Thesis

Antecedents and enablers of supply chain value creation: a perspective of SMEs participation in local procurement in Uganda

By

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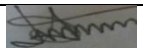
Date 29 April 2017 

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LIST OF ACRONYMS

Acronyms	Meaning
AMOS	Analysis of moments of structures
EBSCO	Elton. B. Stephens. CO (company)
EC	Entrepreneurial competences
SC	Supply Chain
SCC	Supply chain collaboration
SCI	Supply chain Integration
SCM	Supply chain management
SCVC	Supply chain value creation
SMEs	Small and medium-sized enterprises
US	United States of America
UK	United Kingdom

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Abstract

The purpose of the study was to investigate how small and medium enterprises (SMEs) involved in local procurement create supply chain value. The study investigated supply chain value creation (SCVC) by testing three initiators of SCVC: entrepreneurial competencies; supply chain collaboration; and supply chain trust as well as the moderation effects of trust on SCVC. Feedback from a cross-sectional survey of 294 respondents in the construction, furniture and fitting, food processing and agricultural sectors was utilized to test hypothesized relationships. The study employed factor analysis and structural equation modelling to conduct analysis. The unit of analysis was an SME and level of analysis was the SME owner-manager. The results show that building value-driven supply chains in Uganda's local procurement context requires SME owner-managers to integrate competencies, share information with customers, communicate collaboratively with suppliers and build an optimal level of trust. Supply chain trust is highly regarded in facilitating the exchange of resources within local communities but the owner-managers' perspective – which differs in terms of how they view customers and suppliers – alters how managers assess trusted customers and suppliers, and what different tactics they may employ in building trust in customer, as opposed to supplier, relationships. The research findings demonstrate how managers, who trust customers on the basis of transparency and reliability, by contrast trust suppliers on the basis of operational flexibility, fairness and market credibility. The study contributes to existing knowledge by separating out and defining the key competencies most important in the management of local SME supply chains: opportunity competence and commitment competence. These are what the study has named Entrepreneurial Supply Chain Value-creating Competences (ESCVC). In addition, the study illuminates how trust increases the value suppliers create for the focal firm. Finally, by demonstrating that cost and goal congruence are not key value drivers, the research provides compelling evidence for why managers should instead focus on developing competencies, facilitating the flow of information and building trust in order to optimally benefit from local supply chains.

Keywords: SMEs, entrepreneurial competencies, supply chain value creation, local procurement, supply chain trust

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CHAPTER ONE

INTRODUCTION

1.1 Background

Small and Medium Enterprises (SMEs) are universally acknowledged as effective instruments for economic growth and employment creation. Even in countries where large corporations flourish, SMEs contribute substantially to employment. In Africa, the private sector in general is not well developed, yet SMEs could play a critical role in stimulating economic development and alleviating poverty (Beyene, 2002). The key hindrances to developing the SME sector in Africa relate to access to resources and market opportunities; the cost of doing business; policy gaps; infrastructure; workforce skills; the business start-up climate; the technological environment; and innovation. Uganda, the site of this study, is characterised by all these challenges, many of them in distinctively strong forms (Muhanguzi & Kyobe, 2013:8).

It has been estimated that there are over 1,100,000 SMEs in Uganda, providing employment and income generation opportunities to low income earners (Uganda Ministry of Trade, Industry and Cooperatives, 2011). These SMEs sell their products predominantly to individuals; many have not taken advantage of the opportunities that exist in public sector organizations and private sector entities. It has been estimated that SMEs sell only about 12.5% of what they produce to government, 8.0% to large companies, 11.9% to other SMEs and 67.7% to individuals (Ernst & Young, 2011). SMEs in developed economies, especially in the manufacturing sector, provide support services mainly to large firms, where they play multiple roles: suppliers, producers, distributors and consumers (Hong & Jeong, 2006). Their counterparts in Uganda are still struggling to access formal markets. Access to formal markets poses unique challenges to SMEs in Uganda (Ernst & Young, 2011). Those in the informal sector do not qualify to bid for contracts and the few that are registered are not competitive.

Local procurement provides new opportunities for SMEs' participation in procurement. Outside the developing world, local procurement serves as a vehicle through which

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governments assist SMEs to access formal markets. In the UK, for example, SMEs depend on local government procurement contracts for business stability (Peck and Cabras, 2010). Loader (2013) demonstrated how the UK government utilizes local procurement to provide direct support to small businesses. Direct support for SMEs through trade with the public sector could reduce demand for other forms of financial support from government (Loader, 2007). However, existing scholarship on small business and public policy does not attribute SME success to direct interventions made by governments (Curran, 2000; Mole, 2002; Smallbone & Welter, 2001). In addition, informal markets in emerging economies – for example, the traditional supply chains (local markets and wholesalers) – remain under-researched. This contributes to the current public policy emphasis on linking small suppliers to local governments. Whereas this may be appropriate, it is equally important to understand how SMEs' supply chains could be linked to private companies and high-value export chains as a strategy for growing the SME sector in Uganda.

In developing countries, governments spend a large proportion of their budgets on infrastructure development and poverty recovery programmes. For instance, the proportionately huge expenditure on procurement in Uganda can be explained by the fact that the country continues to receive donor support for poverty recovery programmes (Centenary, 2012). The current spending on infrastructure does not support local firms. For example, the restaurants contracted by oil drilling companies in the Albertine region to supply foodstuffs are foreign multinationals, which depend on imported goods and services. These companies prefer to import food which is locally available, because local food supply chains are not well organized and the human resource is not competent. This situation is not healthy for the SME sector and national development. According to Agaba and Shipman (2007), the challenge to SMEs in Uganda stems from the fact that the procurement market has not yet been levelled to create conducive conditions for local SMEs bidding for contracts. However, Uganda's expenditure on public contracts demonstrates that there is scope to use local procurement as a policy instrument to provide direct support to local SMEs, or indirect support through subcontracting.

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Esteve and Barclay's (2011) study suggests that market mechanisms provide alternative options for the future of SMEs in procurement. Consistent with this finding, Hong and Jeong (2006) noted that SMEs effective in creating supply chain value remain dominant in their supply chains. This suggests there might be benefits to shifting emphasis from policies that target the demand side to creating an enabling environment that supports local SMEs to become more efficient and create value for customers. For Ugandan SMEs that do not typically collaborate, developing value-driven supply chains in local communities may require closing the skills gap and promoting ethical behaviour among local entrepreneurs to open up new opportunities in the private sector. This may be expected to translate into private benefits to local firms (Cao & Zhang, 2011). The discourse on value creation in respect of SMEs is not new. However, few studies so far have approached these aspects from the perspective of local procurement. Local procurement represents localized supply chains, a potential indicator of trust-based relationships, yet the debate on local procurement has mainly focused on how big firms and public sector, entities have included SMEs in procurement. The current study probes how SMEs involved in local procurement can utilize their local ties to improve supply chain value creation (SCVC). The study interrogates whether it is time to review public policy in Uganda to prioritize supporting local SME supply chains as an option for reducing resource-related barriers and improving SME competitiveness.

The increasing need to report on the bottom line positions local procurement as a tool in expanding supply chain performance indicators. For example, Esteve and Barclay's (2011) study revealed local procurement as an avenue through which large companies can maintain their social license to operate in communities. In the public sector, local procurement serves as the means through which "the public sector has sought to resolve the tension between more market-based provisions and more 'public value-added' forms of provision of public services" (Bovaird, 2006:81). However, value creation within the public sector has been investigated through a beneficiary-centric perspective on value creation, which diverts the focus away from firms. By contrast, this study focused specifically on private sector entities and SMEs to devise practical solutions for small suppliers in shifting to value-relevant strategies that can maintain their appropriateness in

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local procurement. Since “value creation has a positive influence on performance for companies at the leading edge of supply chain participation” (Jayaram, Kannan & Tan, 2004:4382), understanding how this happens for SMEs that are involved in local procurement may help in devising means of improving local SME SCVC.

According to Esteve and Barclay (2011), local procurement has benefits for local organizations and communities alike. From the community point of view, larger companies procuring from local SMEs ensure a direct flow of resources to communities. From the corporate point of view, such procurement enables a company to maintain operations in the community where it operates. In addition, having suppliers located nearby, is one way to ensure the reliability of supply (Esteve & Barclay, 2011:205). Locating a company close its suppliers suggests both high levels of asset specificity and high reliance on trust-based relationships between customers and suppliers (Narasimhan & Nair, 2005). Indeed, trust plays an important role in supply chain integration, especially where companies have not invested in assets to use in dyads and the use of laws and contracts is minimal (Cai, Jun & Yang, 2010). McCarter and Northcraft (2007) underscore the role of trust in facilitating the flow of information between collaborating partners. Trust has the potential to create value for local firms that are participating in local procurement. However, it appears from the discussion above that the key benefits of buying local will depend on the perceived level of risk in buyer-supplier relationships. This in turn is likely to vary depending on structural mechanisms, especially the distance between local supply chain actors.

Existing evidence shows that local procurement practices have had significant benefits to local entrepreneurs involved in the construction industry, given the sector’s propensity to create new jobs, hire local contractors and potentially substitute labour for capital equipment (Peck & Cabras, 2010; Erridge, 2007; Rogerson, 2004; Watermeyer, 2000). Erridge (2007), demonstrated that procuring from small contractors puts significant resources in the hands of local communities, which stimulates economic activities and facilitates employment. Yet despite the benefits that local procurement brings to local actors, SMEs in Uganda still struggle to exploit this opportunity.

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Studies exploring the barriers encountered by SMEs in procurement take a broad perspective. Several (Fee, Erridge & Hennigan, 2002; Loader, 2010; Preuss, 2011) do not give priority to sector-specific barriers and how such barriers affect SME willingness to bid for contracts. Certainly, some of the barriers that SMEs meet in procurement differ between sectors: the barriers local SMEs encounter in the construction industry differ from those in agriculture. For this reason, research on the challenges that SMEs meet in procurement may need to consider a variety of options to devise solutions that can enhance performance. Loader (2010) expressed similar concerns. He discussed the variety of sector-specific hurdles SMEs face, suggesting that replicating local procurement practices across diverse sectors could operate as a disincentive to value creation. He recommended that future research on barriers should be take a sector-by-sector approach (Loader, 2010). Support for this approach was additionally provided by Flynn, McKevitt and Davis (2013), who indicated that SME procurement practices would likely vary across industry sectors. Local procurement practices suitable for one sector may thus not be appropriate in another. Although this study does not focus on local procurement practices, a detailed analysis of procurement practices may highlight variations in value perceptions across the different sectors where SMEs dominate.

Another aspect of the nuance and variation in the SME sector is revealed by Fee, Erridge and Hennian's (2002) surmise that each challenge small suppliers face in the procurement process has a different impact on their willingness and ability to bid for a new contract. This implies that the challenges encountered by SMEs along the supply chain may affect the level of trust between partners and hence their willingness to bid again. Since the challenges local SMEs meet in accessing formal markets are sector specific, it is likely that SME motivation for participating in local procurement will likewise vary by sector, depending on the nature of these specific barriers. Preuss (2011) indicates that the relative lack of economic success for a small business is a result of both small size and sectoral mix. This implies that to capture procurement markets, SMEs will more easily combat failure by focusing on the sectors where they can easily transform their specialized competencies into complex value propositions that appeal to the market.

