly practices, and contribute to the success of the organization (Hwang and Ng, 2013).

The success and performance of organizations rely heavily on the skills and effectiveness of their employees, as emphasized by Osei and Ackah (2015). Nderitu and Ngugi (2014) highlight that the assessment of employee contributions to organizational performance in green procurement involves factors like years of experience and additional training. Their research reveals a positive correlation between staff competence and organizational performance in the manufacturing industry in Kenya. Specifically, a unit increase in staff competence in sustainable procurement results in a 0.477 improvement in organizational performance. Competent employees enhance a firm's potential for success by improving job efficiency and reducing waste, as noted by Macey (2006) and Forko and Lotar, (2012). Similarly, Awad (2018) conducted a study on human resource competencies in the UAE and found that they positively impact firm performance. Additionally, Ogaji (2019) investigation on employee competences and business performance in selected hotels demonstrated a positive relationship between employee competence and business performance. Therefore, we hypothesize:

H_1. Staff competence significantly influences performance of SMEs.

2.2. Top management Support and Performance

TMS, as defined by King'oo (2017), refers to the active involvement of top-level executives in crucial organizational programs. This involvement entails translating policies into actionable goals, objectives, strategies, and projects. Shatat (2015) asserts that top management support is a fundamental factor for success in any organization. The influence of top managers plays a key role in the success of projects and strategies. Wanyoike (2016) explains that the effective implementation of quality initiatives relies on the commitment of top management. It is the responsibility of management to define the mission, vision, and goals that foster a culture of quality and establish shared values, ultimately leading to high performance (Araslı and Baradarani, 2014). Nyakio and Wanjau (2014) describe top management support as the guidance provided by senior managers in shaping organizational values, directions, and performance expectations.

According to Farooq et al. (2021), organizational performance is evaluated using both subjective and objective measures. The extent to which an organization achieves its goals and objectives can be seen as either complete or partial, depending on the specific benchmarks set by each organization. When viewed objectively, performance can be assessed based on profitability, which applies to both public and private institutions. On the other hand, performance can also be assessed subjectively using various dimensions, such as adherence to legal requirements, the overall value generated, the impact on society, and ethical business practices (Lee et al., 2021). These subjective measures of performance encompass factors beyond financial outcomes.

The institutional theory suggests that organizations are shaped by societal norms, values, and pressures, influencing their practices and behaviours (Bruton et al., 2010). When considering top management support as a sustainable procurement practice, the institutional theory supports the idea that organizations with strong backing from top management tend to perform better in terms of sustainability (Dubey et al., 2015). Advocates of the institutional theory, such as Meyer and Rowan, argue that organizations conform to institutional expectations to gain legitimacy and ensure survival (Colwell and Joshi, 2013). Key principles of the institutional theory include isomorphism, which describes the tendency for organizations to adopt similar practices to align with institutional norms, and various pressures like coercive, mimetic, and normative forces that shape organizational behaviour (Claeyé and Jackson,

2012; Kauppi, 2013). In the context of top management support in sustainable procurement, the institutional theory suggests that when senior leaders actively promote and endorse sustainable practices, they signal the significance of sustainability to the organization and external stakeholders (Butler, 2011; Ma et al., 2021). This fosters legitimacy, enhances reputation, and encourages employees to align their behaviours with sustainable objectives. Moreover, it cultivates a culture of responsibility and accountability, leading to improved organizational performance in terms of sustainability outcomes (Ma et al., 2021).

Several studies have emphasized the significance of top management in organizational outcomes (Oke et al., 2009; Chahine and Goergen, 2013; Agbim 2013). Leadership plays a critical role in implementing sustainable procurement practices. According to Alshebli (2016), effective change management is essential for creating and maintaining sustainability within organizations. Alshebli highlights the role of leadership in driving this change by restructuring existing frameworks and emphasizing the importance of implementing new strategies for both employees and managers. To establish a sustainable business, it is vital for leaders to be accountable and responsive to both internal and external stakeholders (Alshebli, 2016). Leaders must acknowledge their social and environmental responsibilities alongside their financial obligations (Hind et al., 2009). Consequently, we hypothesize:

H_2. Top management support significantly influences performance of SMEs.

