Journal of Construction in Developing Countries, 29(1), 211–245, 2024

Exploring the Impact of Endogenic Factors on the Competency of Small and Medium Contractors in the Ethiopian Construction Industry

*Abraham Aboneh Bekele and Gangadhar Mahesh

First submission: 18 December 2022; **Accepted:** 5 September 2023; **Published:** 30 June 2024

To cite this article: Abraham Aboneh Bekele and Gangadhar Mahesh (2024). Exploring the impact of endogenic factors on the competency of small and medium contractors in the Ethiopian construction industry. *Journal of Construction in Developing Countries*, 29(1): 211–245. https://doi.org/10.21315/jcdc-12-22-0225

To link to this article: https://doi.org/10.21315/jcdc-12-22-0225

Abstract: Small and medium contractors (SMCs) significantly contribute to socio-economic development by creating employment opportunities and establishing inter-sectoral links with other sectors of the economy. Despite their significant contribution, evidence suggests their competency is underdeveloped due to several obscuring factors. As a part of a larger research, this study aimed to explore the endogenic factors affecting the sustainable competency of SMCs in the Ethiopian construction industry (CI). A thorough literature review was conducted to identify 65 endogenic factors arising from seven core sources. A questionnaire survey was used to collect the perceptions of industry stakeholders. Descriptive and inferential statistics were used for analysis. Findings indicated 63 significant factors affecting sustainable competency and the top factors were: employee's strategic and operational decision-making power, organisational leadership style, the existence of matured and developed entrepreneurial mindsets, the availability of institutional and business relationships, the inability to access financial resources, the lack of project management skills and low-profit margin due to competition. Factor analysis also identified 17 components. The findings from the study indicate the need to prioritise the areas of competitiveness improvement and the practical implications of making informed decisions for entrepreneurs. The findings of this study can also be used to develop a framework to create a conducive business environment.

Keywords: Endogenic factors, Ethiopian construction industry, Small and medium contractors, Sustainable competency, Ethiopian contractors

INTRODUCTION

Small and medium contractors (SMCs) are widely considered a critical underpinning for economic development in most developing economies, including Ethiopia. They contribute tremendously to the economy as they generate employment opportunities and infrastructure development. Furthermore, they foster strong inter-sectoral links with other sectors of the economy, making them one of society's most crucial development drivers (Ahiawodzi and Adade, 2012). For example, in the South African construction industry (CI), more than 95% of construction business entities are micro, small and medium enterprises. They generate 50% of employment opportunities and 45% of gross domestic product contribution/share (Chikeya, 2019). In Nigeria, small and medium-sized enterprises (SMEs) constitute a significant portion of the country's firms, accounting for 96% of the total. These SMEs

Department of Civil Engineering, National Institute of Technology, Karnataka, INDIA
*Corresponding author: abrahamaboneh.197cv001@nitk.edu.in

serve as the foundation of the economy (Effiom and Edet, 2018; Saka, Chan and Siu, 2020). Similarly, the Construction Registration Board (CRB) of Tanzania (2019) indicates that more than 94% of construction firms registered within the country fall under the category of small to medium-sized enterprises (CRB, 2019). In the context of the Ethiopian CI, this figure increases significantly to 96.34%, as reported by the Ethiopian Ministry of Urban Development and Construction in 2017.

The Ethiopian CI is characterised by low productivity and the use of obsolete technology, alongside less effective methods, which have put it at the tail of the industry chain (Ethiopian Economic Association, 2008). Moreover, the number of contractors engaged in major construction projects, such as highways and dams, is extremely low compared with the number of projects undertaken by the country. Compared to the country's annual need for construction projects, domestic contractors can only cover less than 30% of the construction gross value of production, necessitating the involvement of foreign contractors, as stated in the Ethiopian Business Review report of 2018. In addition, there are also very few consultants; thus, their ability to manage complex projects is constrained. As a result, it is difficult to maintain the trend of the existing industry with the current domestic capacity unless the domestic capacity is enhanced. However, for better development of the construction industry, it is important to identify the factors affecting and instituting measures to strengthen their capacity (Ethiopian Business Review, 2018).

Previous studies have explored the various factors of poor performance. Some affecting factors arise from an organisation (i.e., endogenic factors), while others arise from the business environment (i.e., exogenic sources). The endogenic factors include business management skills (Ogbu and Osazuwa, 2023), culture exercised within the organisation (Chowdhury et al., 2023) and organisational structure followed (Kulemeka, Kululanga and Morton, 2015). Whereas exogenic factors include all the systems and governmental policies (Taofeeq et al., 2022), regulatory frameworks (Boadu, Wang and Sunindijo, 2020), imports and foreign exchange transactions, availability of resources, corrupt practices, political climate, competitors and industry networks (Offei, Kissi and Nani, 2019). Thus, identifying and recognising the factors and their relationship with the business will allow for devising the required development instruments.

Numerous studies have investigated the Ethiopian CI's overall performance (e.g., Ayalew, Dakhli and Lafhaj, 2016; Ofori, 2018; Mengistu, 2019; Cheng and Darsa, 2021; Mengistu, Ashene and Halabo, 2023). However, only a few studies have focused explicitly on SMCs (e.g., Hiwot, 2012; Addisu, 2013; Borena, 2016; Arega, 2019; Ferejo et al., 2022; Era, Reddy and Mohan, 2023). These studies primarily explored the external or exogenous factors affecting the competency of SMCs within a broader context. This research highlights the need to address the endogenous factors that impact the competency of SMCs in the Ethiopian CI. Hence, it is imperative to identify and understand these factors and their relationship with the business, as this knowledge could enable the development of appropriate strategies and measures to bridge the gap and foster SMCs' competency.

This study addressed two research questions, namely: (1) what are the endogenic factors that impact the competency of SMCs in the Ethiopian CI and (2) how can addressing these factors improve their competitiveness and success in the industry? This research aimed to explore the endogenous factors affecting the sustainable competency of SMCs in the Ethiopian CI. By exploring aspects such

as organisational structure, culture, entrepreneurial characteristics, competitive strategy, resources, managerial skills and tendering processes, the study could provide valuable insights into the critical areas that influence the performance of SMCs. The findings of this study would contribute to the existing knowledge by uncovering the often-overlooked endogenic factors. They will provide practical implications for entrepreneurs, industry stakeholders and policymakers to make informed decisions and enhance the competitiveness and success of SMCs in the industry.

The structure of the study begins with an introductory section, which provides an overview of the background, the importance of SMCs and the context of the Ethiopian CI. The section identifies research gaps and outlines the study's aims. The literature review section investigates prior research on endogenic factors that influence the competency of SMCs and establishes the research hypothesis. Following the literature review, the research methodology explains the research design, questionnaire survey, data collection and analysis using descriptive statistics. The results and discussion section presents and interprets the findings. Finally, the study concludes with a summary of the research findings and their significance.

LITERATURE REVIEW

Sustainable competency reflects a generic term for organisational performance excellence that drives an organisation to success. Having sustainable competency enables the organisation to remain competitive in the market with consistency and integrity for an extended period (Edgar and Lockwood, 2008). Competencies result from converging organisational capabilities and managerial practices and resources to help achieve an organisation's goals (Tiruneh and Fayek, 2021). Organisations must have the competencies to thrive in the competitive business environment and address key critical factors impacting them (Simón, González-Cruz and Contreras-Pacheco, 2017). In this study, factors affecting the sustainable competencies of SMCs were researched using organisational structure, organisational culture, characteristics of entrepreneurs, competitive strategy, organisational resources, managerial skill and competency, and tendering and contract administration. Table 1 shows a review of endogenic factors affecting the sustainable competency of SMCs in the construction industry.

Table 1. Endogenic factors affecting the sustainable competency of SMCs

Core Endogenic Constructs	Components (Reference)
Organisational culture and structure	Leadership style and attitude of top management (Tran, 2021) Number of existing organisational units and their hierarchical levels (Gentile-Lüdecke, Oliveira and Paul, 2020) Company demographics (Singh, 2013) Organisational innovativeness (Akinosho et al., 2020)

(*Continued on next page*)

Table 1. *Continued*

Core Endogenic Constructs	Components (Reference)
Characteristics of entrepreneur	Commitment, determination and entrepreneurial mindsets (Neneh, 2011) Entrepreneur's demography (i.e., age, education, gender, socioeconomic origin and ethnicity) (Ogbu and Olatunde, 2019) Independence, autonomy, integrity and reliability (Prayetno and Ali, 2020) Creativity, problem solving and perseverance (Guritno, Suyono and Sunarjo, 2019) Innovativeness (Pihie, Asuimiran, S. and Bagheri, 2014) Risk taking propensity (Glowka, Kallmünzer and Zehrer, 2021)
Competitive strategy	Institutional and business relationships (Ali and Anwar, 2021) Market coverage (Amadasun and Mutezo, 2022) Image and reputation (Le, 2022) Bidding experience and resources (Flynn and Davis, 2017; Ogbu and Olatunde, 2019)
Organisational resources	Financial resources (Offei, Kissi and Nani, 2019) Access to construction materials, plants and equipment supplies (Ogunde et al., 2016) Access to information (Fida, 2008; Ogbu and Osazuwa, 2023)
Managerial skill and competency	Entrepreneurial skills (Offei, Kissi and Nani, 2019) Technical skills (Omran and Suleiman, 2017) Accounting and financial management skills (Offei, Kissi and Nani, 2019; Sarvari et al., 2021) Project management skills (Sarvari et al., 2021) Conceptual and legal skills (Chen et al., 2019) Supply chain planning and management skills (Kerekes and Felföldi, 2020) Strategic planning and performance management practices (Neneh, 2011) Human resources management skills (Mura, 2022)
Tendering and contract administration	Appropriateness of contract conditions and their enforcement (Offei, Kissi and Nani, 2019) Ability to cover the cost of purchasing tender documents (Shakantu, 2003) Ability estimating and job costing (Kulemeka, Kululanga and Morton, 2015) Tendering and contract management skills (Thomas, 2022) Claims management and dispute resolution (Donkor, 2011)

Further explanation on each endogenic factor is as follows:

1. Organisational Structure

The structure shows how an organisation is structured to accomplish its activities by defining job titles and relationships. It directs whether an organisation's activities

are clustered, supported by its functions or involve many management layers (Daft, 1992). A company's organisational structure serves as a visual representation of the company and as a foundation for measuring business performance and competency. The key structural variables include centralisation (the locus of authority of decisions and a defined chain of command), formalisation (codes and procedures), complexity (the number of activities or subsystems), standardisation (day-to-day coordination), departmentalisation (number of hierarchical levels and organisational units), specialisation (job rotation and variety) and coordination (direct control of the organisation) (Meijaard, Brand and Mosselman, 2002). It also highlights how organisational roles correlate with the organisation's resources, management operations and power distribution. The organisational structure allows a better understanding of the activities performed and the underlying relations in which the actors are interrelated (Chan, Shaffer and Snape, 2004; Dany, Guedri and Hatt, 2008).