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Consistent with Preuss's (2011) finding, Hong and Jeong's (2006) study revealed how SMEs in information and knowledge intensive sectors compete based on their innovative capabilities and current product or service advantages. Knowledge capital may be posited as encroaching on the dominance enjoyed by real capital. Thus, it is likely that SMEs with sector-specific knowledge derived from competence are more likely to succeed in that sector. However, SMEs rarely invest in knowledge creation due to resource constraints; they rely on knowledge created by large players in the market (Desouza & Awazu, 2006). In such a context, small business owners who have sector-specific knowledge and those who invest efforts in creating exceptional value for their customers are likely to be competitive. The foregoing analysis was important in informing the current study's prioritization of sectors where SMEs dominate local procurement. This tactic reduced the necessity to control for sector-specific knowledge during data analysis.

Related to the above, extant literature discusses how large firms create value for SMEs. For instance, Bienabe and Vermeulen (2008) investigated the inclusion of local SMEs in agricultural supply chains. Their focus was on the interventions that large companies use to stimulate SME participation. However, it lacked a focus on how local entrepreneurs organize to create supply chain value. Bienabe and Vermeulen's (2008) study demonstrated how rural-based vegetable retail stores enhance SME inclusion in formal markets through facilitating good communication and coordination, long-term commitment, technical support, linkage to farm loans and assistance for small farmers in diversifying product supply. However, while such activities contribute to supply chain value, they demand rich resources that many SMEs do not have. That is why these activities were initiated by large companies, much as they were found to have a beneficial impact on small firms. Similarly, Porter and Kramer (2011) advanced the concept of shared value to demonstrate how large organizations from both private and public sectors can maximize economic benefits by creating value together with local suppliers and the communities where the company is located. This strategic focus also increased SME participation in supply chains.

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The relevant concept here is that of shared value: the connection between societal and economic progress (Porter & Kramer, 2011:1). In their paper, Porter and Kramer (2011) discussed a number of case studies where large companies included SMEs in their supply chain through creating shared value. Nestlé's approach to creating shared value in developing countries has attracted particular attention. At Nestle, a new procurement approach was improved by supporting cluster development at different stages of the coffee supply chain, and collaborations were initiated with a local NGO in order to improve productivity. The collaborations with local NGOs were used as mechanisms to create supply chain value. However, while Porter and Kramer's (2011) study also emphasized the strategies that large companies used to create value with small suppliers, it gave less attention to how local entrepreneurs can take the lead in initiating value creation for their supply chain.

All the above illustrations build a picture of SMEs participating in local procurement but dependent on large firms for survival. This leaves SMEs vulnerable to exploitation and opportunistic behaviours from dominant firms with the power to squeeze their margins. It is known that trust-based relationships reduce opportunistic behaviours (Lai, Tian & Huo, 2012). So, integrating trust into supply chain management for SMEs is likely to improve the value of supply chain participation for small suppliers. In addition, Thakkar, Kanda and Deshmukh (2009) also highlighted that the firm size determines the nature of the benefits enjoyed by that firm. For example, medium-sized enterprises profit more from supply chain management compared to their smaller counterparts. However, precisely because trust reduces opportunistic behaviours, it is possible to posit that trust may resolve the discrepancies in value appropriation between firms of different sizes.

These processes all occur over time. So as new global actors with superior supply chain management competencies join slowly growing local markets, SMEs need to develop new capabilities to guard against the disadvantages associated with global supply chain management practices. Since SME advantages tend to be behavioural, the hope for SMEs resides in whether they can develop internal competencies to improve their bargaining power and SCVC. According to Hong and Jeong (2006), SMEs in a poor

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negotiating position have to develop internal competencies in relation to value creation to remain viable members. This observation suggests that the value SME create is likely to depend on owner-managers' competencies in creating optimal value for their supply chains. Therefore, building owner-managers' competencies in relation to value creation are likely to help SMEs to stay in the local procurement market as dominant members.

1.2 Statement of research problem

There is growing recognition of local procurement and its potential to integrate local SMEs into formal markets (Esteve & Barclay, 2011). This view is well demonstrated in Porter and Kramer's (2011) study, where they describe the opportunities that large firms create for local actors, especially small but capable suppliers. Porter and Kramer's (2011) study highlighted that local procurement helps participating firms to avoid the transaction costs associated with location; reduce cycle time; increase flexibility; and promote quick learning and innovation. However, many of these value-creating benefits are enjoyed mainly by large firms. SMEs are less able to harness the benefits because of supply chain management inadequacies. For instance, both the information gap between small and large companies and the disincentives created by global supply chain management trends are cited as major barriers for SMEs in supply chain management (Esteves, Barclay, Samson & Brereton, 2009). Such issues inhibit SME capabilities and affect SCVC for small firms involved in local procurement. As a result, procurement managers, especially in the public sector, continue to marginalize SMEs because they are perceived to have little value to add (Loader, 2013). However, Hong and Jeong (2006) have suggested that when SMEs focus on value creation; they remain dominant members of supply chains, although this work lacks empirical evidence concerning SMEs involved in local procurement (Esteve & Barclay, 2011). Esteve and Barclay (2011) further assert that there is limited information on how SMEs participating in local procurement can create supply chain value. This study therefore seeks to investigate this gap in the literature to devise a solution that could help SMEs to reposition in relation to local procurement. Specifically, it focuses on how marginalized suppliers (local SMEs) participating in local procurement can improve their SCVC through creating optimal value for their supply chains.

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1.3 Purpose statement

The purpose of this study was to investigate local SME activities with the aim of examining how SMEs participating in local procurement create supply chain value. Specifically, the study examined the influence of three initiators of value creation in a supply chain: entrepreneurial competence; supply chain collaboration; and supply chain trust. In addition, the study sought to investigate how supply chain trust in the relationship between entrepreneurial competencies and supply chain collaboration may moderate value creation in the supply chain. According to Kwon and Suh (2004), trust is an ever-changing phenomenon, constantly affecting and being affected by economic activities. The role of supply chain trust was thus included in the study to test both for its direct and indirect effects on value creation. The study also acknowledges the role of market mechanisms in extending local procurement as a policy instrument to support the SME sector in developing countries.

1.4 Research Questions

The study sought answers to the following research questions:

- What is the role of supply chain trust in the relationship between supply chain collaboration, entrepreneurial competencies and value creation for SMEs participating in local procurement?

The question was divided into the following sub-questions:

1. How can entrepreneurial competencies facilitate the creation of supply chain value of SMEs involved in local procurement?
2. How can supply chain collaboration facilitate the creation of supply chain value of SMEs involved in local procurement?
3. How can supply chain trust facilitate the creation of supply chain value of SMEs involved in local procurement
4. How does supply chain trust moderate the relationship between supply chain collaboration and value creation in a supply chain?
5. How does supply chain trust moderate the relationship between entrepreneurial competencies and value creation in a supply chain?

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1.5 Importance and benefits of the study

First, this study extends knowledge by proposing mechanisms that both the owners of SMEs, and government policy-makers, can employ to improve supply chain value for local SMEs that are involved local procurement. There are known standards for attaining value for money from the demand side, but little attention is given to how resource-constrained suppliers can create value from procurement. The study adds clarity on how the theoretical predictors of SCVC can be combined to create supply chain value by SMEs involved in procurement. Past research efforts have been predominantly focused on studying how SMEs can be included in local procurement (Esteve & Barclay, 2011). No prior study has been conducted within the local procurement context to understand how SMEs involved in local procurement interact to create optimal value in their supply chains.

Second, the study identifies those entrepreneurial competencies responsible for supply chain management in the SME context. Extant literature has studied various individual successful entrepreneurs to discover their competencies (Mitchelmore & Rowley, 2010; Mitchelmore & Rowley, 2013), and highlighted disparities deriving from context, without specifying and clarifying the competencies important for managing SME supply chains. Hsu, Tan, Laosirihongthong, and Leong (2011), attempted to establish the relationship between entrepreneurial competencies and supply chain performance. However, their study was based on a very small sample and thus the findings lacked statistical robustness. In addition, their study did not use competence areas that were well established in the literature, such as; commitment competence, relationship competence, opportunity competence, organising competence and strategic competencies (Man Lau & Chan, 2002; Mitchelmore & Rowley, 2010; Solesvik, 2012; Mitchelmore & Rowley, 2013). This study closes this gap in the literature by providing new empirical evidence isolating areas of competence that have an integrative role in coordinating the management of SME supply chains. One unexpected outcome was that several competence areas named in the literature were found to lack utility in managing local SME supply chains. This information is important in informing capacity-building strategies tailored to developing local SME supply chains in underdeveloped countries such as Uganda. Companies such

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as Traidlinks, and TradeMark East Africa, which are involved in developing local SME supply chains in Africa, are among potential beneficiaries from publication of this work.

Third, partnerships are widely used by practitioners in supporting small suppliers involved in local procurement. Leuschner, Rogers and Charvet (2013) identify supply chain integration as the partnership-specific capability employed in improving supply chain performance. This capability combines information integration, relational integration and technology, but the authors point out that operational integration is costly for SMEs. However, since SME advantage tends to be behavioural, the current study suggests behavioural integration as another partnership capability deserving consideration by practitioners in creating supply chain value.

To answer the research questions, the researcher undertook a review of extant literature and utilized primary data collected from SME owner-managers in Uganda. This document is organized as follows: Chapter 1 and 2 set the context for the investigation by defining key research objectives and definitions, including but not limited to local procurement and supply chain management. Following this, the study examines prior work on the relationship between entrepreneurial competence and supply chain value in chapter 3, and explains the methodological approach. Next key findings are presented via a discussion of the relationship between various competence areas and SCVC. Finally, the conclusion and policy recommendations are laid out.

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CHAPTER TWO

LOCAL PROCUREMENT

2.1 Introduction

The chapter provides relevant definitions for, and a historical perspective on, local procurement: its importance and benefits to local communities. The chapter further discusses local procurement policy in Uganda and the impact of local procurement on local economic development, local procurement strategies and the challenges encountered by small suppliers in local procurements, to provide a basis for discussing the theoretical underpinnings.

2.2 Definition of local procurement

There is no commonly accepted or legal definition of the term 'local'. However, local procurement practices are defined within geographical boundaries (Campbell & MacRae, 2013). Local procurement is described as buying within the community where a firm operates, including procurements that take place in less dispersed supply chains, taking advantage of locally available materials in a company's vicinity (Porter & Kramer, 2011). The practitioner's definition of local procurement combines both distance and time taken to travel to a meeting with a supplier (CIPS, 2013). However, proximity is different in urban and in rural settings: the poor infrastructure in rural areas makes the distances between customers and suppliers longer and more time consuming. Halldórsson, Kotzab & Skjøtt-Larsen (2009) define local as within the boundary of a 20 - 50 miles radius from the market outlet. In the Ugandan context, the term local is defined in terms of being within a local government boundary, to balance supply chain realities and consumer perceptions in a developing country context. Procurements taking place in the vicinity of a company promote strong bonds and interconnections between actors, which eventually breed trust. In this case, trust becomes a key underpinning for collaboration.

From a different perspective, the term local procurement is used interchangeably with 'local content' to broaden the scope of its meaning (Manzano & Anouti, 2013; Esteve &

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Barclay, 2011). Local content was defined as the employment or value added in the vicinity of a company or, more broadly, as jobs created anywhere in the domestic economy as a result of the actions of a company (Warner, Manzano & Anouti, 2013). Warner et al.'s (2013) definition takes in suppliers situated anywhere in the country, but which provide local expertise or goods produced locally. Esteve and Barclay (2011) defined local content as the proportion of inputs to a product or service (e.g. materials, parts, services) that have been made in the country rather than imported. Once companies rely on local content, they often locate their plants closer to the source of materials or labour to minimize expenditure on transport. This tends to shift the meaning of local towards definitions that put emphasis on procurements taking place in the vicinity of a company.