2.3. Sustainable IT Infrastructure and Performance

The concept of sustainable IT infrastructure encompasses various operational perspectives and has been defined and examined by researchers. Melville (2010) focuses on the environmental aspect of IT systems, highlighting the importance of energy efficiency, reducing carbon footprint, and responsible management of electronic waste. Leismann et al. (2013) also consider the economic implications, emphasizing the potential for cost savings through energy optimization, efficient resource utilization, and prolonging the lifespan of IT equipment. Moreover, there is a social dimension that considers the impact of IT infrastructure on communities and society, emphasizing equal access to technology and promoting digital inclusion (Jaeger et al., 2012). Conceptual reviews of sustainable IT infrastructure explore its broader implications for organizational performance (Pedersen et al., 2018). These reviews stress the alignment between sustainability goals and overall business objectives, highlighting the potential for enhanced operational efficiency, improved corporate reputation, and increased market competitiveness (Grewatsch and Kleindienst, 2017).

Organizational performance is a complex and multifaceted concept that is crucial for the success of a business. It involves the effective implementation of strategies to achieve institutional objectives and maintain competitiveness in the market (Randeree and Al Youha, 2009), as well as good leadership, adaption and strategic positioning (Carbonell and Nassè, 2021). Different authors have provided various descriptions of firm performance. According to Akgün et al. (2020), firm performance is associated with achieving a high level of efficiency, which ensures the organization's market presence. Zhang et al. (2008) define organizational performance as the degree of success in attaining the organization's goals. In an institution, performance measurement involves quantifying the outcomes of various activities carried out within the organization (Juma and Okibo, 2016). When measuring performance, it is important to understand the relationship between goals, performance measures, organizational outcomes, and the significance of these performance metrics.

The theory of resource-based view suggests that an organization's sustainable competitive advantage arises from its unique and valuable resources and capabilities (Brahma and Chakraborty, 2011). When considering sustainable IT infrastructure as a sustainable procurement practice, this theory supports the idea that organizations can improve their performance by leveraging sustainable IT resources (Guang Shi et al., 2012; Khanra et al., 2022). Advocates of the resource-based view, such as Barney and Wernerfelt, argue that resources that are valuable, rare, difficult to imitate, and non-substitutable (VRIN) can lead to sustained competitive advantage (Hinterhuber, 2013). Key principles of this theory include resource heterogeneity, resource immobility, and the significance of firm-specific resources. In the context of sustainable IT infrastructure, the resource-based view suggests that organizations that invest in sustainable IT resources, such as energy-efficient hardware and environmentally responsible practices, gain a competitive edge (Barney et al., 2012; Anthony Jr., 2019). Sustainable IT infrastructure can result in cost savings through energy optimization, reduced carbon emissions, and improved operational efficiency. Furthermore, it can enhance the organization's reputation, attract environmentally conscious customers, and contribute to long-term success (Kumar and Buyya, 2012; Khahro et al., 2021).

De Brito et al., (2008) conducted a study that empirically demonstrated the importance of leveraging recent technological advancements and highly skilled labour to achieve product or process innovation. They emphasized the significance of both internal and external integration, fostering improved relationships and effective management of information and communication technology (ICT). Petrini and Pozzebon (2009) further highlighted the value of an ICT system as a reliable channel for communication and information diffusion. They emphasized its role in facilitating the monitoring and evaluation of business performance, ensuring information integrity, and promoting knowledge sharing among collaborators regarding social and environmental initiatives. This, in turn, establishes a feedback mechanism that reinforces socially responsible behavior within organizations. In their work on "Environmentally Sustainable ICT: Developing Corporate Capabilities and an Industry-Relevant is Research Agenda," Elliot and Binney (2008) also acknowledged the significant contributions of ICT to business innovation, wealth generation, and the mitigation of environmental degradation. From these assertions and facts, we may make the following hypothesis:

H_3. Sustainable IT infrastructure significantly influences performance of SMEs.

