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Barriers to Green Procurement Adoption Among U.S. Small and Medium-Sized Enterprises (SMEs)

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Abstract: The aim of the study was to investigate the reasons behind the existence of green procurement practice and the barriers to the adoption of green procurement among the small and medium-sized enterprises (SMEs) in California, both internal and external. A quantitative cross-sectional approach was deployed, given the elucidations through the Institutional Theory, Resource-Based View (RBV), and Stakeholder Theory. A purposive sampling method that involved the use of structured questionnaires to collect data was carried out on 400 SMEs in various industries. SPSS version 27 was used to perform descriptive statistics, correlation, and regression analysis. The results indicate that SMEs are performing well in terms of the adoption of green procurement by including environmental considerations in procurement policies and practices. These two internal factors, leadership commitment and organisational culture, were found to be significant drivers, but employee awareness and financial constraint, on the other hand, did not demonstrate any statistical significance. Regulatory and policy barriers had positive effects at the external level on the adoption of green procurement, whereas supplier and market constraints did not evoke any significant effect.

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I. INTRODUCTION

The SMEs can support sustainability in any part of the world. According to the report released by the U.S. Small Business Administration, there are 99.9% of firms in the United States, with SMEs forming the primary source of jobs and economic growth (U.S. Small Business Administration, 2023). Nonetheless, they are subject to several structural limitations, such as financial capital shortage, personnel shortage, and the lack of control over the factors of supply chain, which compel them to be less competent in converting to environmentally-centred procurement strategies (Anaman et al., 2023). Since SMEs are significantly interested in the green initiative, which makes some of them very committed to it, other SMEs have problems in realising their intentions into an achievable plan and practice. The empirical evidence indicates that the degree to which sustainability practices are implemented among SMEs differs. According to Agyabeng-Mensah et al. (2020), although some SMEs are ready to embrace sustainability practices, most of them have little knowledge about applying them in their firms and have no internal mechanisms for achieving positive outcomes when it comes to sustainability.

Against the backdrop of environmental challenges occasioned by growing climate change, pollution, and rapid decline of natural resources, the global community is rapidly considering sustainability as one of the major issues of concern. As governments and organisations have put pressure on using more sustainable operations, sustainable procurement, or green procurement (GP) is another important tool in furthering this practice (Geng et al., 2019). Green procurement means the tendering of goods and services according to their impact on the environment throughout their lifecycle and not merely value or quality. Although it has turned out to be a trend among big businesses and government organisations, it is just gaining impetus in the SMEs. Green procurement does not just involve a change in operation, but a change in the attitude of businesses to become stewards of the environment. According to Testa et al. (2020), when a company starts using green procurement approaches, it tends to minimise waste, become more efficient, and develop more sustainable identities. Such results are gaining more appreciation in the business scenario in which sustainability measures directly correlate to the viability of being able to compete in the long term as a business, whereas trust from the shareholders and even other stakeholders.

Nevertheless, research findings depict that green procurement adoption is a determinant supported by policy and institutional backing. An effective system of regulations, comprehensive training programs, and certain economic incentives would allow adding to the willingness of SMEs to participate in green procurement (Khan et al., 2022). On the one hand, multinational corporations and governmental organisations have shown impressive outcomes in the implementation of green procurement strategies. SME, particularly those in the United States, are way behind. Such a disengagement cannot simply be explained by the size of the organisation; additional structural, cultural and strategic

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obstacles, e.g. incapability to connect green procurement and simple core business objectives, should be better studied in literature.

The existence of numerous barriers to the green practices of SMEs has been determined with a considerable amount of empirical evidence. But over 50% of the existing available literature deals with either the developing countries or major companies, leaving a significant knowledge gap in the American small-firm scenario. Also, the current literature tends to aggregate green procurement barriers to the extent that it fails to specify the difference between barriers internal to the organization, notably lack of environmental awareness, management interest, or ability to resources and barriers external to the organization, namely through tangled supply chains, vague regulations, and absence of market incentives (Baidoo, 2025; Younis et al., 2022; Khan et al., 2023). Such imprecision of this concept makes it challenging to design viable SME strategies and envisage adequate public policies. These differences are important in deciding policy design, partnerships in the supply chain, and capacity-building interventions to empower SMEs to become a significant part of sustainable development.

The current research aims at filling these knowledge gaps based on a two-theoretical approach. Institutional Theory is applied when one wants to analyse the effects of exogenous pressures, or norms, regulations, and expectations on organization behaviour. This is further complemented by the Resource-Based View (RBV) that provides an emphasis on the role of internal capabilities as well as resource configurations as a competitive resource and source of innovation. According to this composite model, it would serve as a good base through which the elaborate obstacles hindering SMEs' participation in green procurement could be categorised and explanations provided. The barriers need to be addressed through evidence-based interventions such as capacity-building programs, financial incentives, and a focus on the network of suppliers.

Based on these anticipated outcomes, this research will find out what percentage of the SMEs in the United States have adopted green procurement, commercial obstacles within the organisation that prevent adoption and external contingent obstacles confronting the SMEs. This discussion enriches the study of sustainable supply chain and develops the inclusive green growth by covering important knowledge gaps that exist with regard to theories and practices.