However, when considering local procurement as an attempt to move conventional supply chains towards local sustainable approaches, local procurement practices have been defined within geographical boundaries (Campbell & MacRae, 2013), thereby underlining the importance of proximity in supply chain management. Indeed, Campbell and MacRae (2013) assert that precisely because 'local' is not well defined, an approach that employs geographical boundaries to identify locality helps to balance jurisdictional rules and consumer perceptions against supply chain realities. The study considers local procurement as buying activities taking place within a district boundary and focusing on SMEs registered within the geographical boundary. However, the more rural the area, the more difficult it becomes to find potential suppliers.

2.3 The Policy framework in Uganda

Local procurement in Uganda is set up within the framework of the Buy Uganda Build Uganda (BUBU) policy. The BUBU policy is within the framework of several national development policies and strategies, particularly the National Trade Policy (NTP), which encourages consumption of locally produced goods and services; the National Industrial Policy (NIP); the National Standards and Quality Policy (NSQP); the National Cooperatives Policy; the National Textile Policy; the National Sugar Policy; and the Public Procurement and Disposal of Assets Act (PPDA). The policy aim of BUBU is to promote the private

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sector so that it becomes an engine for growth. To achieve this, the government of Uganda is determined to enhance the capacity of SMEs in meeting supply chain requirements (Uganda Ministry of Trade, Industry and Cooperatives, 2014).

One of the outcomes of the BUBU policy has been a review of Public Procurement and Disposal of Public Assets (PPDA) regulation, to include a preference and reservation scheme, and of the oil and gas laws to create a local content advantage of 48% for domestic companies. The regulatory reforms championed by the BUBU policy target domestic firms, specifically those owned by Ugandans, registered in Uganda and the majority of whose employees are Ugandans (Ministry of Trade, Industry and Cooperatives, 2014). However, this definition sometimes constrains local SMEs, because it is not sufficient for businesses to be registered in Uganda or be owned by locals: it is the size of a firm that counts. The emphasis on company ownership and registration opens opportunities for joint ventures between foreign companies and local partners, and the penetration of foreign firms is likely to be a key barrier for local SMEs.

In addition, the preference scheme targets a few sectors, to be defined by a 'competent authority'. This remains legally vague. Moreover, the reforms focus on demand side challenges and do not address supply side constraints, particularly the supply chain management challenges facing SMEs: resource constraints; the opportunistic behaviours of dominant firms; and the information gaps between supply chain partners. The most important aspect for this study is that Uganda's policy on local procurement recognizes the need to develop SMEs supply chain management capabilities, albeit remaining silent on how this is to be done. The current study is therefore timely, because it contributes to identifying a practical solution to developing local SME capability in supply chain management.

2.4 Local procurement and Uganda's local economic development

Local procurement is an innovative procurement model that has the potential to promote inclusivity for suppliers within local communities. SMEs in Uganda have not fully exploited

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the opportunities associated with local sourcing, because of supply chain management constraints. For instance, poor infrastructure limits the flow of information between large and small companies. Moreover, the new procurement trends do not favor local SMEs as when, for instance, procurers give special importance to “value for money” (sometime misused) at the expense of other procurement goals. Local procurement is expected to provide income (directly or indirectly) to local businesses, especially the SMEs that constitute 90% of private sector business in Uganda (Bienen & Ciuriak, 2015). Yet to accommodate resource-strapped local SMEs, the assessment criteria for suppliers require considerable flexibility. Further, the impact of local procurement on local economic development is likely to be minimal owing to the slow implementation of BUBU policy.

Access to formal markets is a major challenge to developing the SME sector in Uganda (Ernst & Young, 2011). This challenge could be resolved if the implementation of government policy gives due attention to the supply side barriers limiting SME participation in local procurement. Attempts made to investigate the limitations SMEs face in accessing the public procurement but all proposals have focused on addressing demand side constraints. The Commonwealth Secretariat suggested that in order to develop a favourable policy for SME procurement Government of Uganda should “(i) strive for greater transparency and simplicity of national procurement system; (ii) devise measures to reduce the barriers; (iii) establish risk assessment criteria for SMEs; (iii) review the definition of SMEs by taking into consideration the different sectors; and (iv) adopt invoice financing to reduce the problems of delayed payment” (Secretariat, 2011:7). These recommendations continue to highlight the relevance of this study. The recommendations address demand side constraints and give equal attention to the supply side as a strategy to improve SMEs’ access to local procurement.

There is increasing awareness that procuring from suppliers within a company’s vicinity creates business for small suppliers, stimulates economic activities in the company’s neighbourhood and attracts further investment into local communities. Procurements that take place at regional or sub-regional government level are a source of income for small businesses operating within local supply chains (Combras, 2011:187). Usually, SMEs

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involved in local procurement depend on local governments (directly or indirectly) and a few large companies. The social and economic benefits resulting from local procurement include improving the quality of life for employees who work for local SMEs; the transfer of new technologies and innovation; supplier social investment; skills development; and the creation of employment in local communities (Esteves, Barclay, Brereton & Samson, 2011).

SMEs that participate in local procurement in Uganda mainly play the role of suppliers to large firms, and are themselves customers to both micro-enterprises and large companies. Thus, they concurrently manage demand and supply. The increasing need to report on the bottom line – and the consequent pressure to expand supply chain performance metrics to capture sustainability issues – as well as the pressure to incorporate local SMEs in supply chains and many other factors, have made local procurement an area of interest for research. Esteve and Barclay (2011) assert that companies opt for local procurement practices to attain a 'social license' to operate in communities. Other firms buy locally to enjoy the benefits associated with short supply chains: for example, minimal transport costs (Bienabe & Vermeulen, 2007). Moreover, targeting capable local suppliers reduces cycle time, increases flexibility, fosters faster learning and enables innovation, thus making local procurement an effective strategy (Porter & Kramer, 2011). This demonstrates that promoting local procurement helps to resolve many structural barriers to value creation and is an opportunity to increase the role of SMEs in local economic development.

2.5 Challenges faced by SMEs in local procurement

Local procurement is not a very smooth option for SMEs. Bienabe and Vermeulen (2007) highlighted numerous challenges and cost implications associated with buying locally, which affect participating firms. These make local SME supply chains inefficient and hence less attractive to procurers. The challenges include the higher possibility of shortages (when demand exceeds local supply); a high administrative load; limited product diversification; high transaction costs linked to using multiple micro-enterprises; a lack of significant alternative market opportunities; power dominance by large companies; and,

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sometimes, the questionable capacity of SMEs to sustain their relationships with customers. The problem of high operational transaction costs does not arise where firms are concentrated in one geographical area. Moreover, the lack of resources at firm level may limit internal sources of value creation. This means that resource-constrained SMEs need to focus on external sources of value: customers and suppliers. This will depend on the competencies and capability to create sustainable relationships.

Additionally, Porter and Kramer (2011) also demonstrated how small suppliers participating in local procurement in emerging markets are constrained from reducing the hidden costs associated with infrastructural challenges. It is also becoming apparent that through local procurement, local markets are integrated into the global economy with a new set of actors whose skills and competencies are relatively superior to local capacities (Esteves et al., 2009). What this means for SMEs is intensified competition, despite the slow rate at which local markets are growing. This prompts a return to considering the issue of capacity to manage supply chains. If SME owners have to survive the waves and pressures consequent on the integration of global firms into local procurement, and are to build competitive supply chains, SME owner-managers need to develop new models focusing on building competencies, and coordination efforts based on relational strengths and information integration. Better management of the local supply chains is therefore paramount to minimise the impact of these threats on SMEs that do not typically collaborate.

The barriers hampering SME entry into the public procurement market relate to the high costs of obtaining information on the goods, works and services sought by local governments (Wayne, 2001). This problem of information (and knowledge) is so critical that it dominates much of the World Bank's discourse on public procurement (Leipold, Klemow, Holloway & Vaidya, 2004). Information costs may be so onerous as to preclude SME involvement in public procurement (Leipold et al., 2004). Potentially, this lack of information is particularly damaging to small firms in developing and transitioning economies. Local entrepreneurs who are able to reduce the costs of obtaining information within their supply chains are thus likely to improve the performance of their supply chains.

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Studies evaluating the importance of small suppliers' participation in local procurement have identified a number of obstacles limiting SME participation (Loader, 2013; Lutz, 2011; Karjalaine & Kemppainen, 2008). The barriers that small suppliers in industrialised economies face in procurement are different from those affecting their counterparts in developing economies. For example, Karjalaine and Kemppainen's (2008) study of Finnish SMEs established that perceived lack of access to human capital (specifically in legal expertise and administration) and the lack of electronic systems were related to the poor involvement of SMEs in local government procurement. By contrast, in Uganda, where the institutional system is not well developed, local SMEs may not need such expertise to participate in procurement. In other words, the issues affecting SMEs in developing economies are often quite different from those affecting their counterparts in developing economies.

Esteves et al.'s (2009) study reiterates the barriers that limit suppliers from fully participating in local procurement. These include the information gap between small and large companies; the perceived lack of capacity in small enterprises; and the disincentives created by global supply chain management trends. Small suppliers combining resources through collaboration, taking advantage of relational rents, could easily mitigate, the challenges relating to both the capacity of suppliers to deliver on a contract and to limited information sharing. Supply chain collaboration may reduce capacity challenges by facilitating the smooth flow of both tangible and intangible resources between firms. Certainly, collaboration between suppliers can be expected to reduce the barriers limiting value creation in local procurement. However, SMEs in Uganda do not typically collaborate. The lack of resources among supply chain actors and infrastructural challenges may increase the costs of collaboration. For example, the poor roads and telephone network in the rural part of Uganda, make the sharing of information between supply chain partners costly. Besides, large companies that are sourcing locally do not like to collaborate with small suppliers because they are considered unreliable.

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From the demand side, the constraints affecting SME participation in local procurement are also different. Loader (2013) demonstrates how public procurement policy in the UK encourages SMEs to supply local government, but how a lack of clear priorities and objectives by public procurers remain an obstacle to SME involvement. Public sector procurers have an inward-looking perspective that prioritises value for money in its narrowest sense; focusing on cost and quality at the expense of other procurement goals (Loader, 2013). Small suppliers who cannot compete based on cost and quality advantage are not favoured. Certainly, large suppliers enjoy economies of scale that permit them to compete favourably on cost advantage, something that remains a problem for SMEs. The perception that small businesses lack the capacity to deliver on quality and cost results in a generally unfavourable attitude towards them on the part of public procurers. This narrow, cost and quality interpretation of value for money by public procurers is a barrier to small suppliers who wish to participate in procurement. In addition, the practice of selecting suppliers based on value for money as a single procurement goal compromises other inherent goals of local procurement such as the creation of employment (Loader, 2013). By contrast, local procurement practices can represent a more innovative and collaborative approach to procurement, where multiple stakeholders may influence the process of value creation.

A Northern Ireland study investigating SME access to public contracts with respect to owners' social-demographic characteristics and their perception of capital barriers has additionally demonstrated that the lack of professionalism among procurers, huge contract documents and complex contracting procedures all feature as major barriers for small suppliers (Fee, Erridge & Hennigan, 2002). Local procurement processes tailored to small suppliers require simple contracting procedures, often without too much documentation. Such processes can accommodate all kinds of suppliers, irrespective of their education levels. The problem of unwieldy documentation should not arise in procurement tailored to local communities.

Ugandan SMEs struggle to access financing and hence find public sector procurement an unattractive business prospect (Beck, Demirgüç-Kunt & Singer, 2013). Being resource-

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strapped, SME suppliers prefer selling to private companies and individuals because public entities often delay payments (Secretariat, 2011). The timeliness of payment to suppliers is contingent on how efficient central government is in remitting funds to local authorities. According to Secretariat (2011), increasing SME access to procurement requires very SME-friendly options such as invoice financing. This helps to reduce cash related challenges, but does not build long-term working relationships with suppliers. SMEs that are constrained depend on resources outside the boundaries of their own firm, and accessing such external resources depends on the quality of relationship between actors.