2. Organisational Culture

An organisation's culture is a set of collective norms, basic assumptions, mental programmes and beliefs that members of an organisation possess (Yun et al., 2020). Organisational culture affects the way people interact with each other and stakeholders. A great culture displays positive characteristics that lead to increased performance, whereas a defective culture elicits traits that can sabotage even the most successful organisations (Needle, 2004). In research conducted by Cameron and Quinn (1999) on organisational success, they developed an assessment instrument that distinguishes four culture types based on flexibility vs stability and internal vs. external focus polarities. These polarity constructs were clan culture (i.e., positive attitude, participation, teamwork and consensus), adhocracy culture (i.e., creativity, innovation and risk-taking), market culture (innovativeness, competitiveness and achievement of measurable goals and targets) and hierarchy culture (i.e., stability, productivity and setting up formal rules and policies). Cameron and Quinn (1999) also established a positive cultural domain (e.g., collective objectives and values, internal focus) and a negative cultural domain (e.g., inflexibility and external orientation).

However, a study by Saltzman (2006) revealed a new culture-trait model. The model was developed from Cameron and Quinn's (1999) failure to predict overall organisational performance, implying that it either spanned quite a broad range of behaviours or was not sufficiently refined. Further research by Denison and Mishra (1995) produced a hierarchical culture model (i.e., positive and negative aspects of organisational culture), but with labels differing from Cameron and Quinn's (1999) construct of "culture". These researchers labelled the tripartite culture, polarity and hierarchy as cultural traits.

3. Characteristics of Entrepreneurs

Entrepreneurs are action-oriented individuals who are highly motivated to take risks to achieve their goals. These features of an individual are considered indispensable. They may take many forms, namely creativity, self-reliance, ability to adapt, tolerance of ambiguity and uncertainty, opportunity obsession, and commitment and determination (Neneh, 2011). Entrepreneurs are always ready to face environmental changes with well-planned strategies that prioritise modification and cost-cutting to achieve a better performance than their competitors (Snyder and Shane, 2009). They are generally driven by their ambition, assertiveness,

creative motivations and inquisitive minds, which serve as central figures in creating opportunities (Shamsheri et al., 2021).

4. Competitive Strategy

A competitive strategy is characterised as an organisation's long-term plan to gain a competitive advantage over its business rivals. Its goal is to establish a defensive position while earning a high return on investment. Competitive advantage is gained via strategic resource management, competencies, capabilities and responsiveness to external opportunities and threats (McGee and Sammut-Bonnici, 2015). Changes in the environment force SMCs to be strategically competent. This external pressure encourages SMCs to engage in strategic planning activities in order to optimise and enhance performance (Yahya, 2015). Within this context, Porter (1985) proposes three competitive strategies: (1) a strategy of being less expensive than compactors (cost leadership strategy), (2) a strategy aimed at offering unique products and services that are valued by buyers (differentiation strategy) and (3) a strategy aimed at the focuser selecting a buyer group or segment and serving them (focus strategy).

5. Organisational Resources

The availability, access and effective management of organisational resources are critical to the success of SMCs (Kulemeka, Kululanga and Morton, 2015). There are three basic types of organisational resources during the business process, namely: combined, used and transformed. These resources are often described as human, financial or physical resources. Human resource capability is fundamental to developing and maintaining competitive advantages for small and medium firms. Developed human resources refers to individuals who are progressively developed by earning knowledge, abilities, skills, attitude and behaviour changes that affect organisational performance, and the use and development of human resource knowledge and abilities affect organisational performance (Mengistu and Mahesh, 2020).

On the other hand, financial resource is a term covering all the organisation's monetary assets. It is the money available to the company including in terms of cash, liquid securities, shares, bonds and credit lines. Entrepreneurs need to secure sufficient financial resources for efficient and successful business operations. Inadequate budget allocations, failure to provide collateral for obtaining financing, budgetary overruns, lack of cash flow management skills and systems, poor access to working capital, high-interest rates and complicated procedures are among the financial resource challenges that SMCs face (Moo and Eyiah, 2020). In addition, SMCs face challenges related to access to plants and equipment, high labour and material costs, and high costs of innovation and technology.

6. Managerial Skill and Competency

Managerial competency comprises a valuable combination of knowledge, personal attitudes, skills and pertinent experience. These essential attributes should be given utmost importance and recognised as vital assets (Chen et al., 2019). Managing a construction business is not easy. If one lacks the requisite experience and proficiency to manage it, then its failure is inevitable. A construction business requires understanding its cycles, technicalities and the processes related to managing it among its managers or entrepreneurs. Papula (1995) states that

managers need to influence people's behaviour to achieve their goals effectively and efficiently through planning, organising, leading and controlling organisational resources. In doing so, they are required to have the ability to search for and find new solutions (creativity), self-control and regulation (discipline) and be able to handle stress and uncertain conditions (cautiousness). Similarly, Piškanin and Rudy (2006) state that technical skills associated with methods and techniques of management, interpersonal skills concerned with the ability to lead people by motivation and conflict handling, conceptual skills in which way managers see the entire organisation and communication skills focused on the ability of the manager to disseminate and receive information are the capabilities required to fulfil duties. Apart from possessing and developing these qualities, managers are also required to maintain skills related to business management, financial management, cash flow management (cash flow forecast and cost-benefit analysis), supply chain planning and management skills and understand strategic planning and performance management practices (Neneh, 2011).

7. Tendering and Contract Administration

In a competitive CI, tender documents are evaluated first by technical and financial criteria. Before the technical and financial evaluation, bidders must pass the prequalification criteria. However, SMCs fail to secure prequalification criteria and technical thresholds due to a lack of equipment, human resources and office space. In addition to this, most of the invitations to tender fail to consider the technical capacity of small contracting firms (Shifidi, 2010). Similarly, Shakantu (2003) emphasis the inability of contractors to spend money on purchasing tender documents, transport and phone bills to get quotations from suppliers, time taken for the estimator to price the tender document, tender guarantees or letter of intent payments as well as postage cost of tender documents for opening and poorly prepared tenders or estimates are among the vital causes of failure. Construction contracts are written documents that define the roles, responsibilities and work and are legally binding on the parties involved (i.e., owner and contractor). For reliability, the contract documents should be complete and unambiguous. However, Laryea (2010) reveals that inappropriate contract conditions, incomplete contract documents and failure to resolve contract disputes are significant issues. Furthermore, other researchers identified challenges such as poor supervision and monitoring (Fida, 2008), the uncooperative attitude of parties to a contract and weak enforcement of contract rules and regulations (Offei, Kissi and Nani, 2019), poor estimating and job costing (Amoah, Ahadzie and Dansoh, 2011), poor contract management (Kulemeka, Kululanga and Morton, 2015) and the lack of preferential/affirmative procurement policies (Chilipunde, 2010).

Understanding the underlying factors impacting the sustainable competency of SMCs is difficult due to the broad nature of the subject under investigation. As a result, it is necessary to investigate and thoroughly understand the critical aspects from various viewpoints. An extensive literature review was conducted to identify 65 potential factors from seven core constructs. The identified determining core constructs were organisational structure, organisational culture, characteristics of entrepreneurs, competitive strategy, organisational resources, managerial skill and competency, and tendering and contract administration. It was presumed that there was a strong relationship between the factors and that each factor was interrelated with shared variables. The determinant factors were also mutually

dependent; therefore, improving one of the factors would improve the others. Based on the detailed existing theories and the factors, a hypothesis was developed concerning the relationships between research constructs. A conceptual framework for the study was also developed based on the factors described in the literature.

Hypothesis

The organisational structure, organisational culture, characteristics of entrepreneurs, competitive strategy, organisational resources, managerial skill and competency, and tendering and contract administration affected the sustainable competency of Ethiopian SMCs. For each variable, the null hypothesis (HO) was that the variable was unimportant and had no impact on the sustainable competency of SMCs. In contrast, the alternative hypothesis (HA) argued that the variable was important and impacted the sustainable competency of SMCs. The study assumed that the independent variables influencing the sustainable competency of SMCs through the seven core sources, mentioned in the previous hypothesis. On the other hand, the dependent variable was the ability of SMCs to compete in a competitive business environment and enhanced sustainable competency. The conceptual framework depicted in Figure 1 illustrates the study's foundation that integrated pertinent theories and concepts to investigate the impact of endogenous factors on the competency of SMCs in the Ethiopian CI.

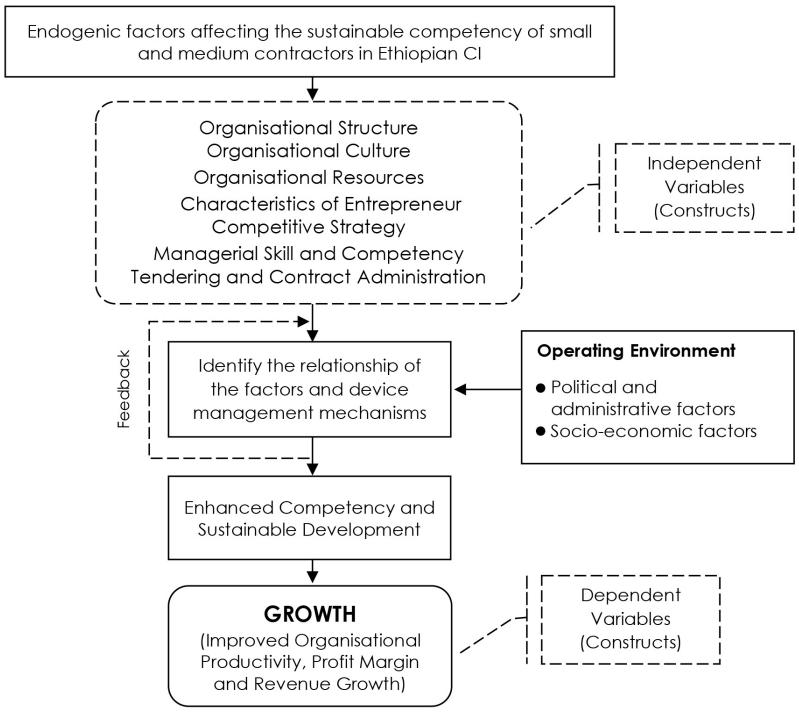

Figure 1. Conceptual framework of the study

RESEARCH METHODOLOGY

Identification of Endogenic Factors Affecting the Sustainability of SMCs

This study aimed to examine the endogenic factors affecting the sustainable competency of SMCs in Ethiopian CI. A literature review was carried out to understand the situation under inquiry and gain critical inputs in articulating the research conceptual framework. A structured questionnaire was later developed.