II. LITERATURE REVIEW

- *Theoretical Review*

This paper presents the literature review of multidimensional obstacles to the adoption of green procurement practices by the unfamiliar U.S. small and medium-sized enterprises (SMEs) upon synthesising the theoretical body of knowledge that includes the pair off of the Institutional Theory and the Resource-Based View (RBV) with the Stakeholder Theory. The combination of the above streams of thought raises to the fore an outside pressure, inner endowment of resources and other motivational forces and relationships affecting the sustainability behaviour of organisations in the U.S. market.

- *Institutional Theory*

DiMaggio and Powell (1983) put forward the Institutional Theory to characterise how the behaviours of organisations are influenced by the institutional environments. According to the theory, organisations do not take up every practice as a means of efficiency but to acquire legitimacy by going by the rules, norms, and expectations of their context. It identifies three important pressures to include the coercive pressures that are enforced by legal and regulatory requirements, the normative pressures that are driven by professional standards and industry norms, and the mimetic pressures that are exerted on organisations that develop peer-to-peer imitation, particularly in situations of uncertainty.

Institutional Theory has been widely applied in the literature on sustainability and green procurement to unravel why an organisation adopts environmental practices. As an example, it was employed by Martinez-Perales et al. (2023) to evaluate the effect that coercive pressures exerted by environmental regulations on green procurement practices and normative pressures exerted by industry standards had on SMEs. Likewise, Testa et al. (2022) used the theory to demonstrate that fragmented institutional environments are low in strengthening external cues, thus reducing the chances of an SME adopting green procurement. According to such research, effective regulatory systems and industry standards promote the incorporation of sustainability by firms, whereas a lack of regulatory systems limits the practice despite internal motives by firms.

The Institutional Theory is used in this study owing to the fact that it offers a powerful framework to discuss external influences that influence the adoption of green procurement in SMEs. Since SMEs have different regulatory, normative and competitive environments in comparison to those of large firms, this theory can be used to explain how environmental laws (coercive, normative) as well as industry norms (normative) and competitor effects (mimetic) influence or determine their behaviour. In the case of the United States, it is important to understand these institutional factors as a way of ensuring effective policies and interventions that can consequently improve the level of participation of SMEs in sustainable procurement practices within the United States.

- *Resource-Based View (RBV)*

Resource-Based View (RBV) was the assumption by Barney (1991), who held that the competitive advantage of a firm is based on resources which are valuable, rare, non-substitutable and inimitable. According to the theory, the internal resources available, like the managerial skills, financial resources, technology and the capabilities of the employees of firms, determine how the firm can implement strategies and end up with excellent performance. RBV aims at the internal resource positioning rather than the external market positioning as the basis of sustainable competitive advantage.

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It is widely applied in studies in the literature on the readiness of firms to adopt environmental and sustainability practices through the RBV. To give an example, Liu, Hu, and Han (2021) have used RBV to evaluate the ability of SMEs to implement green procurement, stating that among the most critical internal enablers were managerial experience, financial capacity, technological infrastructure, and employee competence in sustainability. RBV was also implemented by Fatoki (2022) to define the failures of some SMEs, despite being under the same external pressure to use green procurement, but they fail to do it because they lack strategic resources or capabilities. The studies show that although incentives might be formed by external factors, practical realisation is induced by the supply of own resources.

The application of RBV in this research is rational since it allows analysing the several inner organisational obstacles to green procurement adoption in SMEs. SMEs normally have a low financial capacity, technological integrated devices and labour force capacity that restricts their performance in taking part in sustainability activities. Using RBV, the present research determines the discrete internal gaps in resources that impair the process of green procurement among SMEs. To achieve this, it is imperative to know more about these internal constraints where the necessary capacity-building programs and managerial interventions can be designed to improve sustainable procurement practices of SMEs.

- *Stakeholder Theory*

Freeman (1984) developed a postulation of the Stakeholder Theory in which the author held the view that companies should not only realise value to their shareholders, but also a wider network of stakeholders, namely, suppliers, customers, employees, regulators and communities. The theory speculates that the various stakeholder groups affect the organisational decision making and strategy with regard to the expectations, the interests and also the power relationships of these groups. It points out that any business needs to keep the requirements of its stakeholders in mind in order to be successful in the long run and have legitimacy and social acceptance.

Stakeholder Theory in the literature was employed in investigating the influence of stakeholder pressure within firms in the process of engaging in sustainability and green procurement practices. Indicatively, Miroshnychenko, Barontini, and Testa (2022) noted that SMEs resort to green procurement when their stakeholders, like environmentally conscious customers, giant corporate buyers, and City governments, require them to be green. Researchers have found that green procurement is more likely to occur in firms that do well in supply chains whose sustainability practices are high in order to be able to keep in touch with the market and the stakeholders. In contrast, failure to stress sustainability by the stakeholders can lead to SMEs relegating green procurement, although it is seen to have merits.

The present research applies an approach known as Stakeholder Theory since this approach evinces the perspectives on external relational forces on the process of green procurement at SMEs. SME usually trade in supply chains, markets, and societies where these stakeholders would influence the procurement practices of the SME. Using the Stakeholder Theory, this paper examines the impulse or inhibition of the SMEs to adopt green procurement due to customer pressure, supplier pressure, government or regulatory pressure and community actor pressure. This knowledge will be important in the formulation of effective policies and strategies of stakeholder participation, which may help motivate SMEs to incorporate sustainability in purchasing activities.