2.4. Conceptual Framework

The conceptual framework, explaining the interrelationships among the constructs in the context of the study is presented in

Figure 1. The formulation of the conceptual model is influenced by the nature of proposed hypotheses backed by the supporting theories purported in the context of the study.

3. RESEARCH METHODS

3.1. Research Design, Sample and Data Collection

The study was quantitative and predictive in nature; hence, the explanatory research design was applied. The explanatory research design was primarily employed because it helped the researcher to explicate and establish a clear causal relationship between the exogenous and endogenous latent variables (Zikmund et al., 2012). The simple random sampling technique was used to collect data an administered structured questionnaire through the drop and pick method to 332 managers and owners of SMEs of which 317 successfully responded giving a response rate of 95.51%. The sample size was statistically estimated using Yamane (1973) sample size formula. Table 1 below presents the demographic characteristics of the respondents.

3.2. Demographic Characteristics of Data

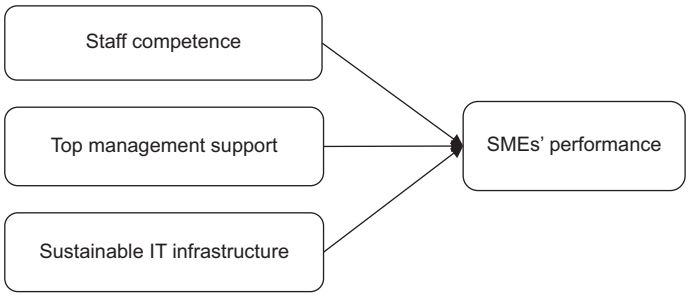
The study included a total of 317 participants, with 54.3% being male and 45.7% being female. This gender distribution reflects a relatively balanced representation of both male and female participants. The participants' age distribution shows that the majority (53.6%) fall within the age range of 18-30 years. The next significant group comprises individuals aged 31-50 years (39.7%), and a smaller percentage (6.6%) are above 50 years old. This suggests a relatively diverse age distribution among the participants. In terms of educational attainment, the data shows that the participants have varied levels of education. The highest percentage of participants (46.4%) holds a secondary/vocational education, followed closely by those with a tertiary education (43.2%). A smaller proportion (10.4%) reported having a basic educational level. The study participants were engaged in different types of SMEs. The largest group was involved in manufacturing (48.9%), followed by trading (28.4%), and the smallest group was engaged in service provision (22.7%).

Table 1: Demographic characteristics

Variables	Categories	Frequency	Percentage
Sex	Male	172	54.3
	Female	145	45.7
Age range	18-30 years	170	53.6
	31-50 years	126	39.7
	Above 50 years	21	6.6
Highest educational level	Basic	33	10.4
	Secondary/Vocational	147	46.4
	Tertiary	137	43.2
Type of SME	Trading	90	28.4
	Manufacturing	155	48.9
	Service provision	72	22.7

Source: Fieldwork, 2023

Figure 1: Conceptual framework of the study



Source: Authors' constructed

3.3. Measurements

Questionnaires were the primary data collection tools for the study. The questionnaire was carefully designed based on extensive literature review and suggestions from industrial experts. All indicators related to the latent variables were compiled and gleaned from prior validated studies and in line with the literature review. A total of 30 indicators from 4 main variables (Staff Competence, Top Management Support, Sustainable IT Infrastructure and SME performance) were used for the questionnaire. The staff competence scale which contained 7 items was adopted from Mukuru and Moronge, (2018). Also, the Top management Scale which contained 7 items was adopted from Mukuru and Moronge, (2018). The sustainable IT infrastructure scale which contained 6 items was adopted from Mcobrein and Ackah, (2019) and lastly, the SME performance scale which contained 10 items was adopted from Oteki et al., (2017).