Questionnaire Survey Design

The survey questionnaire in this study was divided into three parts. The first section consisted of the introduction of the general and specific objectives of the research. The second section consisted of the respondents' demographic information and their company's background. The final part contained endogenic factors affecting SMCs' sustainable competency in which the respondents were asked to rank the variables based on their experiences. A scale of five ordinal measurements of agreement was high was used to estimate the mean score value of each variable, where 1 indicated "Very Low", 2 indicated "Low", 3 indicated "Moderate", 4 indicated "High" and 5 indicated "Very High".

A pilot test was conducted prior to finalising the questionnaire. A draft of questionnaires was distributed to 12 academicians and industry professionals to check for errors, ensure word clarity and ease of understanding, determine how long it would take to complete and get feedback. Following that, the questionnaire was appropriately revised in light of the comments and suggestions received.

Sampling Technique and Sample Size for the Study

The purposive sampling technique was used to select study respondents who were contractors, consultants, government bodies and academicians. According to Walliman (2005), purposive sampling is an effective sampling technique that enables a researcher to get data from a population sample that the researcher feels the respondents understand the subject matter well. The right sample size was also determined. The suitable sample size was derived from a previous study by Czaja and Blair (1996).

The sample size determination can be calculated by Equation 1:

$$\text{Sample size} = \frac{z^2 p\,(1-p)}{e^2} \qquad \text{Eq. 1}$$

where, z is a standardised variable, p is the percentage of picking a choice (in decimal) and e is the desired level of precision (i.e., the margin of error).

The worst-case percentage choice decision of 50%, as in Oyewobi (2014), was expected to create a sample size with a certain degree of accuracy. The 95% confidence level (0.05 significance level; $z = 1.96$) was also chosen. It is crucial to balance sample sizes, margins of error and confidence levels while performing a population survey to produce a reliable result as economically as possible. In order to maximise accuracy and economy, a marginal error of 8% was allowed. The chosen margin of error was also in accordance with the findings of Ingle

(2020), who used 8% in his research. Thus, the minimum required sample size for the questionnaire survey was 151. Accordingly, a total of 328 questionnaires were distributed and a total of 177 (53.96%) responses were collected.

QUESTIONNAIRE ADMINISTRATION AND COLLECTION

Traditional (paper-based) and web-based approaches were used to administer the survey questionnaire. The paper-based questionnaire was distributed to the respondents in person, while the web-based survey was created in Google Form and disseminated to respondents via emails and/or social media addresses. In this study, data was collected from a diverse range of stakeholders in the Ethiopian CI. The sample included contractors (public and private), consultants (public and private), public clients, research and academic institutions and regulatory authorities. For contractors and consultants, the target respondents' lists were obtained from the Ethiopian Construction Works Regulatory Authority's database, a government body responsible for registering and licensing construction and consulting companies. This database provided reliable information and facilitated identifying and tracking the target respondents. Similarly, respondents from research and academic institutions, as well as regulatory authorities, were selected based on their direct exposure and involvement in the subject matter of the study. The aim was to include individuals with expertise and experience in the construction industry to provide valuable insights and perspectives.

Analysis Methods

Descriptive statistics (mean-score values) were used to identify and measure the perceived impact level. Particularly, a one-sample *t*-test was used to measure the significance level of the variables, considering a hypothetical mean value of 3.00 with 95% confidence. The considered hypothetical mean suggested that the factors might have a moderate impact on the sustainable competency of SMCs. This is supported by Mengistu and Mahesh (2020), who conducted a similar study on the Ethiopian development of the CI. Based on the one-sample *t*-test result, the null hypothesis was rejected for *p*-values were more significant than the selected threshold of significance (5%). Therefore, the alternative hypothesis was accepted and vice versa.

Factor analysis was also used to describe the interrelationship between factors so that they could be grouped into a small set of components. Hence, the underlying factors were identified using principal component analysis with Varimax rotation, a significant tool for determining the interdependence of variables (Field, 2009). Similarly, as suggested by Fan and Fox (2009), the relative importance of the extracted factors was also determined by ranking their factor scores (as shown in Equation 2).

$$F_i = \frac{\sum_{j=1}^{n} A_{ij}}{n} \qquad \text{Eq. 2}$$

where, *Fi* represents factor score, A_{ij} represents the mean score of the *j*th variable of factor *i* and *n* represents the number of variables associated with the factor.

RESULTS AND DISCUSSIONS

Demographic Profile of Respondents

Table 2 summarises the designation of respondents according to their company category, area of establishment, work experience and grade of the company.

Table 2. Profile of the respondents

Description			Frequency	Proportion (%)
Company category		Contractor	80	45.20
		Consultant	88	49.72
		Regulatory authority	5	2.82
		Research and academic institution	4	2.26
Area of establishment		Building construction	34	19.21
		Road construction	41	23.16
		General (all infrastructure)	93	52.54
		Others	9	5.08
Work experience		Less than 5 years	12	6.78
		6 years to 10 years	75	42.37
		11 years to 15 years	49	27.68
		16 years to 20 years	22	12.43
		21 years to 25 years	16	9.04
		More than 26 years	3	1.69
Grade of the company	Contractor	G1 and G2 (large contractors)	28	15.82
		G3 to G5 (medium contractors)	33	18.64
		G6 to G10 (small contractors)	19	10.73
	Consultant	G 1	65	36.72
		G 2	19	10.73
		G 3	2	1.13
		G 4	1	0.56
		G 5	1	0.56
	Others		9	5.08

EVALUATION OF THE ENDOGENIC FACTORS AFFECTING THE SUSTAINABILITY OF SMCS

The collected data were analysed using IBM SPSS version 20. The results of Kaiser-Meyer-Olkin (KMO, sampling adequacy), Bartlett's test (suitability of data) and Cronbach's alpha (reliability of data) are displayed in Table 3.

Table 3. Test for appropriateness of data

No.	Sources of Variables	Alpha (α) Value	KMO	Bartlett's Test of Sphericity	Number of Variables
1	Organisational structure	0.786	0.819	Significant	8
2	Organisational culture	0.800	0.816	Significant	8
3	Characteristics of entrepreneur	0.835	0.857	Significant	11
4	Competitive strategy	0.846	0.851	Significant	9
5	Organisational resources	0.820	0.839	Significant	8
6	Managerial skill and competency	0.809	0.826	Significant	11
7	Tendering and contract administration	0.699	0.722	Significant	10

As Cserháti and Szabó (2014) suggested, the KMO value above the 0.6 threshold value is considered acceptable. This study's overall sampling adequacy ranged from 0.722 to 0.857, signifying a good result. Similarly, Bartlett's test for appropriateness of data was conducted. The result showed that all the factors were significant. A Cronbach's alpha value of greater than or equal to 0.6 is accepted, as advised by Eisinga, Grotenhuis and Pelzer (2013). The value of the current study ranged from 0.699 to 0.846, implying that the factors were consistent and reliable.

Variables Emanating from Organisational Structure

This section expands on the influence of organisational structure on the sustainable competency of SMCs. Table 4 shows the results of the survey questionnaire analysis, namely mean value, ranking, standard deviation and one-sample *t*-test. The top three ranked variables were employees' strategic and operational decision-making power (i.e., decentralisation), company demographics (age of the organisation, stage of maturity, number of employees and geographic region) and company policies and procedures. The significant value obtained from one sample *t*-test indicates that all the variables are statistically significant, as their *p*-value was less than a 5% level of significance. Accordingly, the null hypothesis was rejected.

Table 4. The analysis result of variables emanating from organisational structure

Variables Emanating from Organisational Structure	Combined Result				Factor Analysis	
	Mean	Rank	Standard Deviation	*T*-test	C1	C2
Organisational specialisation and task diversification	3.15	8	0.836	0.016	0.822	
Existence of comprehensive control systems	3.16	7	0.755	0.004	0.813	
Company policies and procedures	3.24	3	0.861	–	0.812	
Suitability of the organisation structure (i.e. number of existing organisational units and their hierarchical levels)	3.22	4	0.799	–	0.783	

(*Continued on next page*)

Table 4. *Continued*

Variables Emanating from Organisational Structure	Combined Result				Factor Analysis	
	Mean	Rank	Standard Deviation	*T*-test	C1	C2
Company demographics (age of the organisation, stage of maturity, number of employees and geographic region)	3.27	2	0.808	–		0.810
Formalisation and standardisation of activities within the company	3.18	6	0.796	0.004		0.798
Employee's strategic and operational decision-making power (i.e. decentralisation)	3.31	1	0.871	–		0.742
			Factor score		3.36	3.24
			Initial eigenvalue		3.22	2.01
			% of variance		40.26	25.07
			Cumulative variance (%)		65.33	

Factor analysis was performed to extract the eight items under this category. The analysis yielded two components with a cumulative variance of 65.33%, and the components were Component 1: Organisational Structure and Corporate Diversification and Component 2: Company Demographics and Shared Services.

The organisational structure measures the complexity of an organisation's hierarchical arrangements (Meijaard, Brand and Mosselman, 2002). Complexity can be manifested in several ways, such as the number of administrative units, the existing chain of command, reporting relationships and the division of authority. Thus, a suitable structure functions as support, giving the organisation stability while driving it to adapt to its surroundings. Similarly, company policies and procedures help create the organisation's rules of conduct, defining the responsibilities of both employees and employers. A sound policy is also essential in any organisation and should be clear, determined and free from conflicting views and confusion. Involving employees in strategic and operational decision-making (decentralising decision-making power) increases job satisfaction, fosters a positive attitude and encourages a strong sense of teamwork, increasing productivity as employees are actively involved in various aspects of the organisation.

In general, the finding supports Legge's (2020) claim that decentralised decision-making allows for less rigidity and flatter hierarchies in organisations, allowing for more creativity and efficiency closer to the means of production. The findings, however, contradict Phan (2000), who claimed that a centralised structure leads to better outcomes than a decentralised structure. According to Phan, a centralised structure requires top management to constantly monitor and evaluate the organisational structure and set goals and priorities for each management level, resulting in success.

Variables Emanating from Organisational Culture

This section considers the influence of organisational culture on the sustainable competency of SMCs. The analysis result in Table 5 indicates that organisational

leadership style, attitude of top management and availability of rewarding and incentive systems were the top impact factors. Furthermore, from Table 5, the one-sample *t*-test result indicates that all variables stated under this category significantly affected the sustainability of SMCs. Thus, the null hypothesis was rejected as the *p*-value was less than the chosen significance level.