III. METHODOLOGY

- *Research Design*

The research design adopted in this study is a quantitative study since it focuses on the internal and external inhibitors of green procurement practices among the small and medium-sized enterprises (SMEs) in California. It was decided to use a quantitative approach since a quantitative approach allows the researcher to gather a large amount of numerical data through the administration of questionnaires to a large number of respondents and analyse it statistically. The design is suitable to determine the patterns, test the relationship between the variables and make generalisations about the wider population of the SMEs within the state. The research uses a cross-sectional study design; therefore, the information which is to be gathered will not be gathered over a prolonged period, but in one time. Cross-sectional design is also less expensive and time-consuming, which is significant in cases where many respondents are in various sectors and regions.

- *Population, Sample and Sample Technique*

All small and medium-sized enterprises (SMEs) in California will be the population in this research. Approximately, there are 4.2 million small businesses in California, and almost every business in the state is in small business. Such businesses exist in numerous sectors, including construction, retail, professional services, healthcare, manufacturing and transportation. A stratified random sampling has been undertaken so as to ensure that the study has a broad coverage of businesses. This implies that the company businesses were classified on two bases, the number of employees there are in the business and the industry itself. They put firms in four categories, namely micro (1-9 workers), small (10-49), medium (50-249), and upper-medium (250-499). Then, the companies were randomly picked for both teams. This will assist in ensuring that every kind of business is well represented in the study. The aim is to cover 400 businesses, which is an adequate amount to come up with something helpful which reflects the greater population. The businesses chosen will be according to their frequency in California. Most businesses in the state are small or micro, which is why more of them were added in the sample.

- *Data Collection Methods and Instruments*

In this study, the researcher employs a structured questionnaire to get information about small and medium-sized enterprises (SMEs) in California. The questionnaire will

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be structured so that it can gather standardised responses that can be statistically analysed. This type of study requires a structured questionnaire due to the fact that it would exclude the possibility of different respondents asking different questions, and therefore, the data is easier to compare and analyse. Electronic media such as Qualtrics or Google Forms were also used in data collection. Data can be cost-effectively collected online, and there is greater geographic scope, and it is effective with business respondents who tend to be busy and can be willing to take part flexibly.

The survey includes four major blocks. All sections are related to the research objectives and constructs outlined in the study and are based on the items adopted through the validated instruments used in previous research studies, like Liu et al. (2021), Testa et al. (2022), and Fatoki (2022). The level of responses is determined in a 5-point Likert rating (1 - Strongly Disagree and 5 - Strongly Agree), hence enabling the researcher to assess relative levels of agreement. In a bid to make the data collected accurate and consistent, this study took some measures to determine the validity and reliability of the research instrument. Content validity was taken care of through the critical adaptation of already existing and peer-evaluated research articles that have recorded the measurement of similar constructs in questionnaires. Internal organisational barriers items were based on Fatoki (2022) and Liu et al. (2021), whereas external or contextual barriers items were borrowed from the study of Testa et al. (2022) and Martinez-Perales et al. (2023). The given studies concentrated on sustainability practices of small businesses and green procurement, which is rather close to the purpose of the present research. Sustainable business and SME development academic professionals also reviewed the questionnaire to ascertain the clarity, suitability, and comprehensiveness of questions.

➢ *Method of Data Analysis*

Data were analysed with SPSS Statistics 27. Descriptive statistics will summarise firm characteristics and the overall trend of adoption. Since the test of the validity, which refers to dimensionality of the latent constructs, required Exploratory Factor Analysis (EFA), the result of the latter was used as a test of the validity since Cronbach's alpha (alpha >= 0.70) was used to justify reliability. In the data analysis, construct validity was checked using the exploratory factor analysis (EFA). The application of EFA allowed finding out whether the items within each of the constructs (e.g., internal barriers, external barriers, adoption of green procurement) indeed form a group as anticipated. Reliability also defines how consistent the instrument is, and it was determined by Cronbach's alpha coefficient for each of the key constructs. All these procedures make the instrument of data collection have both validity and reliability so that the findings of the research could be relied upon and used as evidence-based information and an academic article. In data analysis, this will be achieved by using SPSS version 27 as the main analytical tool of data analysis because it is highly prevalent in quantitative research in not only business but also in management. SPSS especially evaluates large survey data and carries out both descriptive and inferential statistical tests with a high degree of accuracy and efficiency.

➢ *Ethical Consideration*

In this study, ethical precepts are used in safeguarding the rights and welfare of every respondent. Prior to the commencement of the data collection process, the project had received ethical clearance through a relevant Institutional Review Board (IRB) or ethics committee associated with the scholarly institution of the researcher. This will make sure that the study is on all legal and academic principles of carrying out research on human subjects.