3.4. The Analytical Tool

The statistical analysis for the study was conducted using Smart PLS version 4 and partial least square structural equation modelling (PLS-SEM). PLS-SEM is one of the most extensively recognised and utilised analytic techniques in business research, particularly in the domains of operations management and supply chain management (Peng and Lai, 2012). PLS-SEM was utilised primarily due to its suitability for analysing complicated prediction relationships. Several researchers (Bodoff and Ho, 2016; Hair et al., 2017) argued that PLS-SEM is the most appropriate predictive analytical tool for explanatory studies (as in this study) because it measures the degree to which one part of a given model accurately predicts the values of the other parts of the research model. In contrast to other covariance-based analytical methods, PLS-SEM is regarded as being exceptionally resilient when dealing with reflecting (as in this study) and formative models. The model was estimated using a 2-tailed significance level and at least 5000 bootstraps based on 288 instances. The model was designed and modelled reflectively using the repeated indicator approach, and it was evaluated using the two-stage model evaluation procedure (Becker et al., 2023).

The data's dependability was tested using rho A (0.7) and composite reliability (0.7). Using the AVE (0.5), convergence validity was assessed. Using the HTMT ratio, discriminant validity was assessed. Common method bias measured with the single factor approach of Harman (variance 50%, % of variance). Key indices evaluated in the evaluation of the structural model are as follows: The indicator's dependability was evaluated using factor loading (>0.7; P = 0.05). Along with the coefficient of determination, the path coefficient with the associated effect size (f2 above 0.35 [strong], 0.15 [moderate], and 0.02 [weak]) was

Table 2: Construct reliability and validity

Variables	Cronbach's Alpha	rho_A	Composite reliability	Average variance extracted (AVE)
SMEs performance	0.596	0.613	0.787	0.554
Staff competence	0.729	0.751	0.827	0.545
Sustainable IT infrastructure	0.734	0.735	0.834	0.556
Top management support	0.675	0.675	0.803	0.505

Source: Fieldwork, 2023

Table 3: Heterotrait-Monotrait ratio

Variables	SMEs performance	Staff competence	Sustainable IT infrastructure
Staff competence	0.541		
Sustainable IT infrastructure	0.841	0.677	
Top management support	0.790	0.940	0.731

Source: Fieldwork, 2023

Table 4: Multicollinearity statistics

	Constructs	VIF
IT1	ICT equipment are procured based on green procurement policies and standards in this enterprise	1.279
IT4	This institution can easily recruit employees using the online system	1.467
IT5	My company purchases products, which have recycling content	1.623
IT6	My company frequently trains staff on how to use green procurement ICT infrastructure	1.390
MSO4	Top management is at the forefront to initiate a culture of quality in the organization's sustainable procurement process	1.410
MSo1	Top management is committed to staff development and career enhancement in sustainable procurement	1.334
MSo5	Top management makes efforts to standardize the sustainable supply chain processes that enhance quality in the organization	1.286
MSo7	Top management is committed to staff development and career enhancement in sustainable procurement	1.172
PF3	Standardizes purchasing process across the organization	1.332
PF4	Reduces administrative cost with better effectiveness	1.205
PF8	Reduces errors in procurement processes	1.163
SCo1	The workforce has been provided with external guidance about the implementation of procurement practices in SMEs	1.267
SCo3	The organization staff has been trained on the implementation of procurement practices in SMEs	1.583
SCo4	The staff have adequate skills and competencies in the implementation of procurement practices in SMEs	1.390
SCo7	My enterprise does a regular assessment on staff competence of green procurement	1.443

Source: Fieldwork, 2023

Table 5: Inner VIF

Variables	SMEs performance
Staff competence	1.813
Sustainable IT infrastructure	1.439
Top management support	1.909

Source: Fieldwork, 2023

examined (r2 above 0.67 [substantial], 0.33 [moderate] and 0.19 [weak]).