Table 5. Survey result of organisational culture

Variables Emanating from Organisational Culture	Combined Result				Factor Analysis	
	Mean	Rank	Standard Deviation	*T*-test	C1	C2
Presence of defined task assignments and measurement techniques	3.33	8	0.816	–	0.868	
Presence of organisational adhocracy culture (i.e. creativity, innovation and risk-taking)	3.37	5	0.771	–	0.849	
Presence of organisational clan culture (i.e. participation, discretion, teamwork and integration)	3.35	7	0.893	–	0.847	
Presence of organisational bureaucratic culture (i.e., common attitudes, values, convictions and orientations)	3.36	6	0.881	–	0.830	
Attitude of top management	3.41	2	0.888	–	0.807	
Training and staff development	3.38	4	0.946	–		0.893
Availability of rewarding and incentive systems	3.40	3	0.984	–		0.884
Organisational leadership style	3.48	1	0.995	–		0.811
			Factor score		3.36	3.42
			Initial eigenvalue		3.65	2.15
			% of variance		45.58	26.92
			Cumulative variance (%)		72.50	

Factor analysis was performed to extract eight items under this category. As shown in Table 5, the factor analysis resulted in two components with a 72.50% cumulative variance. After analysing the items included in each component, they were named:

Component 1: Organisational Culture and Work Measurement

An organisation's culture is defined by common beliefs and values that impact employee perceptions, behaviours and understanding. The most successful businesses have a strong culture. On the other hand, an ineffective culture might have a detrimental impact on the company's bottom line and leadership. As the situation in the CI is not permanent and varies significantly, there is no one-size-fits-all cultural template that meets the needs of all organisations. Thus, blending and redefining the cultures (i.e., clan, adhocracy and bureaucratic cultures) and reconciling the differences helps companies meet their business goals. The findings

were consistent with the Competing Values Framework concept proposed by Quinn and Cameron (1983). According to Cameron and Quinn (1983), organisational effectiveness is determined by the dimensions of organisational focus (internal vs. external) and versatility (stability vs. flexibility). The model maps each dimension into quadrants, which were based on their weight, the resulting graph indicates what is most valued in an organisation, how it functions, how people cooperate and what the corporate values are. Similarly, the other remaining variables, such as the attitude of top management (e.g., being optimistic, confident, trusting and growth-oriented), with the presence of defined task assignments and measurement techniques, were believed to affect an organisation's culture strongly.

Component 2: Leadership, Staff Development and Rewarding System

A leadership style is a joint outcome of behaviours, personality traits and the underlying motives employed to achieve a common objective. It is the primary driver of increasing employee satisfaction, commitment and performance. Thus, the adopted leadership style influences the overall success of an organisation. The study results also supported the findings by Al Khajeh (2018), who claimed that their perception of the leadership style influences employees' commitment to the organisation. Similarly, staff development and the reward system were critical to an organisation's success as they promoted employee job satisfaction, motivation and commitment to work.

Variables Emanating from Characteristics of Entrepreneurs

This section considers the influence of entrepreneurs' characteristics on the sustainable competency of SMCs. The analysis results are summarised in Table 6. Table 6 shows the results of combined mean values, ranking, one sample t-test and factored variables. The existence of matured and developed entrepreneurial mindsets, confidence in one's own quality and capacity to accomplish objectives and the practice of setting a genuine objective and sense for achieving it were taken as the top-ranked characteristics of entrepreneurs. The significant variable obtained from the one-sample *t*-test indicates that all variables were statistically significant as their *p*-value was less than the 5% significance level.

Table 6. Survey result of the characteristics of entrepreneur

Variables Emanating from the Characteristics of Entrepreneur	Combined Result				Factor Analysis		
	Mean	Rank	Standard Deviation	*T*-test	C1	C2	C3
The practice of searching for and discovering new solutions	3.37	5	0.921	–	0.847		
The practice of forecasting the future from one own instinct	3.34	8	0.872	–	0.847		
The practice of making decisions based on own judgment	3.38	4	0.910	–	0.834		
The existence of matured and developed entrepreneurial mindsets	3.47	1	1.012	–	0.803		

(Continued on next page)

Table 6. *Continued*

Variables Emanating from the Characteristics of Entrepreneur	Combined Result				Factor Analysis		
	Mean	Rank	Standard Deviation	*T*-test	C1	C2	C3
The practice of leading individuals by inspiration and motivation	3.31	10	0.970	–	0.758		
The practice of setting a genuine objective and sense for achieving it	3.39	3	0.840	–		0.907	
Confidence in own quality and capacity to accomplish objectives	3.41	2	0.855	–		0.897	
Entrepreneur's demography (i.e., age, education, gender, socioeconomic origin and ethnicity)	3.36	6	0.914	–		0.809	
The practice of receiving and disseminating information	3.35	7	0.828	–			0.810
The practice of self-control and regulation of own behaviour	3.29	11	0.886	–			0.715
			Factor score		3.37	3.39	3.32
			Initial eigenvalue		4.52	2.03	1.17
			% of variance		41.11	18.48	10.61
			Cumulative variance (%)		70.20		

A principal component analysis was performed to extract 11 items indicated under this category. As shown in Table 6, the analysis yielded three components with 70.20% of cumulative variance. After analysing the items included in each component, they are named:

Component 1: Developed Entrepreneurial Characteristics and Mindsets

There was a relationship between the sustainable development of SMCs and developed entrepreneurial characteristics and mindsets. Every entrepreneur is unique, and no two paths to success are alike. However, all have certain common features that enable them to succeed. Some of these features include the existence of matured and developed entrepreneurial mindsets, the ability to search and discover new solutions, the ability to forecast the future based on one's instincts and make decisions based on one's judgment, the ability to search for additional opportunities and solutions for reaching the set objectives and the ability to lead individuals by inspiration and motivation. SMCs with entrepreneurial mindsets and a desire to develop should exhibit the essential skill sets to maximise their growth chances. The findings were also consistent with Dziallas and Blind (2019), who established a positive correlation between personal characteristics and the attitudes and mindsets of entrepreneurs.

Component 2: Entrepreneur's Demography and Self-efficiency

The qualitative and quantitative variables of demographic characteristics of entrepreneurs, such as gender, age, education, experience, ethnicity and socioeconomic origin, had a positive and significant impact on entrepreneurs'

success. For example, educated individuals are more productive and likely to become entrepreneurs than uneducated ones. On the other hand, individuals between the ages of 25 years old and 44 years old are eager and willing to be entrepreneurs. Similarly, entrepreneurs with prior business experience are way better than those without. Significant evidence was also observed of the core association of socioeconomic background with entrepreneurial traits. The findings also supported the positions of Soomro et al. (2019), who stated that gender, age, education and experience significantly affected entrepreneurial success features.

Other variables included the practice of setting a genuine objective and a sense of achieving it and confidence in own quality and capacity to accomplish objectives, collectively named self-efficacy. Self-efficacy refers to an individual's belief, quality and capacity to accomplish objectives. It also involves setting a genuine objective and making sense of it. A high level of self-efficacy enables entrepreneurs to develop creative insights and strategies for business operations (Brinckmann, Salomo and Gemuenden, 2011). A high level of self-efficacy also signified more stability and helped maintain an organisation's performance. The findings of this research indicated the importance of self-efficiency and its positive relationship with an organisation's performance.

Component 3: Self-regulation Skills and the Practice of Information Management

Self-regulation is a cognitive process necessary for regulating one's behaviour, thoughts and emotions to achieve specific goals. The SMCs' capacity for self-control and regulation and ability to make decisions under stress were essential for long-term sustainability. This finding supported the claims of Singh (2013) that having such attributes as an entrepreneur improves the organisation's performance. Another essential variable in this factor was the practice of information management. Information management involves gathering, storing, disseminating, archiving and discarding data. Effective information management ensures that the right people have access to the right data at the right time, allowing them to make the right decisions. Information management allows one to manage time and resources to achieve desired goals properly. In short, effective information management is necessary to survive in the competitive market due to limited resources and low utilisation by SMCs.

Variables Emanating from Competitive Strategy

This section considers the influence of competitive strategy on the sustainable competency of SMCs. The results of the analysis are summarised in Table 7. The availability of institutional and business relationships (i.e., relationships and alliances with suppliers, owners, competitors, government entities, etc.), market coverage, and image and reputation of the organisation are considered the top-ranking variables perceived by respondents. The null hypothesis was rejected for all variables as the *p*-value was less than the selected level of significance, 0.05.

Table 7. Survey result of competitive strategy

Variables Emanating from Competitive Strategy	Combined Result				Factor Analysis	
	Mean	Rank	Standard Deviation	*T*-test	C1	C2
Market coverage	3.95	2	0.834	–	0.867	
Bidding factors (i.e., experience and resources)	3.76	5	0.905	–	0.838	
Availability of institutional and business relationships (i.e., relationships and alliances with suppliers, owners, competitors and government entities)	4.03	1	0.842	–	0.827	
Image and reputation of the organisation	3.88	3	0.854	–	0.826	
The practice of setting a defined corporate strategy (i.e. vision, mission, objectives, strategies and plans) and implementing them accordingly	3.79	4	0.910	–	0.820	
Ability to compete (number, kind of competitors and range of competitive pressure from the level of equilibrium in demand and supply)	3.72	6	0.839	–	0.789	
The practice to utilise external advice (i.e., accountant, lawyer and business consultant)	3.32	8	0.955	–		0.901
The practice of being less expensive than competitors (i.e., cost leadership strategy)	3.38	7	0.946	–		0.872
The practice of making a strategic selection of potential clients (i.e., focus strategy)	3.19	9	0.913	0.007		0.863
			Factor score		3.86	3.30
			Initial eigenvalue		4.325	2.188
			% of variance		48.06	24.32
			Cumulative variance (%)		72.38	

Factor analysis was performed to extract 11 items indicated under this category. As shown in Table 7, two components were with 72.38% cumulative variance. After analysing the variables included in each component, they were named:

Component 1: Marketing Strategy

In a highly competitive and risky business environment, strategic alliances create a means to combine resources, knowledge and expertise to pursue a mutual interest, improving capabilities, core competencies and competitive advantages and also reducing uncertainties in business (Wei, 2007). The strategic alliances that an organisation forms impact its success. Some significant contributors to an alliance's success include expanding market coverage and exploring market opportunities

that neither could obtain by acting alone. Similarly, Smiley, Fernie and Dainty (2014) argue that the emergence of strategic alliances creates clear opportunities for SMCs to share their limited resources, including plants, equipment and personnel and minimise total value chain costs. Thus, parties in a strategic alliance should develop mutual trust, commitment, communication and joint problem-solving.

Component 2: Strategic Management

Strategic management was an essential tool used to relate the organisation to its environment to ensure its continued success and secure it from threats. Thus, entrepreneurs, as business managers, should possess the ability to comprehend the strategic position of the organisation and where shortfalls lie, formulate possible courses of action and implement them accordingly (Chinowsky, 2000). As advised by Porter (1985), a few strategic management practices that entrepreneurs should adopt in their business activities include the practice of being less expensive than competitors (i.e., cost leadership strategy), the practice of making a strategic selection of potential clients (i.e., focus strategy) and the practice of utilising external advice (i.e., accountant, lawyer and business consultant).

Variables Emanating from Organisational Resources

This section considers the influence of organisational resources on the sustainable competency of SMCs. As indicated in Table 8, the mean score analysis result demonstrated the inability to access financial resources (i.e., strict credit terms, high-interest rate, strict requirements for obtaining bonds/guarantees/sureties), inappropriate financial policies adopted within the company and inability to access plants and equipment the top impacting variables. The significant variable obtained from the one-sample *t*-test indicates that all variables stated under this category significantly affected the sustainability of SMCs. Thus, the null hypothesis was rejected as the *p*-value was less than the chosen significance level.