The study is purely voluntary. Every possible respondent was told the intent of the study, and nature of the questions to be asked and the use of their data. Again, through a survey conducted, participants were made aware of the fact that they would be required to participate in the study. It would also warn the respondents that they will have the chance to withdraw anytime and at no cost or repercussion. Confidentiality was maintained by not asking any personal or identifying data like the name of the business, employee or contact details. All third parties were given anonymously without any commercial effect. The data was recorded on password-protected files, and it could only be accessed by the research team. Data will never be obscured by third parties or commercial interests. Observing these ethical considerations, the researcher will make sure that the research that will be conducted is to be performed responsibly and that the rights and privacy of all the participants will be respected during the research process.

IV. DISCUSSION AND RESULTS

➢ *Demographics*

This part shows the demographics of those people who took part in the study. Knowing the background of participants is also relevant since it acts as a perspective to understanding the reasons underlying the responses of the participants, in addition to gauging the extent to which study findings can be generalised. They include gender, position in the company, extent of the business, availability of a written procurement policy, industry, and years of business experience.

Table 1 Demographics

Description	Freq.	Percent	Description	Freq.	Percent
Gender			Presence of a written procurement policy		
Male	226	56.5	Yes	173	43.2
Female	176	43.5	No	227	56.8
Role in Organisation			Industry Sector		
CEO/Founder	121	30.2	Manufacturing	93	23.2

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Procurement Manager	240	60.0	Service	103	25.7
Operations Manager	24	6.0	Construction	89	22.3
Other	15	3.8	Retail	92	23.0
			Others	23	5.8
Size of Organisation (Number of Employees)			Years business has been operating		
1–10	98	24.5	Less than 1 year	51	12.8
11–50	107	26.8	1–5 years	93	23.0
51–10051–100	95	23.7	6–10 years	111	28.0
101–250	100	25.0	Over 10 years	145	36.2
N = 400					

The sample included 400 respondents, of which 56.5% (n = 226) were male and 43.5% (n = 176) were female. This means that although most members of the people who relate to procurement operations are men, the number of women is still high. Such a gender ratio indicates the existence of a relatively pro-inclusive procurement environment setting in SME-based situations in California. The group of Procurement Managers was most significant (60%, n = 240), and the second was the group of CEOs or Founders (30.2%, n = 121). The smaller percentage consisted of Op Managers (6%, n = 24), and 3.8% (n = 15) were in other positions in their businesses. Such a pattern of distribution means that the answers given were mostly by those involved directly in the procurement decisions or by those in charge of the strategy of the organisation, making the results of the data collected in this way even more useful and credible.

The sample of firms differed in size. 24.5 percent (n = 98) were micro enterprises with their number of employees 1-10, 26.8 percent (n = 107) were small enterprises with the number of employees 11-50, 23.7 percent (n = 95) had 51-100 employees, and 25 percent (n = 100) were medium-sized firms with 101-250 employees. This relatively balanced balance in the categories would make the study representative of the experiences and obstacles of SMEs of different sizes. On the issue of formal procurement structures, 43.2 per cent (n = 173) of the firms stated that they had a written procurement policy and 56.8 per cent (n = 227) indicated otherwise. The results point out the fact that over half of SMEs do not have procurement guidelines standardised, and that could affect their green procurement uptake and, generally, the efficiency of their procurement operations.

The respondents reflected the prevalence of many different industries: 23.2% manufacturing (n = 93), 25.7% services (n = 103), 22.3% construction (n = 89), 23 percent retail (n = 92), and 5.8% other (n = 23). Such distribution shows that the investigation elicited opinions submitted by SMEs in major areas of the economy, which increases the applicability of the study to the SME sector in California. Not all businesses that were surveyed were of the same operation years although most were within the 1-5 year, the breakdown was; 12.8% (n = 51) had been in operation less than 1 year, 23% (n = 93) were 1-5 years, 28% (n = 111) were 6-10 years, and 36.2% (n = 145) over 10 years old. This shows that a large percentage of the companies are well established more than half of them having served for over six years, which implies maturity in their corporate systems and procedures.

➢ *Reliability Statistics*

The reliability analysis was conducted to establish whether there was internal consistency with the questions stated in the questionnaire that this study used.

Table 2 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.841	25

The findings show that Cronbach goes to a value of 0.841 on 25 items being used in the analysis. And this is good since a value more than 0.70 is considered to be one that is considered to have very high internal consistency of a set of items that measures the same construct (Pavot et al., 1991). The high alpha means that the items in the questionnaire are correlated and also suitable to capture the dimensions of the variables, which are service acceptance and implementation of green procurement, external and internal service, and other variables in the study. It implies that the items were answered similarly by the respondents and thus render the evidence of high credibility and dependability of the data collected.

➢ *Objective one: Green Procurement and SMEs Adoption*

In this section, the authors consider the degree to which the small and medium-sized enterprises (SMEs) in California practice green procurement. The descriptive statistics indicate that the green procurement adoption level is high in general in SMEs.