In sum, despite the challenges posed, the local procurement approach has much potential to improve economic development through creating employment and encouraging deeper private sector participation in local communities. This suggests that enhancing local procurement will create options for procurement strategies that can propel both economic growth and the more vigorous involvement of small suppliers.

2.6 Local Procurement Strategies

Multiple strategies have been used to reduce the challenges faced by small suppliers in local procurement. For instance, the partnership approach is often adopted to support the development of local procurement markets. Through partnership, purchasing entities collaborate with private entities, community groups and development agencies to establish suppliers' linkages. These linkages often focus on enabling SMEs to access skills and sometimes to assist – as one example – groups of women in impoverished communities to establish small businesses. In a survey aimed at identifying the primary incentive for strategic partnership with local suppliers in the construction industry, Lu and Yan (2007) indicated that both contractors and consultants consider the main reasons for strategic partnership to be the enhancement of competitive position and new market entry. Collaborating with local suppliers leads to a profitable job for the contractor, ensuring quality and the timely delivery of the job (Lu & Yan, 2007). However, because partnership contracts are often incomplete and do not cater for future eventualities to protect small

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firms from exploitation, the potential for opportunistic behaviours from large customers still exists. Therefore, the most appropriate approach to supporting local SMEs in the procurement market is to strengthen local supply chains and thus elevate competition to supply chain level. Competition between supply chains is likely to be healthier for small companies than that between firms.

In another study (on donor-driven resource procurement for post-disaster reconstruction), Chang, Wilkinson, Potangaroa, and Seville (2011) demonstrated that creating a partnering environment with local communities helps to form operational links between the procuring agency and potential local resources and capacities. The operational links in this case were established to facilitate joint planning, the identification of potential service providers and the sourcing of raw materials, among others. The partnering environment helped to avoid incompetent contractors, poor community participation and the perception of low supply capacity when buying locally. However, uncertainty about the future supply of locally procured materials is always a major concern for entrepreneurs involved in local sourcing (Egan, Taggart & Annis, 2007). By ensuring that focal firms' inventories are known through information sharing, the performance of local supply chains could be improved.

Estache and Limi (2008) studied local procurement in the construction industry and concluded that the competition effect is regularly underutilized. As a result, the unit cost of a contract is often higher than market rates. While competition may help to reduce the cost of a contract, the design of an auction – especially a process that allows the division of contracts into small lots – can also be important in reducing the unit cost of a contract. In addition, such a process enables small firms to maintain quality, since the reduced contract size is manageable for them. Consequently, one initial step that may support SMEs in their participation in public contracts is permitting the division of contracts into reasonably small lots (Morand, 2003). Yet although such initiatives may increase the opportunities for small suppliers, other problems may still arise. SMEs in developing countries lack the information and external finances to sustain a supply. To deal with this, many resort to subcontracting, which increases transaction costs.

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In a related study, Esteve and Barclay (2011) demonstrated how integrating social and economic impact assessment and risk assessment in planning for local procurement promotes collaboration and helps a community become proactive in determining their social and economic futures. The central argument of these scholars is that every local procurement strategy requires an assessment of social impacts (negatives and positives) on entrepreneurs, communities and the region as a whole. Such an assessment can assist in identifying the likely response from local entrepreneurs, communities and region. This knowledge is key in integrating local SMEs into supply chains. Esteves and Barclay (2011) further demonstrate that socio-economic benefits result from engagement with SMEs in local procurement. These include philanthropy and making contributions to community activities. Since SMEs demonstrate a higher multiplier effect in relation to business opportunity, they are likely to create new business and other opportunities for micro-suppliers, spread new technologies rapidly, and promote innovative practices to other players in the market.

Preference and reservation schemes are used worldwide, including in India, Canada, the USA and South Africa among others (Morand, 2003). Under these types of schemes, the contracting entity sets aside procurement funds for competition among targeted SMEs (such as business owned by a minority group, for example women or specific race groups, or businesses belonging to the small-scale sector). The Government of Uganda is reviewing the public procurement law with the aim of promoting preferential procurement for local content. The proposed amendment in the new procurement guidelines establishes a reservation scheme targeting specific sectors, as well as thresholds below which foreign firms cannot bid for local contracts. By discouraging the participation of foreign firms, the government intends to shift profits to local firms, but potentially at the expense of increasing procurement costs in the long run (Ngeno, Namusonge & Nteere, 2014). According to Morand (2003), favored firms have no incentive to reduce their costs, which makes such procurements expensive to procurers. By trying to promote the profits of local firms without tracking the costs of individual firms, it remains as yet unknown whether

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preferential treatment for local SMEs might have a multiplier effect on business in local communities.

Studies that focus on local procurement in the private sector (Bienabe & Vermeulen, 2007; Porter & Kramer, 2011; Esteve & Barclay, 2011), depict small suppliers as dependent on large companies which provide continuous support. Firms continuously support each other because they are working towards a common goal. The mutual support that all actors receive helps to minimizes opportunistic behaviours by individual firms. The mutuality encouraged in trust-based relationships offers a number of lessons. First, the provision of ongoing support in a customer–supplier relationship helps to build trust, which is an incentive for long-term partnerships. Second, local SMEs are associated with informality, so proper management of local SME supply chains calls for both informal and formal means of contracting, each of which is facilitated by trust. Finally, the most visible structural feature of the local procurement market is proximity between firms, which facilitates inter-firm interactions and trust. All this demonstrates relational ties that manifest in form of trust, and play a central role in ensuring the success of SMEs sourcing raw materials from local communities.

It is evident from the above synthesis that the procurement challenges faced by SMEs are diverse. The strategies to counteract these challenges thus need to be context-specific. In addition, it is apparent that the inefficiencies in the local procurement market relate to both supply and demand side constraints. For this reason, proper integration of both upstream and downstream clients is required, using supply chain management models that recognize the role of suppliers in improving SCVC.

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CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

The research question guiding this study is located in the literature on SME studies, supply chain management and procurement. The literature review provides the scope and definition of terms: entrepreneurial competence; supply chain collaboration; supply chain trust; and the concept of value and SCVC are all defined. This is followed by an account of the theories on which the creation of supply chain value is premised. The section further reviews more recent theoretical developments and empirical findings advancing the relationships between entrepreneurial competencies, supply chain collaboration, trust and SCVC. This section also highlights the various hypotheses guiding the study.

3.2 Scope and definition of terms

3.2.1 Small and medium-sized enterprises (SMEs)

Identifying a universal definition of SMEs for Africa poses challenges, not least because different countries present differing social-economic and political factors (Turyakira, Venter & Smith, 2012). The South African SME Act describes SMEs as having between fifty and two hundred fulltime employees or a turnover of five million Rand (US $ 833,000) while micro-enterprises employ at most five workers (Gordon, 2003:2). Hannun (2004:5) describes small-scale businesses in developing countries as “businesses that engage less than fifty employees, and medium-size firms as those that employ between fifty and ninety-nine workers”. Consistent with Hannun (2004), Turyakira et al.’s (2012) definition of small and medium-size enterprises considers a business which employs more than five but fewer than 100 full time employees. That definition is also consistent with the National Council of Uganda Small Business Organization (NCUSBO). This study adopts the definition of SMEs that was utilized by Turyakira et al. (2012) in studying competitiveness of SMEs in Uganda because it has more relevance to the Ugandan context.

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3.2.2 Supply chain management

Despite the wide research on the concept of supply chain management, there is no consensus on the definition of the term itself (Greis, 2013). Storey, Emberson, Godsell and Harrison's (2006) simplified definition suggests that supply chain management is about influencing behaviour in particular directions and particular ways. According to Esteves and Barclays (2011:208), supply chain management includes the "planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities". In the context of this study, we adopt Esteves and Barclay's (2011) definition of supply chain management, which points to the management of demand and supply within the company and beyond. The focus on managing demand and supply suggests that production and efficiency have become less important than consumer requirements and market trends. In addition, the impact of establishing relationships with suppliers and customers has become a topic of current concern. Resource-constrained suppliers have to enter some form of collaboration in order to create value for customers. There are multiple forms of collaboration, including strategic alliances, joint ventures, vertical integration, horizontal integration and virtual integration. Some of these are more suitable than others for SMEs (Walker & Preuss, 2008). Within local communities, effective collaboration requires a foundation of trust and personal commitment from entrepreneurs. Trust helps in establishing long-term relationships (Fynes, Voss & Burca, 2005), which in turn help collaborating partners to share resources and competencies. The collaboration helps SMEs to access the distinctive competencies their partners have (Gulati, 1999). Such competencies help collaborating firms to extract value for the supply chain.

3.2.3 Entrepreneurial competence

There is no single definition of entrepreneurial competence. However, drawing from earlier studies, Mitchelmore and Rowley (2010) define entrepreneurial competence as those underlying characteristics (such as specific knowledge, motives, traits, self-image, social roles and skills) that result in venture birth, survival and/or growth. For SMEs, entrepreneurial competence means the capability of the entrepreneur and of his collaborators in successfully acquiring, using and developing resources for their business

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purpose, in the specific context in which the firm operates (Capaldo, Landoli & Ponsiglione, 2004). Consonant with this, Morris, Webb, Fu and Singhal (2013) suggested that entrepreneurial competencies carried by individuals who start a business, transform it and add value to it through organizing resources and opportunities. This description is consistent with the resource-based view, which suggests that value creation by a firm relates to the capability of a manager in acquiring and using resources (Barney, 1991). However, the continued lack of a unified definition of entrepreneurial competence suggests this concept merits further clarification. Since this research focuses on SME owner-managers, it adopts Morris et al., (2013) definition of entrepreneurial competencies, because their unit of analysis is the individual.

According to Mitchelmore and Rowley (2010), research on entrepreneurial competencies is driven by aspiration to achieve superior performance and consequently business success. The focus on SME owner-managers' competencies is guide by the fact that SME advantages tend to be behavioural, emphasizing qualitative differentiation and innovation (Thakkar et al., 2009). While previous studies have focused on identifying competencies relevant to a firm's performance (Man Lau & Chan, 2002; Solesvik, 2012; Mitchelmore & Rowley, 2013), this research concentrates on those entrepreneurial competencies needed for the creation of supply chain value. Specifically, the study posits that there is a positive relationship between entrepreneurial competencies and SCVC. Mitchelmore & Rowley (2010) painted an integrated picture of all contributions relating to entrepreneurial competencies from studies conducted in various countries. However, none of the studies focused on SCVC. Mitchelmore & Rowley (2013) underlined the existence and importance of this gap in the literature in their recent meta-analysis of the impact of personal variables on entrepreneurial competencies. They urge that future research should give particular attention to developing models that establish the relationship between entrepreneurial competencies, business performance and growth.

In response to Man et al.'s (2002) call for more qualitative research on entrepreneurial competencies, Solesvik (2012) carried out exploratory research on female entrepreneurs in an emerging economy context. Solesvik's (2012) work demonstrated that successful

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female entrepreneurs were associated with the six entrepreneurial competencies: opportunity; organizing; commitment; relationship; and conceptual competencies. Their results show that strategic competencies were underdeveloped in all the eight cases studied. This finding emphasized that entrepreneurial competencies are heterogeneous and suggests that successful SME owner-managers continuously develop additional competencies to maintain a competitive edge in business. In view of this, it is apparent that successful entrepreneurs have to continuously develop different competencies to suit potential management challenges in their own environment. The current study considered four competencies relevant to the study context: opportunity competence; commitment competence; innovative competence; and analytical competence.