Table 8. Survey result of organisational resources

Variables Emanating from Organisational Resources	Combined Result				Factor Analysis	
	Mean	Rank	Standard Deviation	*T*-test	C1	C2
Inappropriate financial policies adopted within the company	3.45	2	0.738	–	0.883	
Inability to access plants and equipment	3.44	3	0.713	–	0.869	
Inability to access financial resources (i.e., strict credit terms, high interest rates and strict requirements for obtaining bonds/guarantees/sureties	3.46	1	0.839	–	0.853	
High cost of materials, labour force, innovation and technology	3.43	4	0.796	–	0.781	
High staff turnover	3.19	8	0.817	0.002	0.762	

(Continued on next page)

Table 8. *Continued*

Variables Emanating from Organisational Resources	Combined Result				Factor Analysis	
	Mean	Rank	Standard Deviation	*T*-test	C1	C2
Inability to access information resources	3.25	7	0.782	–		0.855
Ineffective and inconsistent resource management practice	3.32	6	0.724	–		0.849
			Factor score		3.39	3.30
			Initial eigenvalue		3.70	2.09
			% of variance		46.23	26.10
			Cumulative variance (%)		72.33	

Factor analysis was performed to extract 11 items indicated under this category. As shown in Table 8, two components had a 72.33% cumulative variance. After analysing the variables included in each component, they were named:

Component 1: Inability to Access Resources and High-Cost of Construction Inputs

The success of construction contractors largely depended on the availability of construction resources (i.e., materials, human resources, machinery and finance). These resources had a significant effect on construction performance. Hence, the inability to access these resources substantially impacted the organisation's growth and development. The research findings revealed that SMCs suffered from barriers related to the inability to access financial resources, inappropriate financial policies adopted within the company, inability to access plants and equipment and high cost of materials, labour force, innovation and technology. The result also agreed with the positions of Kulemeka, Kululanga and Morton (2015) and Offei, Kissi and Nani (2019) who advocated the correlation between access to resources and sustainable growth of SMCs.

Component 2: Poor Resource Management Skills

Construction resource management is the process of planning and allocating resources required to meet project objectives. Construction projects require carefully coordinating many moving parts; thus, keeping track of them can be difficult. Poor resource management skills were reflected by three variables: inability to access information resources, ineffective resource management practices and incompetent human capital. Poor resource management created a cascading effect of challenges resulting in a lack of productivity, idle equipment or waste materials. The results disagreed with the assertions of Amoah, Ahadzie and Dansoh (2011).

Variables Emanating from Managerial Skill and Competency

This section considers the influence of managerial skill and competency on the sustainable competency of SMCs. The variables under this category presumed lack

of project management skills (i.e., planning, organising, co-coordinating, controlling, motivating, communicating and leading), lack of contractual negotiation skills and the inability of entrepreneurs to understand the construction process as the top three most affecting factors. Similarly, the variables "Lack of technical skills" and "Lack of supply chain management skills" had a higher standard deviation, indicating the respondents' different perceptions about the variables. The one-sample *t*-test indicated that all variables were significant. Thus, the null hypothesis was not accepted as the *p*-value was less than the chosen significance level. The results of the analysis are summarised in Table 9.

Table 9. Survey result of managerial skill and competency

Variables Emanating from Managerial Skill and Competency	Combined Result				Factor Analysis		
	Mean	Rank	Standard Deviation	*T*-test	C1	C2	C3
The inability to establish and implement a strategy	3.87	4	1.055	–	0.883		
The inability of entrepreneurs to understand the construction process	3.90	3	1.045	–	0.881		
Lack of contractual negotiation skill	4.02	2	1.042	–	0.867		
Lack of project management skills (i.e. planning, organising, co-coordinating, controlling, motivating, communicating and leading)	4.03	1	1.189	–	0.829		
Lack of supply value chain management skills	3.65	5	1.193	–	0.695		
Lack of technical skills	3.50	6	1.207	–	0.673		
Lack of information and communications technology (ICT) and information management skills	3.42	7	0.877	–		0.747	
Lack of human resources management skills	3.21	10	0.879	0.001		0.729	
Lack of legal skills	2.89	11	0.790	0.050		0.487	
Ineffective financial management ability (i.e. estimating, cash flow and cost control)	3.39	8	1.023	–			0.814
The inability to handle multiple projects at once (i.e. at the organisation level)	3.24	9	0.919	0.001			0.741
			Factor score		3.83	3.38	3.32
			Initial eigenvalue		4.23	1.39	1.16
			% of variance		38.45	12.66	10.78
			Cumulative variance (%)		61.89		

Factor analysis was performed to extract 11 items indicated under this category. As shown in Table 9, three components were with a 61.89% cumulative variance. After analysing the variables included in each component, they were named:

Component 1: Poor Corporate Management Skills

Entrepreneurs in their specific disciplines mostly started small businesses or engaged in start-up activities. These business owners had little knowledge and experience in management. In addition, they rarely entrusted their organisation to managers or tried to learn it on their own. Hence, they had difficulties as they concentrated on their specific area of knowledge at the expense of management and managing skills. At this point, a number of studies have confirmed that poor management skills are the root cause of failed businesses. Some attributes include poor management metrics such as lack of project management skills, lack of technical skills, lack of supply chain management skills, lack of ICT and information management skills and lack of contractual negotiation skills. Thus, management skills could be improved by acquiring basic skills and knowledge in managerial functions. Improved management skills will help develop the SMCs effectively in the competitive business environment.

Component 2: Inability to Understand and Manage the Construction Process

Construction management is a comprehensive process that guides and arranges every stage of the project's life cycle, from conception to conclusion. It is a complex professional service that employs specialised project management techniques to monitor the integration of various services during the project phases of planning, designing, execution and commissioning, intending to meet project objectives such as quality, cost, time and scope, among others. As a result, entrepreneurs who work as construction managers must possess particular skills. Some skill sets include understanding the construction process, formulating and implementing strategy effectively and addressing legal, contractual, regulatory and transactional problems and procedures related to building. The organisation's success would thus be affected if certain skills were lacking.

Component 3: Inability to Manage Multiple Projects and Ineffective Financial Management

Running a successful construction organisation is risky and requires specific financial management skills. Allocating resources for appropriate planning and financial management is critical in a risky and uncertain industry like construction. Financial management involves planning for costs and working capital, accounting for financial resources, managing profits, managing cash flows and making financial decisions. It also involves determining the most efficient sources of capital that may be used for financing the project. Research studies have shown that proper financial management can be a significant factor in the failure of projects. Many construction enterprises went bankrupt as a result of ineffective financial management. As a result, to succeed in today's competitive business environment, SMCs entrepreneurs must thoroughly understand financial management and establish financial management abilities. The findings also supported the positions of Amoah, Ahadzie and Dansoh (2011). Another essential variable in this category was the difficulty of managing multiple projects simultaneously (i.e., at the organisational level). Lack of project management skills, poor communication skills, inability to assign tasks and other factors contributed to failure to manage multiple projects. Hence, analysing

the scope of a project, planning the implementation, communicating with team members and managing risks were all essential alternatives for successful SMCs.

Variables Emanating from Tendering and Contract Administration

This section examines the variables emanating from tendering and contract administration. Table 10 presents the analysis result of the survey questionnaire. Accordingly, the top three competency-impacting variables were low-profit margin due to competition, inability to cover tendering expense and failure to secure prequalification criteria and technical threshold. The one-sample *t*-test indicated that all the remaining variables significantly impacted sustainable competency, except for the inability to utilise preferential/affirmative procurement systems. The component analysis also ignored the influence of poor pricing and contract administration skills, as its loading was less than 0.5.

Table 10. Survey results of tendering and contract administration

Variables Emanating from Tendering and Contract Administration	Combined Result				Factor Analysis		
	Mean	Rank	Standard deviation	T-test	C1	C2	C3
Inability to cover tendering expense	3.56	2	1.070	–	0.828		
Failure to complete and submit the bid document within the allotted tender floating time	3.23	8	0.964	0.002	0.805		
Poorly designed contract documents (i.e., inappropriate and incomplete contract documents, weak enforcement of contract conditions and failure to resolve contract disputes)	3.44	5	1.027	–	0.795		
Routine discontinuity of work	3.27	7	1.014	–	0.770		
Inability to utilise preferential/affirmative procurement systems	3.06	9	0.972	0.396		0.787	
Revealing bill of quantities (BOQ) pricing in secret and unethical behaviour within an organisation staff	2.82	10	0.940	0.014		0.729	
Low profit margin due to competition	3.68	1	1.078	–		0.675	
Inability to understand, administer and interpret specifications and contract clauses	3.34	6	0.994	–			0.739
Failure to secure prequalification criteria and technical threshold	3.56	3	1.102	–			0.717
Poor pricing and contract administration skill	3.51	4	1.202	–			
			Factor score		3.38	3.19	3.45
			Initial eigenvalue		3.26	1.71	1.50
			% of variance		32.60	17.09	15.02
			Cumulative variance (%)		64.71		

Factor analysis was performed to extract nine items indicated under this category. As shown in Table 10, three components had a 64.67% cumulative variance. After analysing the variables included in each component, they were named:

Component 1: Poor Contract Management Capacity and Inadequate Contract Document

The success of a project's time, cost, quality and safety objectives were the indicators of effective contract administration. On the other hand, poor contract management was a significant source of inefficient construction, delays, unnecessary variations, conflicts and disputes that regularly result in interruption and routine discontinuity of work (Abotaleb and El-Adaway, 2018). Various factors caused poor contract administration, including a lack of contract administration skills (Kulemeka, Kululanga and Morton, 2015) and poorly designed contract documents (e.g., inappropriate and incomplete contract documents). Furthermore, poor supervision and monitoring (Fida, 2008), unwillingness and uncooperative attitude of parties to a contract, weak enforcement of contract rules and regulations (Offei, Kissi and Nani, 2019) and poor estimating and job costing (Amoah, Ahadzie and Dansoh, 2011) also were found as the causes to poor contract administration. Under this dimension, the other important variable was the failure to complete and submit the bid document within the allotted tender floating time.

Tender floating time is the time left until the tendering process ends, allowing contract participants to make decisions. Thus, tenderers must submit their quotations in the allotted floating time and submit their proposals to ensure a fair and transparent tendering process. It is also important to allocate sufficient tender floating time so that more firms have an opportunity to participate in the bidding process. The fourth important variable under this dimension was the inability to cover tendering expenses. SMCs spent money on a bidding process during the bid submission phase. These incurred costs included money spent on purchasing tender documents, transportation and phone bills to obtain quotations, time taken for the estimator to price the tender document, tender guarantees or letter of intent payments and postage cost of tender documents for opening. These were all factors that disproportionately affect SMCs. The result of the finding also agreed with the position of Shakantu (2003).