Table 3 Descriptive Statistics

Descriptive Statistics			
	N	**Mean**	**Std. Deviation**
We prioritise environmental criteria when evaluating suppliers	400	4.13	.838

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Our procurement team considers environmental impact during purchasing decisions	400	4.14	.811
Green procurement is embedded in our company's policies and strategy.	400	4.17	.827
We purchase products that are biodegradable, recyclable, or energy efficient.	400	4.16	.826
Our procurement practices comply with environmental standards and regulations	400	4.19	.780
Valid N (listwise)	400		

In particular, there was a majority of respondents expressing their agreement with the five formulated items. The average level of prioritising environment-related criteria in the supplier evaluation process was 4.13 (SD = 0.838), which implied that the majority of SMEs take into consideration the environment-related criteria when choosing suppliers. In the same way, the value of the statement Their procurement staff takes account of the effect on the environment in purchasing was 4.14 (SD = 0.811), with an indication of a lot of consideration of the effect on the environment in the purchasing process. The mean (SD = 0.827) of the comments that green procurement is integrated into the policies or strategy of the companies was 4.17, indicating that there is a considerable number of SMEs where green procurement is included in the company policies. A great deal of environmentally responsible buying was also observed (mean 4.16, SD = 0.826) as the SMEs reported ever buying biodegradable, recyclable or energy-efficient products. Last but not least, the mean value of compliance with environmental standards or regulations was the highest (mean = 4.19, SD = 0.780), which signifies that the SMEs highly comply with their procurement with the requirements of regulations.

The findings indicate that SMEs in California have a high rate of adoption of green procurement, whereby there was a high agreement to all the indicators, such as putting emphasis on environmental considerations, incorporating green procurement into the policy, and adhering to environmental regulations. This is in line with the Institutional Theory, which asserts that coercive forces like the environmental regulations, normative pressures through industry standards affect organisational behaviour (DiMaggio & Powell, 1983). The coercive pressure effect is also denoted by the high mean of compliance with environmental standards (M = 4.19), which supports the research by Testa et al. (2022) on the promotion of sustainable endeavours by SMEs in the environment of strong regulations.

This result in the empirical study is in line with the one discovered by Bassi and Guidolin (2021) as they discovered that SMEs whose leaders are environmentally committed incorporate sustainability in their procurement. It also affirms Schafere et al. (2024), who noted that SMEs, due to market demand, are buying greener goods. But the newness of the study in California SMEs is that the results show that there is a real high adoption score in all other measured items, which creates a temptation that green procurement is not triggered by external pressure but firmly rooted in the policies of the organisation and procurement throughout the day.

This goes further than the Resource-Based View (Barney, 1991) in that it proposes that the SMEs in California have acquired internal capabilities and resources that enhance sustainable procurement, including knowledgeable procurement staff and laid down policies. As opposed to the research findings in which barriers to adopting green procurement are described as a limitation of resources in SMEs (Fatoki, 2022), the findings of the study denote the possibility to eliminate at least a part of those barriers within the context of California SMEs, reflecting the attitude of action regarding sustainable procurement.

- *Objective Two: Intra-Organisational Inhibitors of Green Procurement Adoption in SMEs*

This section discusses the correlation between the firm-specific barriers to green procurement adoption (GPA) in small/medium-sized enterprises (SMEs). These firm-based constraints, which are measured, are Leadership Commitment and Organisational Culture (LOC), Employee Awareness and Capability (EAC), and Resource and Financial Constraints (RFC).

Table 4 Correlations

Correlations					
	GPA	**LOC**	**EAC**	**RFC**	
GPA	Pearson Correlation	1	.458**	.094	.045
	Sig. (2-tailed)		.000	.061	.366
	N	400	400	400	400
LOC	Pearson Correlation	.458**	1	.079	-.014
	Sig. (2-tailed)	.000		.115	.784
	N	400	400	400	400
EAC	Pearson Correlation	.094	.079	1	.420**
	Sig. (2-tailed)	.061	.115		.000
	N	400	400	400	400

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RFC	Pearson Correlation	.045	-.014	.420**	1
	Sig. (2-tailed)	.366	.784	.000	
	N	400	400	400	400
**. Correlation is significant at the 0.01 level (2-tailed).					

The findings indicate the existence of a moderate positive correlation between GPA and LOC, with a Pearson correlation coefficient of 0.458, which is significant at the 0.001 level. It means that SMEs whose leadership commitment and organisational cultures were more supportive practised green procurement strategies to a greater extent. The value of GPA and Employee Awareness and Capability (EAC) correlation is 0.094, which can be characterised as positive but not statistically significant (p = 0.061). This implies that the awareness and capability of employees have a low correlation with the adoption of green procurement in this sample. Another correlation is between GPA and Resource and Financial Constraints (RFC), which is also positive but not significant (p = 0.366). The fact that the constraints in resources and finances may not have a direct relationship with the extent of green procurement implementation among these SMEs suggests that the two may not necessarily have an impact on the implementation of green procurement among these small businesses. Also, EAC shows a positive association with RFC that is significant and high (r = 0.420, p < 0.001). That is to say that the firms that have greater awareness and capability among their employees report greater resource and financial constraints. Nevertheless, the variables LOC are not strongly related to EAC (r = 0.079, p = 0.115) or RFC (r = -0.014, p = 0.784). On the whole, these findings indicate that the leadership commitment and organisational culture more directly relate to the adoption of green procurement when compared with employee awareness, employee capability, and the financial or resource constraints (which are less directly related to adoption here).