An earlier study by Hsu et al. (2011) on supply chain management for manufacturing SMEs, developed a second order construct - entrepreneurial SCM competence, which brings together innovation orientation, risk-taking, proactiveness orientation, relational orientation and coordination capability to explain the relationship between entrepreneurial competencies and a firm's performance. Hsu et al.'s (2011) findings revealed that the impact of entrepreneurial SCM competencies on firm ` performance was not significant, possibly because of the small sample size used in their study. The outcomes of business performance that were tested with entrepreneurial competencies include; flexibility and responsiveness to production and delivery lead time, accuracy of inventory level and inventory turnover, performance of products and conformance to product specifications (Hsu et al., 2011). Their study hinted at the likelihood of a relationship between entrepreneurial competencies and SCVC. However, a close look at the descriptions given for entrepreneurial SCM competencies developed by Hsu et al. (2011) indicates a clear overlap between this construct and the entrepreneurial competencies that are well defined in previous studies (Man Lau & Chan, 2002; Mitchelmore & Rowley, 2010; Solesvik, 2012; Mitchelmore & Rowley, 2013). This indicates that the construct of entrepreneurial SCM competence is not well developed in the literature. Consistent with this observation, Hsu et al.'s (2011) study also recommended that future research on manufacturing SMEs should investigate other competencies such as organizational learning and knowledge

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management to establish the nature of impact such competencies have on firm performance.

Man, Lau and Chan's (2002) study on the competitiveness of SMEs, summarized entrepreneurial competencies into six competence areas whose measurement is important in the SME context. These include: opportunity; relationships; and conceptual, organizing, strategic and commitment competencies. In a related study, Mitchelmore and Rowley (2013) developed a framework for female entrepreneurial competencies that also captured all the above competencies. It is evident from the literature that entrepreneurial competencies are positively related to SCM strategies. However, given the uniqueness of the business environment from which entrepreneurs operate, examining all of these competencies in turn may not be appropriate. In fact, some of the competencies cannot be generalized across contexts: for example, the study of female entrepreneurs revealed that strategic competencies specifically were underdeveloped amongst women (Solesvik, 2012).

In view of the above, the study investigated certain selected competencies that are more applicable to the SME context in Uganda. These include opportunity, commitment and conceptual competencies. SME owner-managers who have the selected competencies, could easily differentiate their value offerings.

3.2.4 Supply chain collaboration

Cao and Zhang (2011:166), define supply chain collaboration as "a partnership process where two or more autonomous firms work closely to plan and execute supply chain operations towards common goals and mutual benefits". With a different emphasis, Wiengarten, Cao, Fynes and McKittrick (2010:466) define collaboration practices as "the extent to which an organization shares information, costs, risks and benefits, and makes joint decisions with its key suppliers". Wiengarten et al. (2010) identified three measures of supply chain collaboration relevant to their study context, namely joint decision-making, information sharing and incentive alignment. Cao and Zhang (2011:166), however,

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identified seven defining dimensions of supply chain collaboration. These include information sharing; goal congruence; decision synchronisation; incentive alignment; resource sharing; collaborative communication; and joint knowledge creation. This difference in approaches implies that the choice of dimensions representing supply chain collaboration depends on the context of the study.

In this study context, SME collaboration is used to mean the vertical collaboration of suppliers and final customers who procure from SMEs. This collaboration happens upstream with micro enterprises and downstream with large companies or SMEs located in the same geographical area. SMEs in Uganda do not typically collaborate. Collaboration is often triggered by a business opportunity, after whose dissolution they break up. Lack of resources appears to be the main hindrance to sustained SME collaborative activities. The research selects and evaluates information sharing, collaborative communication and goal congruence as the most appropriate dimensions for measuring supply chain collaboration for Ugandan SMEs. These activities are likely to create supply chain value by reducing response time and costs, and improving innovations by better leveraging resources. As one example, collaborative communication between customers and suppliers has a positive effect on customer responsiveness (Chen, Paulraj & Lado, 2004).

Cao and Zhang's (2011) study investigated the relationship between supply chain collaboration, collaborative advantage and firm performance. Their findings revealed a significant positive relationship between the constructs for both medium and large firms – but not for small firms. Small firms did not benefit from collaborations with large and medium size enterprises. Cao and Zhang (2011) defined collaborative advantage as joint competitive advantage focused on joint value-creation in dyadic relationships. Thus, these researchers drew a line between the performance of collaboration (i.e. collaborative advantage) and the impact of that collaboration on firm performance (Cao & Zhang, 2011). However, Cao and Zhang's (2011) study provided a weak measurement of the supply chain collaboration construct, because of its small number of observations. This suggests additional work using a larger sample size is needed to validate and adopt indicators of supply chain collaboration.

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Network theory suggests that the position of a firm in a network influences the nature of benefits that accrue to it (Arya & Lin, 2007). Firms at the center of collaboration networks may lose out because they develop a complacent reluctance to seek new opportunities. Complacent collaborations may carry additional costs of coordination, lack of flexibility and compromise, so SME owner-managers need to be critical in selecting their portfolio of collaborators, if they are to maximize the benefits of collaboration. Conversely, Bititci et al. (2004) observe that the type of value created through collaboration depends on the level of maturity of any specific collaboration. SMEs at the stage of maturity reap more benefits than their younger counterparts, because they know how to leverage the significant experience that will help them benefit. Consistent with this, Thakkar et al. (2013) assert that SMEs also make a choice to manage supply chain depending on their stage of growth. According to Thakkar et al. (2013), start-ups are more likely to concentrate on internal competencies to reduce costs, while mature SMEs will opt to manage their supply chains so they can ensure other players rely on them for value-adding differentiation. This suggests that the stage of growth an SME has reached in its lifecycle influences its readiness to manage a supply chain. This is not, however, the focus of this stage of this research.

Hong and Jeong (2006) assert that when SMEs enjoy strong relationships with other members of their supply chain, their strategic focus should be on innovation to gain competitive advantage. However, when they have weak relationships with members of their supply chain, they need to pursue collaboration to gain competitive advantage. This suggests that it is not viable for a small supplier to focus on innovation before investing in collaborations as a starting point. At the early stage, a lack of resources limits their internal capacity to innovate (Larson, Carr & Dhariwal, 2005). But when SMEs collaborate, they access valuable resources that have the capacity to boost their future innovative potential.

The literature thus suggests that only mature SMEs are capable of investing in relationships to manage supply chains, while nascent SME entrepreneurs are mainly concerned to manage costs by leveraging internal competencies and do not invest in

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value-creating relationships (Thakkar et al., 2013). This is consistent with the previously-mentioned findings of Hong and Jeong (2006) that mature SMEs focus on innovation while nascent units pursue collaboration as a strategy for competitiveness. A collaboration-focused strategy can thus benefit both categories of SMEs, but the size of benefits (the value that accrues to mature as opposed to nascent firms) differs.

3.2.5 Supply chain trust

According to Spekman and Carraway (2006), trust carries a number of definitions, all of which have in common a willingness to be vulnerable based on positive expectations of another's actions or intentions. At the individual level, trust is a decision to rely on a partner with the expectation that the partner will act according to a common agreement (Ireland & Webb, 2007). More broadly, trust has been defined in relation to the relationship context being studied. For example, inter-organizational trust differs from supply chain trust. Fawcett, Jones and Fawcett (2012) draw a line between supply chain trust, firm-based trust and interpersonal trust. They focus on two dimensions of trust, benevolence and capability, to demonstrate that supply chain trust is capability based. A firm needs two types of capability to develop breakthrough trust: performance capability and relationship commitment capability. Commitment is one of the entrepreneurial competences examined in this study. Performance capabilities were framed in term of intent and skill, observing that managers make promises, but if they fail to deliver this undermines trust. By implication, a promise to deliver without skills does not build supply chain trust. To avoid distrust, partners must translate intent into the skills that will enable them to deliver on the promises they make.

In relation to inter-firm relationships, trust has two dimensions: affective trust and cognitive trust (Ke, Liu, Wei, Gu & Chen, 2009). “Affective trust is based on an organization's sensibility judgments and is established through emotion and feelings in a dyadic inter-organizational relationship, while cognitive trust is based on organizations' rational judgments and is developed through a firm's understanding and conviction of its partner's competence” (Ke et al., 2009:841). So, depending on the nature and context of the study,

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several dimensions of trust have been proposed for measurement purposes by earlier studies.

From an organizational point of view, the size of SMEs additionally makes it possible for SME owner-managers to create quality relationships with internal and external stakeholders, because “small business owner-managers are particularly sensitive to activities related” to their employees, customers and suppliers (Lepoutre & Heene, 2006:259). Indicators of the quality of a relationship include trust and commitment (Fynes et al., 2005). The smaller the entity, the more central is the role of the owner-manager in fostering strong relationships with fellow suppliers based on personal networks.

The current study focuses on supply chain trust, which develops from past behaviour, institutional set-up and economic reasons. In line with this view, the current study adopts Laeequddin, Sahay, Sahay, and Waheed’s (2010) definition of supply chain trust, which explains supply chain trust (measured in terms of a trustee’s past behaviour, institutional factors and rational factors) to understand how trust facilitates local supply chain partners in engaging in value-creation activities. Their perspective considers trust as a context dependent concept.

3.2.6 Value

Value has been defined as the perceived worth in monetary units of the set of economic, technical, service and social benefits received by the customer in exchange for the price paid for a product, taking into consideration suppliers' offerings and price (Anderson, Jain & Chintagunta, 1992). Kothandaraman and Wilson (2001) described ‘value’ as a marketing concept that extends beyond delivering customer satisfaction, to winning customer loyalty. By considering the fact that there are internal customers who rarely exchange their own money, Dumond (1996:2) considered the most useful definition of value to managers as “customer benefits minus customer sacrifices”.

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Bowman and Ambrosini (2000) distinguish between use value and exchange value to create clarity in the definitional problems surrounding the use of the term 'value'. Use value was described as "specific qualities of the product perceived by customers in relation to their needs" while exchange value refers to price. Since the exchange of commodities may occur between partners and between firms and final consumers, procurement managers have to believe that in either case the procured resources will contribute value. Anderson et al. (1992) demonstrated that to create value, a firm must integrate its resources to use its core capabilities in delivering products that satisfy a customer at a competitive price. Bowman and Ambrosini (2000), by contrast, later explained that the theory of value creation demonstrates the source of value to be the combined deployment of labour and other resources. All these findings represent a resource-centric perspective on value creation focusing on internal resources of a firm.

This study extends the resource-centric perspective by examining the resources a firm can access from the external environment through collaboration, taking into consideration important governance mechanisms. In collaborative relationships, value creation entails the total net value (i.e. total outcomes minus total inputs) created in a collaborative effort among exchange partners, while value appropriation depicts the net value that a focal firm claims successfully (Wagner, Eggert & Lindemann, 2010). Alternatively, Presutti Jr. (2003) have explained the concept of value using the notion of Economic Value Added (EVA). EVA. EVA is financial tool like Net Present Value (NPV) and is recognized as the most comprehensive measure of value creation. The advantage of EVA over other financial measures of performance is that it isolates and emphasizes activities that drive value creation (Presutti Jr., 2003). These activities include cost, revenue and assets. Figure 1 below shows the activities emphasized by EVA. EVA is expressed as: EVA = (r_t-k_t) capital; where r_t is the firm return on capital after time t and k_t is the firm's cost of capital at time t. According to Ray (2003), EVA has strong utility as a financial tool for measuring performance because it indicates where a firm is creating value, but not creating customer value.