Component 2: Lack of Competence in Business Management and Unethical Practice

Competitive bidding on construction projects involves decision-making under uncertainty due to the unpredictable nature of the competitive business environment. Each bid is determined by several factors, including the estimated direct job cost (i.e., labour costs, material costs, equipment costs, wages and any subcontract attributable to direct work), markup or returned cost (i.e., overhead costs and profit) and the bid amount. However, the larger the markup, the less likely it is to get selected and the lower the markup, the more likely to go bankrupt. Competition among competing bidders for construction projects was high and the chance of winning the bid was low. SMCs preferred bidding with a minimal profit margin to get the work, putting them in danger of bankruptcy. Other essential variables under this factor were reviling BOQ pricing in secret and unethical favours.

The industry's quality, faith and confidence suffered due to the unethical actions. These practices could be discouraged and minimised by avoiding conflicts of interest, strict monitoring and proper supervision among the stakeholders in the CI.

Component 3: Lack of Technical Expertise and Inability to Meet the Technical Requirement

SMCs failed to meet prequalification criteria and technical requirements due to reasons including a lack of annual turnover, required machinery, human resources and office spaces. A potential challenge for the Ethiopian SMCs in a competitive bidding process also arose from the failure of the tender invitation to consider the technical capacity of tenderers, as many SMCs did not possess the expected technical degree. In efforts to support the SMCs, such challenges should be addressed, and affirmative technical criteria should be created. Another important variable in this component was the inability to understand, administer and interpret specifications and contract clauses. The inability to understand, administer and interpret specifications and contract clauses is a key factor in this component. According to recent studies, most SMCs lack knowledge and understanding of the contracts that were signed. They lacked a thorough understanding of construction clauses and conditions (Offei, Kissi and Nani, 2019). There were other problems, namely inadequate legal technicalities in the end stages of contract negotiations for construction projects, outdated specifications and design/construction documentation and a lack of practical expertise on how to run a contracting organisation.

The factors impacting the competency of SMCs also derived from external sources (exogenic aspects) emanating from the operating environment. These factors involved political, administrative and socioeconomic components, all of which play a role in moulding the sustainability and development of SMCs. Some of the external factors may include government policies and regulatory framework (Fida, 2008; Ogunbiyi and Bamgboye, 2016), technology and innovation (Ofori, 1994; Choi and Choi, 2015; Elkhalifa, 2016), CI Network (Jekale, 2004) and culture of competitive bidding (Fida, 2008; Shifidi, 2010; Kulemeka, Kululanga and Morton, 2015; Moo and Eyiah, 2020). Hence, recognising the interconnections between these factors and formulating efficient managerial approaches, administrative procedures and monitoring systems are crucial for enhancing competency and ensuring sustainable development.

The conceptual framework depicted in Figure 2 illustrates the study's finding that integrated pertinent theories and concepts to investigate the impact of endogenic factors on the competency of SMCs in the Ethiopian CI. The conceptual framework identified key components influencing the phenomenon of interest. These components were interconnected, implying that improvements in one can led to enhancements in others. By exploring these relationships, the study provides valuable insights into the endogenous factors impacting the sustainable competency and success of SMCs in the Ethiopian CI.

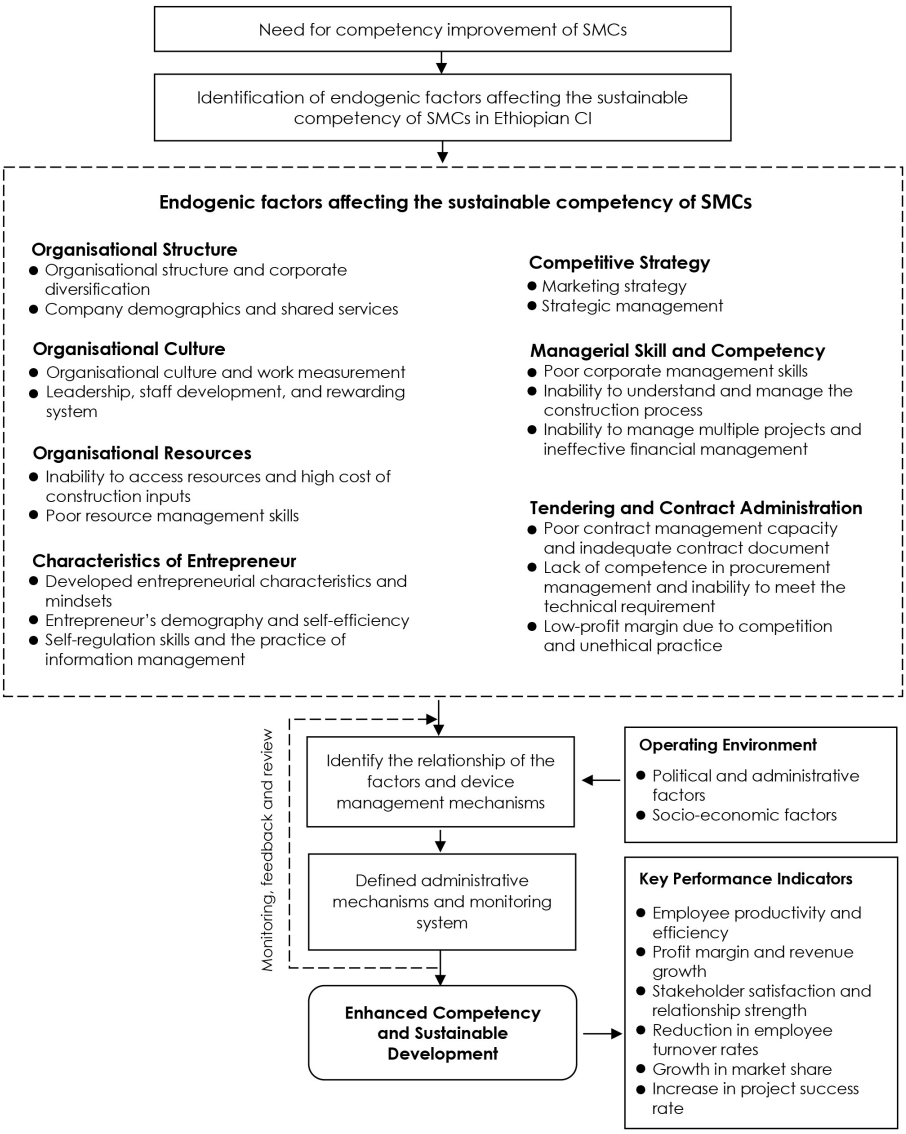

Figure 2. Framework for the endogenic factors affecting the sustainable competency of SMCs in the Ethiopian CI

Relative Importance of the Factors

The range of the component score provided a measure of how important the component was to overall preference. The factor score formula was used to determine the relative importance of the factors, as suggested by Fan and Fox (2009). The factor analysis result identified 17 components from 7 sources

with different factor scores. In this case, the highest component loadings were associated with higher relative importance, indicating the most crucial impacting factor. Hence, the top results from their respective core sources with respect to each factor score were: "Organisational structure and corporate diversification" from Organisational Structure, "Leadership, staff development and rewarding system" from Organisational Culture, "Entrepreneur's demography and self-efficiency" from Characteristics of Entrepreneur. Similarly, "Marketing strategy" from Competitive Strategy, "Inability to access resources and high cost of construction inputs" from Organisational Resources, "Poor corporate management skills" from Managerial Skill and Competency, and "Lack of technical expertise and inability to meet technical requirement" was identified from Tendering and Contract Administration. Table 11 presents each factor's compiled results of component scores.

Table 11. Relative importance of the factors

Core Endogenic Constructs		Component Name	Factors Scores	% of Variance	Cumulative Variance %
1	Organisational structure	Organisational structure and corporate diversification	3.36	40.26	65.33
		Company demographics and shared services	3.24	25.07	
2	Organisational culture	Organisational culture and work measurement	3.36	45.58	72.50
		Leadership, staff development and rewarding system	3.42	26.92	
3	Characteristics of entrepreneur	Developed entrepreneurial characteristics and mindsets	3.37	41.11	70.20
		Entrepreneur's demography and self-efficiency	3.39	18.48	
		Self-regulation skills and the practice of information management	3.32	10.61	
4	Competitive strategy	Marketing strategy	3.86	48.06	72.38
		Strategic management	3.30	24.32	
5	Organisational resources	Inability to access resources and the high cost of construction inputs	3.39	46.23	72.33
		Poor resource management skills	3.30	26.10	
6	Managerial skill and competency	Poor corporate management skills	3.83	38.45	61.89
		Inability to understand and manage the construction process	3.38	12.66	
		Inability to manage multiple projects and ineffective financial management	3.32	10.78	
7	Tendering and contract administration	Poor contract management capacity and inadequate contract document	3.38	34.87	64.43
		Lack of competence in procurement management and inability to meet the technical requirement	3.45	16.75	
		Low-profit margin due to competition and unethical practice	3.25	12.81	

Research Implications

In maintaining the competency sustenance of SMCs, it is essential to address the factors impacting their effectiveness in carrying out their business and how these factors contribute to the possible success or failure. As a part of the larger research objective, this study aimed to investigate the endogenic factors that constrained the sustainable competency of SMCs in the Ethiopian CI. The study's findings have implications in indicating the endogenic factors affecting the competency of SMCs in Ethiopia. It will also provide information and guide entrepreneurs/managers to make informed decisions and take corrective action to improve the competency of their firms.

Limitations of the Study and Suggestions for Future Research

The study considered respondents' views through a quantitative research approach conducted in the Addis Ababa city boundary, the capital of Ethiopia, and some selected towns in the Oromia regional state. The findings were limited to the results obtained from the questionnaire survey. A more qualitative research approach might be required. The current study was conducted within the context of the COVID-19 pandemic restrictions; thus, conducting qualitative research was challenging. Another limitation stemmed from the purposive sampling technique. The technique could lead to biased results as the respondents were chosen based on their familiarity with the topic. However, the researchers managed to reduce these inherent biases by conducting a preliminary survey of the questionnaire beforehand.

This study aimed to shed light on the endogenic factors affecting the sustainable competency of construction SMEs in Ethiopian CI. Future research could be directed toward studying the exogenic sources of the factors (external factors) to identify their respective effects on competency sustenance. Studying the causal relationship between endogenic and exogenic factors and their effects on the sustainability of Ethiopian construction SMEs is also crucial.