3.5. Common Method Bias

The common method bias test is an exploratory factor analysis (EFA) that evaluates all observed variables; if a single factor explains a value equal to or more than 0.50 (i.e., 50%) of the cumulative variance among measurements, then common method bias exists (Podsakoff et al., 2003). To confirm the absence of common technique bias, Herman's one-factor test (Herman and Lent, 1976) was utilised.

4. RESULTS

The hypotheses were tested via the reflective model configuration to examine how changes in the sustainable procurement practices (staff competence, sustainable IT infrastructure and top management support) caused changes, if any, in the performance of the SMEs. With the two stage-model evaluation process, the measurement model was first evaluated before the structural model test for significance was carried out.

4.1. Construct Reliability and Validity

On Table 2 above, the internal consistency for the constructs was measured with the Cronbach's alpha and the data for the constructs were satisfactorily reliable (CA>0.7). The rho_a scores proved the constructs were reliably measured given the quality of the primary data gathered with the respective scales (rho_a >0.7) even though SMEs performance and top management support were slightly lower. Composite reliabilities for the constructs were satisfactory (CR>0.7). Convergent validity for the constructs were adequate and satisfactory (AVE>0.5).

4.2. Discriminant Validity

On Table 3 above, discriminant validity results prove there were no problem of discriminant validity for all the constructs (HTMT scores<1). This proves that there is no threat of discriminant validity.

4.3. Collinearity Statistics

There were no threats of multicollinearity on Table 4 for the estimated reflective model (Outer VIF <5).

4.4. Common Method Bias

In Table 5, there is no threat of common method bias in the estimated model (Inner VIF <5). This feat is probably the ex-ante principles that were observed to minimize the occurrence of this particular threat. The clue from this finding is that the participants

Table 6: Outer loadings

Constructs	Loading	T Statistics	P-values
IT1 <- Sustainable IT infrastructure	0.695	22.418	0.000
IT4 <- Sustainable IT infrastructure	0.746	22.139	0.000
IT5 <- Sustainable IT infrastructure	0.787	31.724	0.000
IT6 <- Sustainable IT infrastructure	0.753	25.016	0.000
MSO4 <- Top management support	0.732	20.340	0.000
MSo1 <- Top management support	0.708	18.981	0.000
MSo5 <- Top management support	0.704	14.971	0.000
MSo7 <- Top management support	0.698	13.639	0.000
PF3 <- SMEs performance	0.828	40.092	0.000
PF4 <- SMEs performance	0.676	15.297	0.000
PF8 <- SMEs performance	0.720	20.987	0.000
SCo1 <- Staff competence	0.774	20.928	0.000
SCo3 <- Staff competence	0.755	17.793	0.000
SCo4 <- Staff competence	0.714	16.402	0.000
SCo7 <- Staff competence	0.708	15.823	0.000

Source: Fieldwork, 2023

Table 7: Path coefficient

Variables	Beta	f^2	q^2	T statistics	P-values
Staff competence -> SMEs performance	−0.035	0.001	0.000	0.566	0.571
Sustainable IT infrastructure -> SMEs performance	0.406	0.186	0.078	8.197	0.000
Top management support -> SMEs performance	0.327	0.091	0.032	5.395	0.000

Source: Fieldwork, 2023

Table 8: Coefficient of determination

Variables	R Square	R Square adjusted
SMEs performance	0.383	0.377

Source: Fieldwork, 2023

actually digested the content of the questionnaire, understood it and actually responded to the items in ways that reflected their opinions and attitudes on the items.