➢ *Regression Model*

This part analyses how firm-level constraints determine the adoption of green procurement practices among SMEs. The discussion of these internal factors is significant due to the fact that efforts to implement sustainability initiatives may be as easily inhibited by barriers within the organisation as these processes may be supported by external pressure or its promotion of the policies.

➢ *Model Summary*

Table 5 Model Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.463[a]	.214	.208	.51529
a. Predictors: (Constant), RFC, LOC, EAC				

According to the regression model, the R value is 0.463, which corresponds to the moderate positive correlation between Leadership Commitment together with Organizational Culture (LOC), Employee Awareness and Capability (EAC), and Resource and Financial Constraints (RFC) as predictors and the green procurement adoption (GPA) as a dependent variable. The R Square is 0.214, that is to say that about 21.4% of the variation in the GPA is accounted through these three firm-level limitations in combination. The Adjusted R Square is 0.208, accounting for the number of predictors involved as part of the model and shows that a ratio of 20.8% of the variance in GPA is as a result for the model describing the model after adjusting for complexity. The average distance between the measured values and the regression line is 0.51529, which is the value of Standard Error of the Estimate. This implies that the model has a moderate error in the analysis of the prediction. R value demonstrated in the regression model is 0.463, indicating the positive entity of correlation among the predictors Leadership Commitment and Organisational Culture (LOC), Employee Awareness and Capability (EAC) and Resource and Financial Constraints (RFC) with green procurement adoption (GPA). The R Square here is 0.214, hence it shows that the combined three firm-level limitations can explain around 21.4% of the variance of GPA. The adjusted R-squared is 0.208, which deals with the complexity of the model because of the number of predictors in the model; it denotes that 20.8% of the variance in GPA can be explained to adjust for the complexities in the model. The standard error of the estimate is 0.51529, or the mean deviation of the observed values and the regression line. This shows that there was an intermediate prediction error in the model.

➢ *Anova*

As reported by the ANOVA, the complete regression model of predicting green procurement adoption (GPA) based on leadership commitment and organisational culture (LOC), employee awareness and capability (EAC), and resource and financial constraints (RFC) is not equal to zero and, thus, is significant.

Table 6 Anova

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	28.670	3	9.557	35.992	.000[b]
	Residual	105.146	396	.266		

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	Total	133.816	399			
a. Dependent Variable: GPA						
b. Predictors: (Constant), RFC, LOC, EAC						

Value of F is 35.992 and its p-value is 0.000, which is smaller than the usual alpha, which is 0.05. It means that as a whole, the model can tell a lot about GPA and fits better to the data better than a model with no predictors. In particular, the Regression Sum of Squares is 28.670 and the degrees of freedom is 3, whereas the Residual Sum of Squares is 105.146 with 396 degrees of freedom. The Total Sum of Squares is 133.816, the total GPA variance that can be defined by the model and the error.

➢ *Coefficients*

Table 7 Coefficients

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	2.359	.233		10.131	.000
	LOC	.371	.037	.455	10.174	.000
	EAC	.038	.043	.044	.892	.373
	RFC	.027	.040	.033	.674	.501
a. Dependent Variable: GPA						

As can be seen in the results, the significance of the unstandardized coefficient indicates that the constant is 2.359, which is statistically significant ($p < 0.001$). And this implies that in case of having LOC, EAC and RFC all equal to zero, an expected GPA is 2.359. The unstandardized coefficient of LOC is 0.371, which means that each one-unit rise in the leadership commitment and organisational culture measure also predicts an increase of 0.371 units of the green procurement adoption, and an equal increase in the coefficient of EAC and RFC holds constant. This is a significant effect ($p < 0.001$), and the standardised beta coefficient is 0.455, which allows us to assume that the impact of LOC on GPA is very strong. In the case of EAC, the unstandardized coefficient of the awareness and capability of employees is 0.038, indicating a 0.038 increase in GPA per unit increase in the awareness and competence of the employees when other things, such as the LOC and RFC, remain constant. Its effect is not, however, statistically significant ($p = 0.373$); the standardised beta is 0.044, which is a weak effect. In the case of RFC, the unstandardized coefficient is 0.027, which means that a unit rise in resource and financial constraints is linked to a 0.027 increase in GPA when both LOC and EAC are held constant. The effect is insignificant as well ($p = 0.501$), where the standardised beta reveals a very small effect at 0.033.

In general, these findings indicate that leadership commitment and organisational culture are the sole important predictors of green procurement adoption in SMEs in this model, whereas employee awareness and capability, and resource and financial constraints play irrelevant roles. The results indicate that the leadership commitment and organisational culture (LOC) exert a considerable positive effect on the SMEs' adoption of green procurement (GPA), whereas employee awareness and capability (EAC) and resource and financial constraint (RFC) do not perform effectively. This conforms to the Resource-Based View (Barney, 1991) wherein the core competencies of an organisation, including management commitment and organisational culture, are considered as the driving force behind the competitive advantage. Leadership involved SMEs are in a better place to integrate sustainability in their procurement practices, which is what Liu et al. (2021) discovered, where they concluded that managerial experience and leadership have strong motivating factors related to green procurement.