CONCLUSIONS

The ability of an organisation to compete in a competitive market highly depends on factors affecting them. Subsequently, identifying and recognising the factors and their relationship with the business will devise the required development instruments. The study's primary purpose was to examine the endogenic (internal) factors affecting the competency of SMCs in the Ethiopian CI. The findings of the study revealed the major endogenic factors, namely employee's strategic and operational decision-making power (i.e., decentralisation), organisational leadership style, the existence of matured and developed entrepreneurial mindsets, availability of institutional and business relationships (i.e., relationship and alliances with suppliers, owners, competitors, government entities, etc.), inability to access financial resources (i.e., strict credit terms, high-interest rate, strict requirements for obtaining bonds/guarantees/sureties), lack of project management skills (i.e., planning, organising, co-coordinating, controlling, motivating, communicating and leading) and low-profit margin. These factors were due to competition from organisational structure, organisational culture, characteristics of the entrepreneur,

competitive strategy, organisational resources, managerial skill and competency, and tendering and contract administration core sources, respectively. Similarly, 17 factors were also identified through factor analysis of seven core sources. The top three impacting components were marketing strategy, poor corporate management skills, lack of technical expertise and inability to meet technical requirements.

To be successful, the players of the CI should possess certain qualities. Unfortunately, SMCs were hesitant to develop or use the necessary attributes and skills. Thus, SMCs, as major stakeholders, need to be equipped with those traits and competencies that the industry demands. As a significant proprietor and industry regulator, the government is also required to set guiding principles that unite all industry players for meaningful impact and sustained competency development. These guiding principles should be developed to create an enabling environment, establish harmonised regulatory and institutional frameworks, promote research and development and facilitate human resource development are few to name.

The findings from the study will contribute to the body of knowledge on the endogenic factors affecting the sustainable competency of SMCs in the Ethiopian CI and provide reliable information for industry stakeholders to make informed decisions. It may also serve as a benchmark for further study.

REFERENCES

Abotaleb, I.S. and El-adaway, I.H. (2018). Managing construction projects through dynamic modeling: Reviewing the existing body of knowledge and deriving future research directions. *Journal of Management in Engineering*, 34(6): 04018033. https://doi.org/10.1061/(ASCE)ME.1943-5479.0000633

Addisu, M.M. (2013). Contributions of small, medium and micro enterprise contractors on road construction projects in Ethiopia. MSc diss. Addis Ababa University.

Ahiawodzi, A.K. and Adade, T.C. (2012). Access to credit and growth of small and medium scale enterprise in the Ho municipality of Ghana. *British Journal of Economics, Finance and Management Sciences*, 6(2): 34–51.

Akinosho, T.D., Oyedele, L.O., Bilal, M., Ajayi, A.O., Delgado, M.D., Akinade, O.O. and Ahmed, A.A. (2020). Deep learning in the construction industry: A review of present status and future innovations. *Journal of Building Engineering*, 32: 101827. https://doi.org/10.1016/j.jobe.2020.101827

Al Khajeh, E.H. (2018). Impact of leadership styles on organisational performance. *Journal of Human Resources Management Research*, 2018: 1–10. https://doi.org/10.5171/2018.687849

Ali, B.J. and Anwar, G. (2021). Strategic leadership effectiveness and its influence on organisational effectiveness. *International Journal of Electrical, Electronics and Computers*, 6(2): 11–24. https://dx.doi.org/10.22161/eec.62.2

Amadasun, D.O. and Mutezo, A. (2022). Effect of market-driven strategies on the competitive growth of SMEs in Lesotho. *Journal of Innovation and Entrepreneurship*, 11(1): 1–17. https://doi.org/10.1186/s13731-022-00217-4

Amoah, P., Ahadzie, D.K. and Dansoh, A. (2011). The factor affecting construction performance In Ghana: The perspective of small-scale building contractors. *The Ghana Surveyor*, 4(1): 41 – 48.

Arega, A. (2019). Assessing the cause of failure of small, medium and micro enterprise (SMME) construction companies in Addis Ababa. MSc diss. Addis Ababa University.

Ayalew, T., Dakhli, Z. and Lafhaj, Z. (2016). Assessment on performance and challenges of Ethiopian construction industry. *Journal of Architecture and Civil Engineering*, 2(11): 1–11.

Boadu, E.F., Wang, C.C. and Sunindijo, R.Y. (2020). Characteristics of the construction industry in developing countries and its implications for health and safety: An exploratory study in Ghana. *International Journal of Environmental Research and Public Health*, 17(11): 4110. https://doi.org/10.3390/ijerph17114110

Borena, A. (2016). Study on causes of delay and their impacts on URRAP projects in the case of Sidama zone. PhD diss. Hawassa University.

Brinckmann, J., Salomo, S. and Gemuenden, H.G. (2011). Financial management competence of founding teams and growth of new technology–based firms. *Entrepreneurship Theory and Practice*, 35(2): 217–243. https://doi.org/10.1111/j.1540-6520.2009.00362.x

Cameron, K.S. and Quinn, R.E. (1999). *Diagnosing and Changing Organization Culture*. Reading, MA: Addison-Wesley.

Chan, L.L., Shaffer, M.A. and Snape, E. (2004). In search of sustained competitive advantage: the impact of organization culture, competitive strategy and human resource management practices on firmorganisation performance. *The International Journal of Human Resource Management*, 15(1): 17–35. https://doi.org/10.1080/0958519032000157320

Chen, T., Fu, M., Liu, R., Xu, X., Zhou, S. and Liu, B. (2019). How do project management competencies change within the project management career model in large Chinese construction companies? *International Journal of Project Management*, 37(3): 485–500. https://doi.org/10.1016/j.ijproman.2018.12.002

Cheng, M.Y. and Darsa, M.H. (2021). Construction schedule risk assessment and management strategy for foreign general contractors working in the Ethiopian construction industry. *Sustainability*, 13(14): 7830. https://doi.org/10.3390/su13147830

Chikeya, R. (2019). Effects of capital structure on company performance, a perspective of small cap companies in South Africa. Master's diss. University of Cape Town.

Chilipunde, R.L. (2010). Constraints and challenges of SMMEs in Malawi. *Journal of Development and Agricultural Economics*, 2(2): 27–32.

Chinowsky, P. S. (2000). Strategic management in construction organisations. In *Construction Congress VI: Building Together for a Better Tomorrow in an Increasingly Complex World*. Orlando: American Society of Civil Engineers, 493–502.

Choi, K.S. and Choi, J. (2015). Small and medium business and investment decision. *Indian Journal of Science and Technology*, 8(24): 1–6. https://doi.org/10.17485/ijst/2015/v8i24/80017

Chowdhury, S., Dey, P.K., Rodríguez-Espíndola, O., Parkes, G., Tuyet, N.T.A., Long, D.D. and Ha, T.P. (2022). Impact of organisational factors on the circular economy practices and sustainable performance of small and medium-sized enterprises in Vietnam. *Journal of Business Research*, 147: 362–378. https://doi.org/10.4324/9781003018551-3

Construction Registration Board (CRB) of Tanzania (2019). Homepage. Available at: https://www.crb.go.tz/contractordetails

Cserháti, G. and Szabó, L. (2014). The relationship between success criteria and success factors in organization event projects. *International Journal of Project Management*, 4(32): 613–624. https://doi.org/10.1016/j.ijproman.2013.08.008

Czaja, R. and Blair, J. (1996). An introduction to surveys and to this book. In *Designing Surveys: A Guide to Decisions and Procedures*. Thousand Oaks: Pine Forge Press

Daft, R.L. (1992). *Organization Theory and Design*. St Paul: West Publishing Company.

Dany, F., Guedri, Z. and Hatt, F. (2008). New insights into the link between HRM integration and organization performance: The moderating role of influence distribution between HRM specialists and line managers. *The International Journal of Human Resource Management*, 19(11): 2095–2112. https://doi.org/10.1080/09585190802404320

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

Donkor, S. (2011). Determinants of business failure: The perspective of SMEs building contractors in the Ghanaian construction industry. Master's diss. Kwame Nkrumah University of Science and Technology.

Dziallas, M. and Blind, K. (2019). Innovation indicators throughout the innovation process: An extensive literature analysis. *Technovation*, 80: 3–29. https://doi.org/10.1016/j.technovation.2018.05.005

Edgar, W.B. and Lockwood, C.A. (2008). Organization competencies: Clarifying the construct. *The Journal of Business Inquiry*, 7(1): 21–32.

Effiom, L. and Edet, S.E. (2018). Success of small and medium enterprises in Nigeria: Do environmental factors matter. *Journal of Economics and sustainable Sustainable Development*, 9(4): 117–127.

Eisinga, R., Grotenhuis, M.T. and Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, 58(4): 637–642. https://doi.org/10.1007/s00038-012-0416-3

Elkhalifa, A. (2016). The magnitude of barriers facing the development of the construction and building materials industries in developing countries, with special reference to Sudan in Africa. *Habitat International*, 54: 189–198, https://doi.org/10.1016/j.habitatint.2015.11.023

Era, B.E., Reddy, C.N.V.S. and Mohan, V.K. (2023). Construction companies development programme: The case of URRAP in south regional state, Ethiopia. *International Journal of Construction Management*, 1–13. https://doi.org/10.1080/15623599.2023.2185942

Ethiopian Business Review (2018). Homepage. Available at: https://ethiopianbusinessreview.net

Ethiopian Economic Association (2008). *Report on the Ethiopian Economy: The Current State of the Construction Industry*. Addis Ababa: Ethiopian Economic Association.

Fan, L.C. and Fox, P.W. (2009). Exploring factors for ethical decision making: Views from construction professionals. *Journal of Professional Issues in Engineering Education and Practice*, 135(2): 60–69.

Ferejo, M.N., Ahmed, H.M., Muzeyin, J.R., Amde, S.J., Thomran, M. and Mamuye, F. (2022). Exploring factors affecting growth of micro and small enterprises: Evidence from Ethiopia. *International Journal of Sustainable Development and Planning*, 17(5): 1523–1533.

Fida, B.A. (2008). *The Role of Small and Medium Enterprises (SMEs) in Economic Development*. n.p.: Enterprise Development, Free Online Library.

Field, A.P. (2009). *Discovering Statistics Using SPSS*. 3rd Ed. London: SAGE.

Flynn, A. and Davis, P. (2017). Investigating the effect of tendering capabilities on SME activity and performance in public contract competitions. *International Small Business Journal*, 35(4): 449–469. https://doi.org/10.1177/0266242616630035

Gentile-Lüdecke, S., Oliveira, R.T.D. and Paul, J. (2020). Does organization structure facilitate inbound and outbound open innovation in SMEs? *Small Business Economics*, 55(4): 1091–1112. https://doi.org/10.1007/s11187-019-00175-4

Glowka, G., Kallmünzer, A. and Zehrer, A. (2021). Enterprise risk management in small and medium family enterprises: The role of family involvement and CEO tenure. *International Entrepreneurship and Management Journal*, 17(3): 1213–1231. https://doi.org/10.1007/s11365-020-00682-x

Guritno, P.D., Suyono, H. and Sunarjo, S. (2019). Competency model of social entrepreneurs: Learning from successful Indonesian social entrepreneurs. *International Journal of Research in Business and Social Science*, 8(3): 94–110. https://doi.org/10.20525/ijrbs.v8i3.256

Hiwot, B.G. (2012). Effect of poor project performance on the quality of housing construction: The case of condominium houses in Addis Ababa. Master's diss. Erasmus University.