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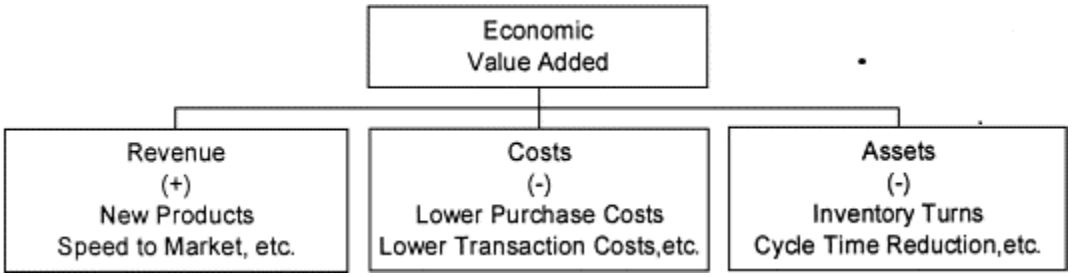
Figure 1: Economic Value Added



Source: Presutti Jr. (2003)

In his study on the relationship between EVA and productivity, Ray (2003) demonstrated that an increase in a firm's productivity creates value. He measured firms' productivity using four outcome indicators: increased output per work-hour; increased quality; decreased costs; or decreased error/defects. These indicators of productivity are driven by innovation (the creation of new products), technology (the application of innovation), human capital investment (screening, training, and compensation), plus myriad other factors (Ray, 2003:69). In sum, Ray's (2003) study suggests that increasing SME productivity using internal competencies and facilitating access to technology will help supply chain managers to make a business case for SME participation in local procurement. Because access to technology poses a challenge for SMEs in Uganda, a focus on the owner-manager's competencies may be the best option to increase productivity.

3.2.7 Value cycle

According to Le Ber and Branzei (2010:603), "a value cycle is a set of exchanges between at least two parties whereby the parties first create some additional value jointly and then unilaterally capture some of this value". Each participant who takes part in value creation expects to benefit as a basis for future exchange. Le Ber and Branzei's (2010:603) study also showed that value creation "often takes multiple exchanges to generate and accrue, value may be created and captured instantly, in other cases value creation and capture can take much longer". Furthermore, Dumond (1996:2) defined value-based management

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as “a paradigm that considers, as a single entity, the firm’s entire chain of activities: those with suppliers, internal functions and customers”. These scholars expand understanding of how value creation takes place, and thus underline the relevance of the investigations in this study. For resource-constrained SMEs, whose workforce is unskilled, it is not easy to establish where they derive value and because this is not known, this study adopts Dumond’s (1996) definition.

3.2.8 Supply chain value creation

A supply chain is a series of integrated units both internal and external to a firm “which transform raw materials into finished products and deliver products to customers” (Ketchen Jr, & Hult, 2007:4). There is growing recognition that rivalry among firms has shifted away from individual firms to contestation at the supply chain level of analysis (Ketchen Jr, & Hult, 2007). This suggests SME competitiveness will depend on how well groups of small firms integrate their supply chain. To ensure value creation in a supply chain, Klibi, Martel, and Guitouni (2010) proposed that activities at the various stages of a supply chain must be integrated. From the supplier perspective, Ulaga (2003) captured eight measures of value creation in manufacturer-supplier relationship. These comprise personal interaction; product quality; delivery time; time to market; direct product cost; process cost; supplier knowhow; and service support. SME owner-managers who are involved in local procurement have frequent interactions, opening up opportunities to tap into each other’s skills. By procuring from firms located near a company, procurers reduce the delivery time and transaction costs associated with location, thereby creating value. However, sourcing from within defined geographical boundaries is likely to expose a firm to incompetent suppliers, because Ugandan SMEs face major challenges regarding access to resources, workforce skills and technological environment (Muhanguzi & Kyobe, 2013).

Hofmann and Locker (2009) concur with three broad categories of value drivers, including ‘resources’ (inventory levels, personnel requirements, equipment utilisation, energy usage and cost), ‘outputs’ (customer responsiveness as well as quantity and quality of output produced) and ‘flexibility’ (the supply chain system’s capability to accommodate

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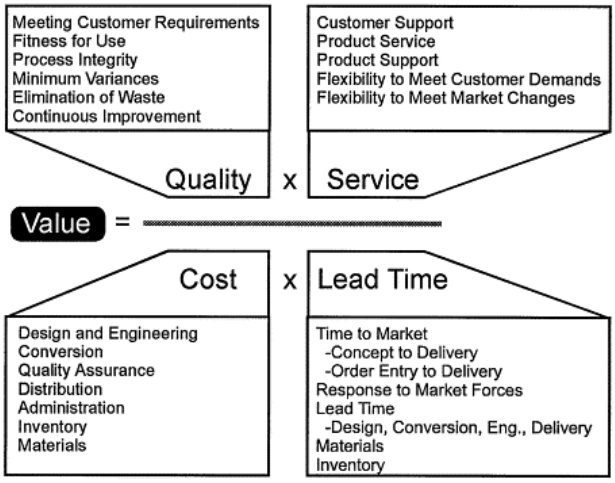
fluctuations in volumes and schedules from suppliers, manufacturers and customers). For resource-constrained SMEs that operate within the same vicinity, flexibility and output dimensions are likely to be the main value drivers since delivery time is reduced, yet both transaction and inventory costs are negligible. However, Estampe, Lamouri, Paris and Brahim-Djelloul's (2013) study of the tools for assessing supply chain performance demonstrated that there are multiple metrics and indicators for measuring value creation. Practitioners, therefore, face the challenge of choosing the right tool for a particular supply chain. The diagram below gives an aggregated picture of the metrics.

Figure 2: Value Drivers



Source: Naylor, Naim and Berry (1999)

According to Estampe et al. (2013), exceptional management of supply chains creates value for customers and may be viewed as a tool to complement the scarce resources that exist at firm level. Many studies emphasize value creation in relation to customers, but Estampe et al.'s (2013) study emphasized that supply chain management creates value not only for customers but also for the focal firm and the stakeholders interacting throughout a supply chain. This evidence even takes in suppliers' suppliers and customers' customers as part of a wider supply chain network. However, while this broad definitional scope is appropriate to large firms, it is not meaningful in an SME context in developing economies. Here, resource-constrained SMEs may not manage multiple supply chains. This study considers a narrow supply chain where value creation occurs at three levels,

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namely customers, suppliers and the internal processes of a focal firm. These three levels represent major sources of value perceptions along value chains (Jayaram et al., 2004).

Jayaram et al. (2004) proposed the concept of SCVC as a simple second order factor; taking in all three levels, founded on the lack of clear theoretical guidelines about how to order individual sources of value. Their work on the lack of consensus about what value creation is and how it really occurs, continues to engage the literature. According to Bröring and Cloutier (2008), the starting-point is not yet clear. This claim strengthens the earlier work of Jayaram et al. (2004), which highlighted the multiple views scholars held about the ordering aspect of value creation. According to these scholars, one school of thought – reengineering – suggests that internally focused efforts are the primary drivers of operational excellence within firms. Another, relying on quality function deployment, asserts that value creation starts with the customer. Those studies that are silent on ordering aspect of value creation, by contrast, focus on a single function of the supply chain, such as logistics. This ongoing debate provides robust support for the argument that effective measurement of supply chain value should integrate the three dimension of supply chain integration (SCI): customers, suppliers and internal processes. Flynn, Huo and Zhao's (2010) study also focused on the three dimensions in establishing the relationship between supply chain integration and performance. Against this backdrop, the current study also utilized these three components of value creation to test the main sources of value for small firms involved in local procurement.

A more recent meta-analysis considered supply chain integration (SCI) as a partnership-specific capability that can only be explained by expanding resource based view (Leuschner et al., 2013). This capability was described as a combination of information integration, relational integration and operational integration. Both relational and information integration were found to have a positive significant relationship with value creation, but the relationship between operational integration and performance was not significant because of the high costs firms incur while investing in collaborative relationships. Relational integration was measured in terms of trust, commitment and long-term orientation, while information integration was measured in terms of collaborative

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communication, coordinated information transfer and support for technology among firms in the supply chain.

The capacity to support technology is not common among SMEs in developing countries, and strategic competencies are always underdeveloped among SMEs (Mitchelmore & Rowley, 2013). However, according to Thomas and Skinner (2010), the presence of trust is important in stimulating the long-term orientation of partners in a relationship and leads to commitment and efficiency (Ireland & Webb, 2007). This suggests that for SMEs involved in local procurement, integrating the supply chain may mean a combination of relational integration, information integration, and developing competencies that have an integrative role in coordinating members of a supply chain.

Thakkar, Kanda and Deshmukh's (2013) insights on how SME advantages tend to be behavioural gave the current study a good basis for modifying Leuschner et al.'s (2013), taxonomy of SCI for SMEs by adding entrepreneurial competencies. This addition expands the lists of parameters utilised in the past to explain supply chain integration: technology, information integration and relational integration. This study therefore asserts that a supply chain can be integrated to create value based on four metrics: information integration, relational integration, technological integration and entrepreneurial competencies. In other words, to manage successful supply chains, SME owner-managers need to collaborate with partners but also to develop competencies to cultivate and manage the breakthrough trust that is needed to uniquely combine the resources necessary for creating supply chain value. However, initial trust (contractual and competence trust) takes time to transform into a more pervasive goodwill, which develops over a long period of time through repeated exchange (Ireland & Webb, 2007). The capability to manage initial trust (contractual trust) – which transforms into goodwill or breakthrough trust – is a key capability which SME owner-managers need to develop to manage successful supply chains.

The studies that reify value creation in relation to collaborative practices assert that the theory behind value creation identifies two types of value transactions; internal value (shareholder value), and external value propositions (Bititci, Martinez, Albores & Parung,

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2004). Internal value is equivalent to shareholders' wealth while external value is associated with customer satisfaction. In a related study, Martinez (2003) defined a value proposition as "an implicit promise a company makes to its customers to deliver a particular combination of values". These may include customer intimacy; product leadership; and operation excellence. In collaborative practices, value transactions are extended to four: shareholders' value; individual value propositions; intra-network value proposition; and network value proposition (Bititci et al., 2004). The intra-network value proposition was described as "the value proposition each member contributes to the overall network" while the network value proposition was defined as "the value proposition the network contributes to external markets" (Bititci et al., 2004:266). Both the individual value proposition and the intra-network value proposition are a function of a firm's core competencies, while the network value propositions are structural and infrastructural value proposition that a network extends to a market (Bititci et al., 2004). That last is beyond the scope of this study. However, Bititci et al's. (2004) interpretation of value transactions provides a theoretical link between a firm's capabilities and competencies and a firm's value transaction in the supply chain.

According to Purchase, Goh and Dooley (2009), the concept of value in purchasing and supply allows procurers to consider the value benefits of alternative offerings, rather than simply price. The non-price benefits include quality of offering; improvement in transaction costs; improvement in inventory holding costs; and in delivery to customers (Purchase et al., 2009). According to Presutti Jr. (2003), non-price benefits are good measures of the value of supply chains and represent some key indicators used by suppliers in matching their offerings to the needs of target market. However, Kothandaraman and Wilson (2001) argue that matching the needs and wants of a target market and delivering the desired customer satisfaction are no longer adequate for winning customer loyalty, so firms must create customer value superior to that of their competitors by integrating all activities in the supply chain (Klibi et al., 2010).

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3.3 Theoretical background and hypotheses

A number of theories have attempted to unpack the notion of SCVC. This research finds its theoretical hinge in the resource-based view (RBV) of the firm (Barney, 1991; Wernerfelt, 1984; Poppo & Zenger, 1998; Rasheed & Geiger; 2001). In relation to the themes of this research, the RBV theory is complemented by additional theories including transaction cost theory (Williamson, 1979; Rindfleisch & Heide, 1997); social network theory (Cyert & March, 1963; Granovetter, 1985); and relational view (Dyer & Singh, 1998; Lavie, 2006) as highlighted below.