These findings are also widely aligned with the empirical literature, as Bassi and Guidolin (2021) discovered that environmentally committed leaders have an effect on the choices that the SMEs take to implement green procurement in their organisations in the form of policies and operational training of employees. On the same note, Younis et al. (2022) observed that proactive environmental leadership heightens the uptake of green procurement. Nevertheless, the fact that there is no statistically significant relationship between employee awareness or resource limitation and the adoption of green procurement is not consistent with Fatoki (2022), who reported that lack of resources represents one of the biggest obstacles in small-and medium-sized enterprises. This implies that leadership commitment is more dominant than other intra-organisational determinants of adoption in the context of California.

The newness of this study is due to the realisation of the fact that employee awareness and financial limitations do not influence the pattern of green procurement adaptation much when there is robustness in the leadership directive. This signifies that the leadership determination can cover the shortcomings of the workforce strength and resource shortage barriers, and why the leader of SMEs must take sustainability initiatives as an organisational strategic priority.

➢ *Objective 3 Barriers to Adoption of the Green Procurement Among SMEs Externally/Contextually Correlations*

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Table 8 Correlations

Correlations				
		GPA	**RPB**	**SMC**
GPA	Pearson Correlation	1	.451**	.119*
	Sig. (2-tailed)		.000	.017
	N	400	400	400
RPB	Pearson Correlation	.451**	1	.168**
	Sig. (2-tailed)	.000		.001
	N	400	400	400
SMC	Pearson Correlation	.119*	.168**	1
	Sig. (2-tailed)	.017	.001	
	N	400	400	400
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

The Pearson correlation display indicates that there is a significant correlation among the study variables. Green procurement adoption (GPA) and regulatory and policy barriers (RPB) are moderately positively correlated, and such a connection is statistically significant ($r = 0.451$, $p < 0.001$). This implies that the more the regulatory and policy needs the SMEs feel, the higher the tendency to adopt the green procurement practices. GPA and suppliers and market constraints (SMC) are loosely positively correlated, as well, with a correlation coefficient of 0.119, and increasing to significance at the 0.05 level ($p = 0.017$). This implies that the impact of the relationship between supplier and market constraints and the adoption of green procurement is not very high. There also exists a weak positive correlation between RPB and SMC, but their correlation coefficient is 0.168, and it is significant ($p = 0.001$). It means that the perception of regulation and policy barriers among SMEs will be associated with the perception of greater supplier and market barriers.

➢ *Model Summary*

Table 9 Model Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.453[a]	.205	.201	.51755
a. Predictors: (Constant), SMC, RPB				

The regression model presents an R value of 0.453, implying that there is a moderate positive relationship between the independent variables (SMC and RPB) and the dependent variable. R Square is 0.205, which implies that the two exclusive predictors used in the model (SMC and RPB) explain about 20.5% of the variance in the dependent variable. This is an indication that, though the model explains some of the variability, there are other factors not yet represented in the model that affect the dependent variable. It is 0.201 for Adjusted R Square (the number of predictors is accounted for in it). This means that 20.1% of the outcome variance is accounted for after taking into consideration the complexity of the model. The standard error of estimate is 0.51755, and it is an average of the distance between the line of the regression and the observed values. The smaller the number, the better the fit to the model; the standardised error/scale is moderate compared to a standardised scale.

Table 10 The ANOVA Results Show that the Overall Regression Model is Statistically Significant.

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	27.477	2	13.738	51.290	.000[b]
	Residual	106.339	397	.268		
	Total	133.816	399			
a. Dependent Variable: GPA						
b. Predictors: (Constant), SMC, RPB						

The F-value amounts to 51. 290 with a p-value (Sig) amounting to 0.000, which is smaller than the standard alpha of 0.05. The result shows that the model is more accurate in fitting the data as compared to a model that has no predictors. Namely, the Regression Sum of the Squares is 27.477, and the degrees of freedom are 2, whereas the Residual Sum of the Squares is equal to 106.339, and the number of degrees of freedom is 397. The Total Sum of Squares is 133.816, and this is the measure of total variation in the dependent variable (the GPA) that is explained by both the model and the residual (error). The F-value is 51.290, and the p value (Sig) is 0.000 less than the traditional alpha level of 0.05. It shows that the model is a better fit of the data in relation to a model that has no predictors. In particular, a Regression Sum of Squares is 27.477, having the degrees of freedom equal to 2, whereas the Residual Sum of Squares equals 106.339 and has the degrees of freedom equal to 397. The Total Sum of Squares is 133.816, which is the overall variation in the dependent variable (GPA) that is explained by the model and the residual (error).