4.5. Indicator Reliability

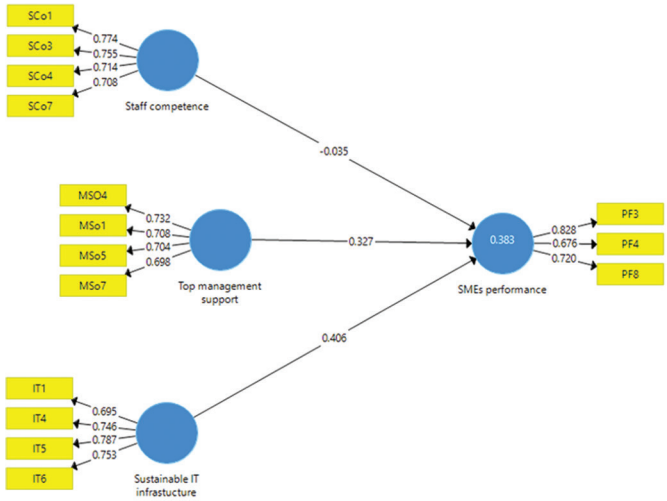
In Table 6, all the indicators reliably measured the constructs they purported to measure and were declared significant ($P < 0.05$).

In table 7, sustainable IT infrastructure for procurement functions makes a statistically significant unique positive contribution to predicting the moderate significant positive variance in SMEs performance (Beta = 0.406; t=8.197: t > 1.96; P = 0.000: P < 0.05) with moderate effect size ($f^2 = 0.186$) and weak predictive relevance ($q^2 = 0.078$), thus, H3 is supported. Top management support makes a statistically significant unique positive contribution to predicting the moderate significant positive variance in SMEs performance (Beta = 0.327; t = 5.395: t > 1.96; *P* = 0.000: *P* < 0.05) with weak effect size ($f^2 = 0.091$) and weak predictive relevance ($q^2 = 0.032$), thus, H2 is supported. On the other hand, staff competence exhibited by procurement officers in their operations fails to significantly contribute to predicting the 38.3% positive change in the performance of SMEs that are operating in the Sekondi-Takoradi metropolis (P = 0.571: P > 0.05) although staff competence made some negative contributions (Beta = −0.035), thus, H1 is rejected.

4.6. Coefficient of Determination

The study proves on Table 8 that sustainable procurement accounts for 38.3% positive change in SMEs performance when the effect of other factors that can improve SMEs performance but are not captured in the context of the study are statistically controlled for ($r^2 = 0.383$). Other factors that collectively have the potential to improve the level of SME performance could thus account for 61.7% variance in SME performance.

Structural Model



Source: Fieldwork, 2023

5. DISCUSSIONS

The first hypothesis (H1) posited that staff competence has a statistically significant influence on SME performance. This hypothesis was refuted as the result proved that it was not statistically significant. Additionally, staff competence exhibited by procurement officers in their operations fails to significantly contribute to predicting the 38.3% positive change in the

performance of SMEs that are operating in the Sekondi-Takoradi metropolis although staff competence made negative contributions. This position is further cemented by the fact that staff competence had no predictive relevance as shown by the q-square and virtually with no effect size ($f^2 = 0.001$). Therefore, it can be inferred from this finding that if SMEs rely on the staff competence aspect of sustainable procurement to improve the state of their firms, no improvement would be recorded because its contribution shows this dimension of sustainable procurement has the potency to reduce the level of SME performance given the interplay of other contextualized factors in the reflectively specified structural equation modeling. The findings of this study contradict the findings of Nderitu and Ngugi (2014), Silva and Nunes (2012) and Osei and Ackah, (2015). Whilst the aforementioned studies generally posit that performance of firms relies heavily on the skills of employees, this does not seem to be the case for this study. This can strongly imply that investment in staff competence is thus not producing desired organizational outcome-improved firm performance. The position of some previous empirical studies that staff competence does not influence firm performance among SMEs in Ghana is confirmed (Odero and Ayub, 2017; Hamza et al., 2017). The author deduces that this could be attributed to the fact that most SMEs reviewed under this study are into the merchandise of general goods which does not necessarily require specific skill sets or a relatively rare skill, thus, investment efforts made to improve the skills of staff through training and development may not be economically prudent as costs may outweigh benefits in the long run.