3.3.1Transaction cost theory (TCT)

Transaction cost theory is one of the frameworks that make provision for the structure, existence and nature of co-ordination within a supply chain. Various alternatives exist for coordinating economic activities, including strategic alliances, formal written contracts and vertical integration. These represent various degrees of supply chain management (Hobbs, 1996). The choice of a type of vertical coordination depends on the key characteristics of a transaction: degree of asset specificity, degree of uncertainty, and frequency of transactions (Williamson, 1979). Transaction costs and their reduction lie at the core of supply chain management. Exceptional management of an SME supply chain improves the efficiency of the supply chain, which creates value for it. SMEs involved in local procurement incur low costs because of the proximity between customers and suppliers (Lentz, Passarelli, & Barrett, 2013). However, while such firms operate with the low transaction costs associated with location, other hidden costs arise during collaboration, such as information costs, manifestation of moral hazard costs and others associated with supply chain integration. Therefore, any decision to reduce costs should consider the role of resources in this project.

Transaction cost and coordination cost depend on the resources and heterogeneous capabilities of the firm. This means that SMEs with unique competencies will incur less costs in managing their collaborations with supply chain partners. However, the main hindrance to using TCT in studying SMEs in Africa is the poor culture of record keeping. This lack of records inhibits the accurate measurement of transaction cost and thus the

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utilization of TCT in the study of SME supply chains. Accounting measures have been proposed, however the majority of SMEs in developing countries do not keep adequate records due to lack of accounting knowledge (Amoako, 2013). According to Hobbs (1996), researchers who use TCT fail to quantify costs in measuring the effect of transaction cost on coordination. Besides, corporate accounting does little to track costs beyond a firm's legal borders (Ballou, 2007). Against this backdrop, utilizing TCT to study SMEs that do not have adequate records is very challenging.

3.3.2 Relational view

The proponents of the relational view posit that relational rents accrue to collaborating firms that invest in inter-firm knowledge-sharing routines, relation-specific assets, complementary resources and effective governance that lowers transaction costs (Dyer & Singh, 1998). Advocates of the relational view argue that firms involved in supply chain collaboration benefit from relational rent, while the outcomes accruing to individual firms from such collaborations depends on their relative absorption capacity, relative opportunistic behaviours, relative bargaining power, relative scope of resources and contractual agreements (Lavie, 2006). In Uganda's local communities, SMEs utilize contractual agreements concurrently with informal governance mechanisms such as trust (Uzzi, 1997) or reputation (Larson, 1992) as a basis for transacting. Informal self-enforcing governance mechanisms dominate among entrepreneurs involved in local supply chains. Often, there is a formal contract at the start of a relationship, but with time, trust influences the SMEs' willingness to engage in subsequent value creating activities. Trust is a key variable in the study and the most effective governance mechanism in local supply chain relationships. The study considers trust and complementary resources the key value drivers for the creation of supply chain value in the local procurement context.

The relational perspective explains the benefits of supply chain relationships, but the key limitation to this theoretical perspective is its unit of analysis: networks and dyads (Dyer and Singh, 1998). According to Cao and Zhang (2011), the benefits of supply chain collaboration come from collaborative advantage, which improves the competitiveness of

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collaborating firms in a dyadic relationship. This implies that an individual firm cannot create the same value as that jointly created by firms in a collaborative relationship. The current study focuses on SMEs as a unit analysis, diverging from the perspective of the relational view.

3.3.3 Social network theory

Social network theory also provides good grounds for understanding how local SMEs create value in supply chain relationships. Social network theory looks beyond the competencies of an entrepreneur to consider the benefits derived from the relational, cognitive and structural characteristics of the network to which SMEs have ties (Tsai & Ghoshal, 1998). Structural dimensions, which include the properties of a network – the position of firm in a network, personal linkages and overall pattern of connection – do give a picture of how local SMEs gain advantage from creating relationships. By locating close to one another, local SMEs benefit from reducing transaction costs. SME owner-managers also utilize personal networks and connections to create long-term relationships, but their large counterparts still dominate.

The relational assets rooted in supply chain relationship include trust and commitment. Trust, which functions as governance mechanisms that maintain collective assets within a supply chain, is a key variable in the current study. In addition, commitment is one of the competencies in which entrepreneurs need to excel in managing local supply chains. Supply chain trust plays a central role in influencing the long-term impact of relational rents. Results from testing hypotheses – such as the ones proposed by this research – that incorporate trust, can expose the factors that are more important in building supply chain relationships.

The network cognitive dimension embodied in attributes such as shared organization value, interpretation, shared codes and systems of meaning - which facilitate a common understanding of shared goals – may favour resource-constrained SMEs. As noted earlier, Ugandan SMEs involved in local procurement do not typically collaborate. Therefore, it

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may be difficult to set common goals expected to improve supply chain integration. Relational dimensions such as trust and commitment play a stronger role in facilitating collective efforts among SMEs; before suppliers agree to work alongside customers, there must be some degree of trust. Trust often derives from the skills and competencies entrepreneurs utilize to create opportunities. The entrepreneur's ability to build trust is likely to have a much stronger impact on creating market opportunities needed by local SMEs. The main weakness of the social network theory in terms of the current study is, again, its unit of analysis: networks. This study focuses on the SME as its unit of analysis.

3.3.4 The resource based view (RBV)

For small, resource-constrained suppliers, the traditional resource based view (RBV) advanced by Barney (1991), does not provide very strong theoretical grounds on which to explain how these SMEs benefit from interconnectedness with other supply chain partners. The traditional RBV assumes that the pre-conditions for competitive advantage include resource heterogeneity and imperfect mobility – that is, firms become competitive when they own rare, valuable, non-transferable and inimitable resources. The extended RBV as advanced by Lavie (2006) looks beyond a firm's own resources and provides a clearer perspective by explaining how complementary resources outside the firm create value for a firm collaborating with supply chain partners. The extended RBV explains the role of entrepreneurial competencies in creating supply chain value (Hsu et al., 2011). However, not all competencies have an integrative role in coordinating SME supply chain activities. In this study, the first research question aims to establish the type of entrepreneurial competencies which have an integrative role and hence are important in the creation of supply chain value. Such competencies create efficiency and hence value for participating firms.

The potential free flow of resources does not negate that the above assumptions (resource heterogeneity and imperfect mobility) hold for inter-connected firms. How entrepreneurial competencies combine or interact with other resources within a firm affects their mobility (Rungtusanatham, Salvado, Forza & Choi, 2003). Besides, the interactions of a firm's

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resources and entrepreneurial competencies outside the firm create social complexity that makes replication difficult. This means other value drivers that can resolve the social complexities associated with local sourcing have an important role in circumventing replication.

The role of trust in resolving the social complexity associated with local sourcing is important in value creation. Initial trust, based on the trustee's competencies, forms the basis for issuing a contract. Gradually, initial trust develops to facilitate the combination of competencies between supply chain partners. For example, trust helps to tap into a supplier's knowledge stock to benefit from it for the entire supply chain (Lorenzoni & Lipparini, 1999). However, local entrepreneurs often see themselves as automatically entitled access to contracts from companies located in their communities, regardless of their professional abilities. Such complexities have to be resolved by local procurers. This often starts with developing the competencies of potential suppliers through training. The training helps to develop early trust, which becomes the basis for giving initial contracts. Subsequent business depends on the level of trust developing between supplier and customers in the relationship. Thus, the value created in a supply chain will depend on high levels trust in supply chain relationship. Since trust develops gradually, the primary research question aims to establish whether value creation depends on high levels of trust in supply chain relationships.

Different drivers determine why companies choose local procurement. These can include government regulation, cost reduction and increased quality, social license to operate, and long term economic diversification, among others. In such a context, cost reduction and increased quality are no longer dominant value drivers. For this reason, local procurement employs different criteria to measure its effectiveness, not limited to considerations of budgets, delivery time and quality. As sourcing goes rural, it is becoming more difficult to find capable suppliers. Again, trust becomes a very important factor in accessing resources such as financing, as well as in supplier retention. Therefore, to create strong value propositions, local SMEs have to leverage trust in building strong collaborations.

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In line with the RBV framework, studies have shown the importance of supply chain collaboration towards value creation (Cao & Zhang, 2011; Hall & Saygin, 2012; Chen et al., 2004). Through collaboration, local SMEs are able to access the routines and competencies that exist among different supply chain partners to obtain differential performance (Dyer & Singh, 1998). Such collaborative advantage is difficult to replicate, because competitors must combine similar resources (Cao & Zhang, 2011). However, local SMEs in the study context do not typically collaborate because of the costs associated with collaboration (Katz & Martin, 1997). Managers or employees are more likely to get involved in the activities of other firms, or in the routines entailed by implementing a one-off collaborative venture, where both share interests. It can be logically concluded that not all the parameters previously utilised to measure collaboration can effectively help the procurement function in bridging organizational boundaries. Against this backdrop, another research question was formulated to test and validate the dimensions of supply chain collaboration responsible for value creation in local SME supply chains in the Ugandan context.

3.4 Hypotheses

This review of the literature reveals four themes that guided the formulation of the study hypotheses. These are: supply chain collaboration; entrepreneurial competencies; supply chain trust and SCVC. The relationship between the independent variables – supply chain collaborations and entrepreneurial competencies – and the dependent variable – SCVC – is moderated by supply chain trust. Below is the discussion that informed the formulations of the study hypotheses.

3.4.1 Entrepreneurial competencies and SCVC

Entrepreneurial competencies have been defined as the capability of the entrepreneur and of his collaborators in successfully acquiring, using and developing resources for their business purpose, in the specific context in which the firm operates (Capaldo, Landoli & Ponsiglione, 2004). Entrepreneurial competencies are different from technical or functional competencies. Entrepreneurial competencies enable individuals in organising resources

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and opportunities in a specific context to start a business, transform it and add value to it. From the RBV, the value creation process of SMEs is thus related to the capability of the manager in acquiring and developing resources (Barney, 1991, Capaldo et al., 2004). The RBV and transaction cost theory explain the firm's decision to use internal or external resources in value creation. For resource-constrained suppliers in Uganda's local procurement context, the value creation process depends on the managers' competencies because it is costly for such firms to outsource. Muhanguzi and Kyobe (2013) explains how the lack of skills and access to financial resources has failed Ugandan SMEs. This means that SMEs in the study context have to depend on resources in the supply network.