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➢ *Coefficients*

Table 11 Coefficients

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	2.463	.204		12.097	.000
	RPB	.379	.039	.443	9.771	.000
	SMC	.037	.038	.045	.987	.324
a. Dependent Variable: GPA						

As the regression results indicate, the constant gives an unstandardized coefficient of 2.463, and it is statistically significant ($p < 0.001$). This implies that the green procurement adoption (GPA) will be 2.463 when both regulatory and policy barriers (RPB) and suppliers and market constraints (SMC) equal zero. Taking SMC to be constant, the coefficient of RPB is 0.379, so that as the regulatory and policy barriers grow by one unit, there is an increase of 0.379 units in the adoption of green procurement. This effect is significant ($p < 0.001$), and the standardised coefficient (Beta) value is 0.443, indicating a negative decisive impact of RPB on adopting green procurement. It means that those SMEs think there are more regulatory and policy requirements are more likely to adopt green purchasing practice to a higher extent. The coefficient of SMC, on the other hand, is 0.037, implying that when there is an increase of one unit in the number of suppliers and market constraints, there is a corresponding increase in the green procurement adoption by 0.037 units at the RPB constant level. This impact, however, is not statistically significant ($p = 0.324$), but its standardised beta is 0.045, which means that it has a very weak and negligible effect on green procurement adoption. All in all, the results indicate that regulatory and policy barriers are major predictors of the degree of green procurement adoption of SMEs, whereas supplier and market constraints do not play a significant role in the suggested model.

The findings indicate that regulatory and policy barrier (RPB) displays a strong positive impact on the adoption of green procurement (GPA) in SMEs, whereas supplier and market constraints (SMC) do not show a significant impact. This result is comparable with Institutional Theory (DiMaggio & Powell, 1983) which posits that coercive forces, e.g., environmental policies, are the causes of organisational behaviour. The high and significant positive effect of RPB (0.443, $p < 0.001$) confirms Testa et al. (2022), who concluded that a positive perception of regulatory expectations promotes the idea in SMEs that these encouraged them to seize opportunities to reap sustainable practices.

Empirically, Khan et al. (2023) observed that the lack of uniformity and consistency of the regulation is a hindering factor to green procurement adoption. Nevertheless, in the research, the positive correlation shows that when regulations are certain and enforced, SMEs react by adopting green procurement as one of their practices. This sounds similar to Alzawati et al. (2021), who identified that clear policy and supportive regulation push the sustainability efforts of SMEs.

Curiously enough, both supplier and market constraints did not denote important predictors of green procurement adoption. This is unlike Younis et al. (2022), which disclosed that low quantities of green suppliers in the market limit the purchasing decisions of SMEs. The novelty of the study lies in the fact that in California, SMEs factors that influence the adoption of the policy are related not to the market forces, but to the regulatory requirements, which speaks to the supremacy of policy-over-path decisions when compared to the market forces standard in promoting sustainable procurement. It means that there can be greater power in influencing the adoption of green procurement by SMEs through regulatory frameworks compared to an approach that concentrates only on market-based solutions, so a very important policy and practice lesson is learned regarding the strategies that can be used to improve the sustainability of development.

V. CONCLUSION, LIMITATIONS AND RECOMMENDATION

This research paper worked on the external barriers to the adoption of green procurement by SMEs in California. The findings further indicated that regulatory and policy hindrances are strong factors that influence green procurement practices, which means that SMEs are positively responsive towards clear and implemented environmental regulations. Supplier and market limitations, in their turn, indicated no significant influence on the adoption decisions. Such findings affirm some aspects of Institutional Theory underlining the presence of coercive pressures in the development of organisational behaviour. Contrary to the findings of earlier research on market restriction being significant hindrances, this research has revealed that the regulatory systems are much more determinant as compared to market preparedness in motivating the SMEs to embrace sustainability in procurement. This indicates that increasing the compliance measure to improve the level of participation of SME to participate in sustainability activities is the responsibility of policymakers, and they should focus more on strengthening the environmental laws. On the whole, the fact that market limitations still exist, but clear and favourable regulatory frameworks are the most important external factors that influence the green procurement adoption by SMEs in the Californian environment constitutes the novel contribution of the work.

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There are various ways in which this study does not help. Externally, there was the use of a cross-sectional design that records data at one time only, and this reduces the possibilities of determining a causal relationship between the variables, like leadership commitment and adoption of green procurement. Second, self-reported data gathered by self-reporting conducted by SMEs may be affected by the social desirability bias: the respondents are unable to report their sustainability practices truthfully because they intentionally exaggerate them in order to portray their firms in a positive light. Third, the study only considered SMEs in California and therefore the results of the research may be limited in how to apply its results to other states or even nations with a distinct set of regulations, markets and culture. Also, the study failed to observe the differences in the sector, and these could affect the adoption of green procurement in different industries. Finally, quantitative data were the only data obtained, not qualitative information, which could have added to the knowledge of contextual variables affecting the application of green procurement among SMEs.

Based on the findings, the policymakers need to tighten the existing policies on the environment by offering guidelines and a steady publication on the execution to push the promotion of green procurement by SMEs. Faster compliance systems and incentives with a focus on finances, including tax rebates/subsidies, will also encourage SMEs to incorporate sustainability. As a practice, managers of SMEs are encouraged to focus on sustainability by making green procurement part of their culture and training employees in order to become more conscious and competent. Associations can be formed within the industry to support partnerships between the suppliers in order to enhance the access of SMEs to suppliers with a certified environment.

The next course of action in academia would be to examine the sector-specific barriers and effects of regulation changes on SMEs' green purchases over time. The interaction between inside competences and outside forces in regional contexts should also be studied by researchers to enhance theoretical comprehension. Altogether, the provided recommendations cover the institutional, operational, and knowledge-based gaps, facilitating SMEs to become active participants in the national and international sustainability goals by means of effective implementation of green procurement.

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