Additionally, the theoretical founding of this hypothesis which is the theory of altruism seems to be antithetical to the findings of the study on the surface as the theory suggests that individuals possess an innate motivation to prioritize the well-being of others (Flynn and Black, 2011). In context of this study, the theory can be said to mean that organizations gain benefits by investing in the growth and training of their employees (Peprah et al., 2016). The findings nevertheless shows that staff competence has no significant positive bearing on SME performance. However, the theory in this context further suggests that organizations that prioritize employee development foster a culture of support and collaboration (Peprah et al., 2016; Xing and Starik, 2017). This, in turn, enhances job satisfaction, boosts employee engagement, and improves overall performance. This implies that even though staff competence is not having a significant effect on SME performance, nevertheless, staff competence could potentially be having positive effects of other aspects of the business/SME that is not directly related to SME performance.

The second hypothesis (H2) proposed that top management support significantly influences SME performance. This hypothesis was accepted as the results showed that top management support positively and significantly influences SME performance. From the nature of the results, it can be deduced that a unit significant rise in scores for top management support will cause 0.327 significant rises in scores for SMEs performance and a unit significant decrease in scores for top management support will cause 0.327 significant falls in scores for SMEs performance given the existence of similar conditions as the case of the context of the study. The aspects of top management support practices that collectively contribute to predicting the moderate positive variance in SMEs performance include top management's commitment to being at the forefront to initiate a culture of quality in the organization's sustainable procurement process, committing to staff development and career enhancement in sustainable procurement, making efforts to standardize the sustainable supply chain processes that enhance quality in the organization as well as committing to staff development and career enhancement in sustainable procurement. Thus, the study confirms empirically (Oke et al., 2009; Chahine and Goergen, 2013; Agbim 2013), SMEs that are effective in the implementation of these aspects of top management support of sustainable procurement can improve their performance positively and moderately, hence signifying the relevance of these indicators in causing improvement in the performance of SMEs that are operating in the Sekondi-Takoradi metropolis of Ghana. The findings further support the institutional theory which supports the idea that organizations with strong backing from top management tend to perform better in terms of sustainability (Dubey et al., 2015).). In the context of top management support in sustainable procurement, the institutional theory suggests that when senior leaders actively promote and endorse sustainable practices, they signal the significance of sustainability to the organization and external stakeholders (Butler, 2011; Ma et al., 2021), which in turn translates to organisational performance.

The third hypothesis (H3) suggested that sustainable IT infrastructure significantly influences SME performance. This hypothesis was also accepted as the results showed that sustainable IT infrastructure positively and significantly influences SME performance. Technically, it can be adduced that a unit significant rise in scores for sustainable IT infrastructure will cause 0.406 significant rises in scores for SMEs performance and a unit significant decrease in scores for sustainable IT infrastructure will cause 0.406 significant falls in scores for SMEs performance given the existence of similar conditions as the case of the context of the study. This significant contribution of sustainable IT infrastructure to improving the performance of the SMEs is attributable to effective implementation of IT infrastructure in the areas of procuring ICT equipment based on green procurement policies and standards set by the respective SME, equipping the businesses to be able to easily recruit employees using the online system, purchasing products with recycling content as well as frequently training staff on how to use green procurement ICT infrastructure. Thus, the study confirms empirically SMEs that are effective in the implementation of these aspects of sustainable IT infrastructure of sustainable procurement can improve their performance positively and moderately, hence signifying the relevance of these indicators in causing improvement in the performance of SMEs that are operating in the Sekondi-Takoradi metropolis of Ghana. Additionally, the findings of this study support the resource-based view theory as when considering sustainable IT infrastructure as a sustainable procurement practice, this theory supports the idea that organizations can improve their performance by leveraging sustainable IT resources (Guang Shi et al., 2012; Khanra et al., 2022). This empirical finding also supports the position of some previous empirical studies that collectively hold the view that with proper sustainable IT infrastructure, the performance of SMEs can be improved in a significant manner (Wagner, 2010; Kariuki

and Ngugi, 2014; Koranchie, 2016; Lawrence and Suddaby 2006; Elliot and Binney, 2008; Petrini and Pozzebon, 2009; De Brito, et al., 2008).