Ingle, P.V. (2020). Project performance assessment using modified project quarterback rating system for Indian construction projects. PhD diss. National Institute of Technology Karnataka.

Jekale, W. (2004). Performances for public construction projects in developing countries: Federal road and building projects in Ethiopia. PhD diss. Norwegian University of Science and Technology.

Kerekes, V. and Felföldi, J. (2020). Supply chain management practices for SMEs. *Applied Studies in Agribusiness and Commerce*, 14(3–4): 89–96. https://doi.org/10.19041/APSTRACT/2020/2-3/10

Kulemeka, P.J., Kululanga, G. and Morton, D. (2015): Critical factors inhibiting performance of small- and medium-scale contractors in Sub-Saharan region: A case for Malawi. *Journal of Construction Engineering*: 1–17. https://doi.org/10.1155/2015/927614

Laryea, S.A. (2010). Challenges and opportunities facing contractors in Ghana. Paper presented at the West Africa Built Environment Research (WABER) Conference. Accra, Ghana, 27–28 July.

Le, T.T. (2022). Corporate social responsibility and SMEs performance: Mediating role of corporate image, corporate reputation and customer loyalty. *International Journal of Emerging Markets.* https://doi.org/10.1108/IJOEM-07-2021-1164

Legge, K. (2020). *Human Resource Management: Rhetorics and Realities*. Bloomsbury, UK: Bloomsbury Publishing.

McGee, J. and Sammut-Bonnici, T. (2015). *Wiley Encyclopedia of Management (Volume 12): Strategic Management*. 3rd Ed. New Jersey: John Wiley & Sons.

Meijaard, J., Brand, M.J. and Mosselman, M. (2002). Organisational structure and performance in Dutch SMEs. *EIM Business and Policy Research, Scales Research Reports*, 1–23.

Mengistu, D.G. (2019). Improving determinant factors to facilitate construction industry development in Ethiopia. PhD diss. National Institute of Technology Karnataka.

Mengistu, D.G. and Mahesh, G. (2020). Challenges in developing the Ethiopian construction industry. *African Journal of Science, Technology, Innovation and Development*, 12(4): 373–384. https://doi.org/10.1080/20421338.2019.1654252

Mengistu, D.G., Ashene, D.A. and Halabo, H.A. (2023). Technology and innovation development in Ethiopian construction industry: The challenges and improvement mechanisms. *Journal of Engineering, Design and Technology*. https://doi.org/10.1108/JEDT-10-2022-0528

Ministry of Urban Development and Construction (2017). *Construction Certification and Registration Report*. Addis Ababa, Ethiopia: Ministry of Urban Development and Construction.

Moo, F. and Eyiah, A. (2020). Factors influencing the growth of small and medium construction firms in Northern Ghana. *Journal of African Business*, 21(3): 416–431. https://doi.org/10.1080/15228916.2019.1641306

Mura, L. (2022). The philosophy of personnel management of small and medium-sized businesses in Slovakia. *Futurity Philosophy*, 1(3): 27–39. https://doi.org/10.57125/FP.2022.09.30.02

Needle, D.D. (2004). *Business in Context: An Introduction to Business and Its Environment*. Independence, KY: Cengage Learning.

Neneh, B.N. (2011). The impact of entrepreneurial characteristics and business practices on the long term survival of small and medium enterprises (SMEs). PhD diss. University of the Free State.

Offei, I., Kissi, E. and Nani, G. (2019): Factors affecting the capacity of small to medium enterprises (SME) building construction firms in Ghana. *Journal of Construction in Developing Countries*, 24(1): 49–63. https://doi.org/10.21315/jcdc2019.24.1.3

Ofori, G. (2018). Developing the construction industry in developing countries to enhance performance: The case of Ethiopia. Paper presented at Seventh Ethiopian Construction Technology and Management Professionals Association (ECoTMPA) International Workshop on Recent Trends in CI. Addis Ababa, Ethiopia, 26 November

_____. (1994). Construction industry development: Role of technology transfer. *Construction Management and Economics*, 12(5): 379–392. https://doi.org/10.1080/01446199400000049

Ogbu, C.P. and Olatunde, N. (2019). Relationship between organisational effectiveness and project performance of SME contractors: A developing country perspective. *Journal of Construction Business and Management*, 3(2): 1–16. https://doi.org/10.15641/jcbm.3.2.568

Ogbu, C.P. and Osazuwa, E.M. (2023). Barriers to the growth of indigenous construction firms in Nigeria. *Engineering, Construction and Architectural Management*. https://doi.org/10.1108/ECAM-03-2023-0211

Ogunbiyi, M.A. and Bamgboye, O.A. (2016). Factors affecting the performance of indigenous small-sized indigenous construction firms in Lagos state. *International Journal of Advance Research*, 4(1): 1–18.

Ogunde, A., Owolabi, D., Olusola, K.O., Tunji-Olayeni, P., Amusan, L., Joshua, O. and Akhigbe, A.O. (2016). Factors affecting the competencies and project delivery of small-sized indigenous construction firms in Lagos state. *Covenant Journal of Research in the Built Environment*, 4(1): 33–43.

Oyewobi, L.O. (2014). Modeling performance differentials in large construction organisations in South Africa. PhD diss. University of Cape Town.

Papula, J. (1995). *Minimum of a Manager: Profession That Pays Out [Slovak Version]*. Bratislava, Slovakia: Elita.

Phan, P.H. (2000). Knowledge creation in strategic alliances: Another look at organization learning. *Asia Pacific Journal of Management*, 17(2): 201–222. https://doi.org/10.1023/A:1015857525048

Pihie, Z.A.L., Asuimiran, S. and Bagheri, A. (2014). Entrepreneurial leadership practices and school innovativeness. *South African Journal of Education*, 34(1): #704. https://doi.org/10.15700/201412120955

Piškanin, A. and Rudy, J. (2006). *Introduction to Management [Slovak Version]*. Bratislava, Slovakia: Comenius University.

Porter, M.E. (1985). *Competitive Advantage*. New York: The Free Press.

Prayetno, S. and Ali, H. (2020). Entrepreneurial supply chain management competence: Predictors of work motivation advocate. *International Journal of Supply Chain Management*, 9(3): 444–454.

Quinn, R.E. and Cameron, K. (1983). Organization life cycles and shifting criteria of effectiveness: Some preliminary evidence. *Management Science*, 29(1): 33–51. https://doi.org/10.1287/mnsc.29.1.33

Saka, A.B., Chan, D.W. and Siu, F.M. (2020). Drivers of sustainable adoption of building information modelling (BIM) in the Nigerian construction small and medium-sized enterprises (SMEs). *Sustainability*, 12(9): 3710. https://doi.org/10.3390/su12093710

Saltzman, L. (2006). *Making Memory Matter: Strategies of Remembrance in Contemporary Art*. Chicago, IL: University of Chicago Press.

Sarvari, H., Chan, D.W., Alaeos, A.K.F., Olawumi, T.O. and Aldaud, A.A.A. (2021). Critical success factors for managing construction small and medium-sized enterprises in developing countries of Middle East: Evidence from Iranian construction enterprises. *Journal of Building Engineering*, 43: 103152. https://doi.org/10.1016/j.jobe.2021.103152

Shakantu, W.M.W. (2003). Corruption in the CI: Forms, susceptibility and possible solutions. Paper presented at the 1st Postgraduate Conference 2003 of the CIDB ON Construction Industry Development. Port Elizabeth, South Africa, 274–283.

Shamsheri, R.F.A., Mukarram, S., Naveed, S. and Mukarram, A. (2021). Impact of regional cultures on business performance of women entrepreneurs with reference to small and medium enterprises in Pakistan. *Liberal Arts and Social Sciences International Journal* (LASSIJ), 5(1): 182–196. https://doi.org/10.47264/idea.lassij/5.1.13

Shifidi, I. (2010). *Small Builders in the Namibian Construction Sector: Opportunities, Challenges and Support Strategies*. NEPRU working paper no. 124. Windhoek, Namibia: Namibian Economic Policy Research Unit.

Simón, F.J.G., González-Cruz, T. and Contreras-Pacheco, O. (2017). Policies to enhance social development through the promotion of SME and social entrepreneurship: A study in the Colombian construction industry. *Entrepreneurship and Regional Development*, 29(1–2): 51–70. https://doi.org/10.1080/08985626.2016.1255437

Singh, J.P. (2013). Predictive validity performance indicators in violence risk assessment: A methodological primer. *Behaviorvioural Sciences and the Law*, 31(1): 8–22. https://doi.org/10.1002/bsl.2052

Smiley, J.P., Fernie, S. and Dainty, A. (2014). Understanding construction reform discourses. *Construction Management and Economics*, 32(7–8): 804–815. https://doi.org/10.1080/01446193.2014.909049

Snyder C.R. and Shane, J.L.L. (2009). *Oxford Handbook of Positive Psychology*. Oxford: Oxford University Press.

Soomro, B.A., Abdelwahed, N.A. and Shah, N. (2019). The influence of demographic factors on the business success of entrepreneurs: An empirical study from the small and medium-sized enterprises context of Pakistan. *International Journal of Entrepreneurship*, 23(2): 1–12.

Taofeeq, D.M., Adeleke, A.Q. and Lee, C.K. (2022). Individual factors influencing contractors' risk attitudes among Malaysian construction industries: The moderating role of government policy. *International Journal of Construction Management*, 22(4): 612–631. https://doi.org/10.1080/15623599.2019.1641888

Thomas, K. (2022). An investigation of the challenges faced by the small and medium enterprise contractors in the construction industry of Windhoek. PhD diss. University of Namibia.

Tiruneh, G.G. and, Fayek, A.R. (2021). Competency and performance measures for organizations in the construction industry. *Canadian Journal of Civil Engineering*, 48(6): 716–728. https://doi.org/10.1139/cjce-2019-0769

Tran, Q.H. (2021). Organisational culture, leadership behaviour and job satisfaction in the Vietnam context. *International Journal of Organization Analysis*, 29(1): 136–154. https://doi.org/10.1108/IJOA-10-2019-1919

Walliman, N. (2005). *Your Research Project: A Step-By-Step Guide for the First-Time Researcher*. London: SAGE.

Wei, Y. (2007). Factors influencing the success of virtual cooperation within Dutch-Chinese strategic alliances. PhD diss. University of Twente.

Yahya, M.Y. (2015). The development of strategic planning concept process model for small medium enterprises (SMEs) in the construction industry. PhD diss. Universiti Tun Hussein Onn Malaysia.

Yun, J.J., Zhao, X., Jung, K. and Yigitcanlar, T. (2020). The culture for open innovation dynamics. *Sustainability*, 12(12): 5076. https://doi.org/10.3390/su12125076