Overall, the study proves sustainable procurement accounts for 38.3% positive change in SMEs performance when the effect of other factors that can improve SMEs performance but are not captured in the context of the study are statistically controlled for (r^2=0.383). Other factors that collectively have the potential to improve the level of SME performance could thus account for 61.7% variance in SME performance given the existence of the right conditions as in the case of this empirical study. This change occasioned by changes in indicators of sustainable procurement is described as being moderate and positive. The aspects of SMEs' performance that are improved as a result of changes in the predictors in the reflectively configured structural model include standardization of procurement processes across the SMEs, reduction in administrative cost with better effectiveness and reduction in procurement errors in the procurement processes. Therefore, this study shows although sustainable procurement has bearing on improvement in SMEs performance, the score of performance improvement is however moderate and covers only three dimensions of the operationalized SMEs performance in the context of the study.

6. CONCLUSIONS AND IMPLICATIONS

It is now established that sustainable procurement practices including top management support, sustainable IT infrastructure and staff competence jointly account for a moderate positive change in SMEs' performance in the Sekondi-Takoradi metropolis after the effects of other factors that have the potential to improve SMEs' performance but not considered in the context of the study are statistically controlled for. Two aspects of sustainable procurement practices including sustainable IT infrastructure and top management support for procurement function are significant positive predictors of SMEs' performance improvement in the Sekondi-Takoradi metropolis. However, staff competence among procurement officers for SMEs does not significantly contribute to the moderate positive variance in SMEs' performance. Staff competence in procurement thus has the potential to negatively affect the performance of SMEs in the Sekondi-Takoradi metropolis.

SMEs can benefit from understanding that not all aspects of sustainable procurement have equal impact on performance. Instead of a one-size-fits-all approach, SMEs should strategically focus on areas such as top management support and sustainable IT infrastructure that have shown to significantly influence performance. Given the non-significant effect of staff competence on performance, SMEs might reconsider the allocation of resources for training and development. They should prioritize investments in areas like sustainable IT infrastructure and top management support that have demonstrated stronger connections to performance improvements.

The positive findings about the impact of top management support suggest that fostering a culture of collaboration and support within the organization can enhance job satisfaction, engagement, and overall performance. SMEs should aim to cultivate a work environment where employees are supported and empowered. The results regarding sustainable IT infrastructure underscore the importance of aligning IT procurement practices with green policies and standards. This can lead to not only improved performance but also reduced environmental impact, contributing to sustainable business practices.

6.1. Limitations and Suggestions for Further Studies

The study only focused on SMEs within the Sekondi-Takoradi metropolis and thus, the findings of this study are not generalizable for all forms of business organizations. Besides, conducting the study under different contexts with different operational definitions and conditions may not achieve the replicability paradigm of this study. The study was purely quantitative hence the need to emphasize qualitative orientation in some specific industries in Ghana. Again, the study was more of a cross-sectional design hence a longitudinal orientation study could perhaps provide other details that are not captured in this cross-sectional study.

The findings challenge the commonly held belief that staff competence has a significant influence on SME performance. This contradiction calls for a re-evaluation of the assumptions underlying the relationship between staff competence and firm performance, especially in the context of SMEs operating in specific industries. The study emphasizes the complexity of the relationships within sustainable procurement. While top management support and sustainable IT infrastructure have been shown to positively influence SME performance, the lack of a significant relationship between staff competence and performance highlights the need for a nuanced understanding of how different factors interact in the context of SMEs.

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