SMEs in Uganda most often employ only one or two people in senior positions, so business success can easily be attributed to the owner, because most often he is the sole decision-maker in the firm. Since SME advantages tend to be behavioural, the value creating potential of a supply chain is related to competencies of the SME owner-managers who are part of the supply chain. This implies that entrepreneurs have to identify and develop competencies that will help them in acquiring relevant resources (Rasmussen, Mosey & Wright, 2011) for the creation of supply chain value. Local entrepreneurs who have succeeded in serving the local procurement market exploit entrepreneurial competencies relevant in this context. For instance, opportunity competencies enable an entrepreneur to involve new suppliers which increases flexibility; innovativeness enables suppliers to create new products and services which improve customer service; and commitment between suppliers and customers improves the smooth flow of resources and reduces time to the market (Singh, 2011). This means that the creation of supply chain value depends on entrepreneurial competencies of the owner- manager to access and exploit resources in the supply chain network. Empirical research supports a positive relationship between entrepreneurial competencies and value creation (Kayakutlu & Büyüközkan, 2010). Kayakutlu and Büyüközkan's (2010) study identified three competencies that are important attributes of supply chain effectiveness: continuous learning; networking; and innovativeness. However, since entrepreneurial competencies are context-specific, this study seeks to identify those that have an integrative role in the local procurement context. Given all the above, the study hypothesizes the following:

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H_{1a}: There is a positive relationship between opportunity competence and the creation of supply chain value of SMEs that are involved in local procurement

H_{1b}: There is a positive relationship between commitment competence and the creation of supply chain value of SMEs that are involved in local procurement

H_{1c}: There is a positive relationship between innovative competence and the creation of supply chain value of SMEs that are involved in local procurement

H_{1d}: There is a positive relationship between analytical competence and the creation of supply chain value of SMEs that are involved in local procurement

3.4.2 Supply chain collaboration and SCVC

Supply chain collaboration has been defined as a long-term partnership process where supply chain partners with common goals work closely together to achieve mutual benefits (Cao and Zhang, 2011). The collaboration enables SMEs in a supply chain to create value from resources in the network. RBV explains how firms leverage network competencies to create competitive advantage (Gulati, 1999). Social network theory complements RBV by showing how firms participate in collaborative networks to access the unique resources their partners have (Gulati, 1995). By extending the conventional RBV, Lavie (2006:639) demonstrates that “interconnected firms can extract value from resources that are not fully owned or controlled by its internal organization”. A typical SME in Uganda often faces challenges in securing adequate resources within the firm for its operation. (For example, such firms depend on knowledge created by large firms.) An extended RBV perspective therefore offers justification for the need of SMEs to collaborate with others to access valuable resources they do not own, especially resources that cannot be imitated in the short run. This suggests a positive relationship between supply chain collaboration and the creation of supply chain value. From this, it is apparent that supply chain collaboration is a useful strategy that all SMEs can use to improve SCVC. The dimensions of supply chain collaboration that are relevant in the study context include information sharing, collaborative communication and goal congruence (Cao & Zhang, 2011).

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Information sharing refers to extent to which a firm shares timely, complete, relevant, accurate and confidential information including plans, ideas and procedures with members of a supply chain (Cao, Vonderembse, Zhang & Ragu-Nathan, 2010). The routines of sharing information allow buyers to share critical information with suppliers about quality, time of delivery and reduces waste. Information sharing not only improves customer service level, it helps suppliers to anticipate opportunities in the supply network. This suggest a positive relationship between information sharing and SCVC. Hall and Saygin's (2012) study supports a positive relationship between information sharing and suppliers' ability to meet the due dates set by customers.

Goal congruence refers to the extent to which members of a supply chain perceive their own objectives are satisfied by accomplishing the supply chain objectives (Cao et al., 2010). Buyers are often interested in acquiring goods at the lowest cost possible while suppliers aim to maximise profits. The potential for opportunistic behaviours within the supply chain are high because local suppliers often have low bargaining power. Goal congruence can mitigate this behaviours and lead to mutual benefits for members of the local supply chain (Jap, 2001). For instance, mutual strategy to optimal inventory level reduces investment in inventory and operating costs of suppliers (Samaddar, Nargundkar & Daley, 2006). This supports a positive relationship between goals congruence and the creation of supply chain value.

Collaborative communication refers to the contact and message transmission process among supply chain partners in terms of frequency, direction, mode, and influence strategy (Cao et al., 2010). The frequent bidirectional communication helps to create positive attitude which facilitates exchange of resources among supply chain partners. By fostering mutual support and alignment of interest, collaborative communication may give local suppliers added incentive to improve the quality of products. Chen, Paulraj and Lado's (2004) study provides evidence to support a positive relationship between collaborative communication and customer responsiveness in buyer-to-supplier relationships. The above evidence supports the positive relationship between dimensions of supply chain collaboration and SCVC in supplier as well as customer relationships. In addition, SMEs

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need to ensure that they initiate and maintain strong collaborations to maximize the value accruing to all actors. SMEs involved in local procurement benefit from collaborations through establishing common strategies that appeal to their clients. Information sharing and communication are important in creating value for supply chain partners. The following hypotheses reflect this:

H_{2a}: There is a positive relationship between information sharing and SCVC in the relationship between SMEs and their customers

H_{2b}: There is a positive relationship between collaborative communication and SCVC in the relationship between SMEs and their customers

H_{2c}: There is a positive relationship between goal congruence and SCVC in the relationship between SMEs and their customers

H_{2d}: There is a positive relationship between information sharing and SCVC in the relationship between SMEs and their suppliers

H_{2e}: There is a positive relationship between collaborative communication and SCVC in the relationship between SMEs and their suppliers

H_{2f}: There is a positive relationship between goal congruence and SCVC in the relationship between SMEs and their suppliers

3.4.3 Supply chain trust and SCVC

The social network theory underscores the importance of trust in facilitating the creation supply chain value. Consonant with social network theory, RBV underlines the role of trust in facilitating access to complementary resources from supply chain partners, which enables collaborating firms to create value (Lavie, 2006). Trust has been defined as a willingness to be vulnerable based on positive expectations of another's actions or intentions (Spekman & Carraway, 2006). Laeequddin et al. (2010) draw a line between supply chain trust and personal trust because trust is a context dependent concept. Supply chain trust is predicted to have a positive relationship with value creation in local supply chains because personal trust may be inadequate for business relationships where suppliers are very risky. It is important to use three facets of supply chain trust (rational

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trust, characteristic trust and institutional trust/security system) in assessing trusted suppliers especially where institutions are weak. This means that the buyer's judgement to trust a particular supplier will depend on characteristic trust (trustor's willingness to take risk depending on perceived ability, integrity and benevolence); rationality (dynamic capabilities of partners, economics of relationship and technology adoption); and institutional trust (security mechanisms between members through contracts, bank guarantees, commercial law, agreements and insurance).

The three perspective of supply chain trust are required in the creation of value for local suppliers. For example, local suppliers are considered unreliable but the supplier's integrity and demonstrated abilities help to assess a reliable supplier. Since it is always not easy to accurately predict behaviours, contracts often complement behavioural factors in assessing trusted suppliers. However, contracts are sometimes incomplete leading to moral hazard. In order to reduce the costs associated with moral hazard, mutual economic benefits such as profitability strengthen the quality supply chain relationships. This means that the three facets of supply chain trust are complementary in ensuring the smooth flow of resources among supply chain partners. Empirical evidence supports the proposed positive relationship between trust and SCVC (Panayides and Venus Lun, 2009). In a related study, Flynn et al. (2010) found a positive relationship between trust and supply chain integration, the safeguarding of specialized assets, financial benefits and cross-functional coordination. These positive relationships in turn improved responsiveness to client needs. Their study measured value creation in terms of responsiveness, delivery reliability, cost reduction, lead times, conformity with specification, time to market and process improvement.

Further, when trust develops between supply chain partners, opportunistic behaviours between them tend to reduce, thereby building mutual confidence that enhances access to potential resources (Kale, Singh & Perlmutter, 2000) and provides incentives for value-added initiatives (Lawson, Tyler & Cousins, 2008). Therefore, when firms collaborate to access key resources, the effectiveness of their exploitation of those resources is likely to

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depend on the level of trust prevailing in their relationships. In view of the above, the following hypotheses reflect this:

H_{3a}: There is a positive relationship between characteristic trust and SCVC in the relationship between SMEs and their suppliers
H_{3b}: There is a positive relationship between rational trust and SCVC in the relationship between SMEs and their suppliers
H_{3c}: There is a positive relationship between institutional trust and SCVC in the relationship between SMEs and their suppliers
H_{3d}: There is a positive relationship between characteristic trust and SCVC in the relationship between SMEs and their customers
H_{3e}: There is a positive relationship between rational trust and SCVC in the relationship between SMEs and their customers
H_{3f}: There is a positive relationship between institutional trust and SCVC in the relationship between SMEs and their customers

3.4.4 Entrepreneurial competencies and SCVC: moderating role of trust

According to Mitchelmore and Rowley (2010), the relationship between entrepreneurial competencies and venture success appears to be affected by the contextual conditions in which entrepreneurial activities take place. Their findings suggest that contextual conditions affect the nature of the competencies that entrepreneurs develop, and hence influence entrepreneurial success. Consistent with this view, Fawcett et al. (2012) demonstrated how higher levels of value creation potential can be exploited if firms develop the mature level of trust that is needed to combine complementary competencies. The presence of trust within a supply chain will enhance a firm's ability to access valuable resources to enhance SCVC. However, positing that trust in corroborative relationships develops over time, the study demonstrates the importance of learning how to mobilize resources through cultivating optimal levels of trust. High levels of trust build positive evaluations of those competencies of partners that will ultimately be accessed by the entrepreneurs (Bergh, Thorgren & Wincent, 2008). Realising exceptional SCVC is thus

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contingent on the level of trust that is developed to mobilize complementary resources. Trust opens access to those complementary competencies needed to create supply chain value. The presence of trust will increase openness and increase the opportunities for competence to be acquired through learning from one another. It will reduce uncertainties in exploiting business opportunities. Considering that supply chain trust is explained using three dimensions: characteristic trust, rational trust and institutional trust, it suffices to hypothesize that:

H_{4a}: Supply chain trust positively moderates the relationship between opportunity competence and SCVC.
H_{4b}: Supply chain trust positively moderates the relationship between commitment competence and SCVC.
H_{4c}: Supply chain trust positively moderates the relationship between innovative competence and SCVC.
H_{4a}: Supply chain trust positively moderates the relationship between analytical competence and SCVC.

3.4.5 Supply chain collaboration and SCVC: moderating role of trust

Entrepreneurs are a product of a social environment; they will be conditioned by that environment and may perceive opportunities ways that are influenced by their social background (Anderson & Miller, 2002). Consonant with this, Zahra and Wright (2011), assert that understanding entrepreneurial actions is enhanced by considering the context within which entrepreneurial activities happen. SMEs involved in local procurement are embedded within social networks characterized by informal mechanisms of governance. Informal interactions and face-to-face contact in the local setting help to cultivate trust among collaborating partners (Narasimhan & Nair, 2005). This analysis rests on an assumption that the use of laws to enforce contracts is minimal in a community setting (Cai et al., 2010). Instead, trust may act as a substitute for formal contracts, or may work in conjunction with contracts (Spekman & Carraway, 2006). To maintain contracts, firms build trust with partners mainly on the basis of reciprocity and personal relationships.

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Trust facilitates relational activities such as information-sharing and joint planning, which contribute to collaboration. when the level of trust is high among supply chain partners, ideas, products, services and information flow freely to help develop value-creating initiatives (McCarter & Northcraft, 2007). However, where there is no trust, the collaboration and coordination of resources and information among partners is negatively affected. This study therefore suggests that the amount and type of network resources shared through collaboration is influenced by the level of trust developed in the relationships between these partners. Added support for this finding was provided by Nyaga, Whipple and Lynch (2010) in their demonstration that the benefits of collaboration are contingent on the level of trust and commitment. Considering that supply chain trust is explained using three dimensions: characteristic trust, rational trust and institutional trust, the following hypotheses reflect this:

H_{5a}: Supply chain trust positively moderates the relationship between supply chain collaboration and SCVC.
H_{5b}: Supply chain trust positively moderates the relationship between information sharing and SCVC.
H_{5c}: Supply chain trust positively moderates the relationship between goal congruence and SCVC.

3.5 Theoretical model

The model developed for this study shows relationships between entrepreneurial competencies, supply chain collaboration, supply chain trust and SCVC. Trust was discussed both as a moderating variable in the relationship between antecedent variables (entrepreneurial competencies and supply chain collaboration) and SCVC, and also as a variable with direct effects on SCVC. The theoretical model suggests that SMEs involved in local procurement need to recognise the importance of trust in integrating various resources and competencies as a strategy towards creating value for customers. The main argument of this study is that entrepreneurial competencies are related to value creation,

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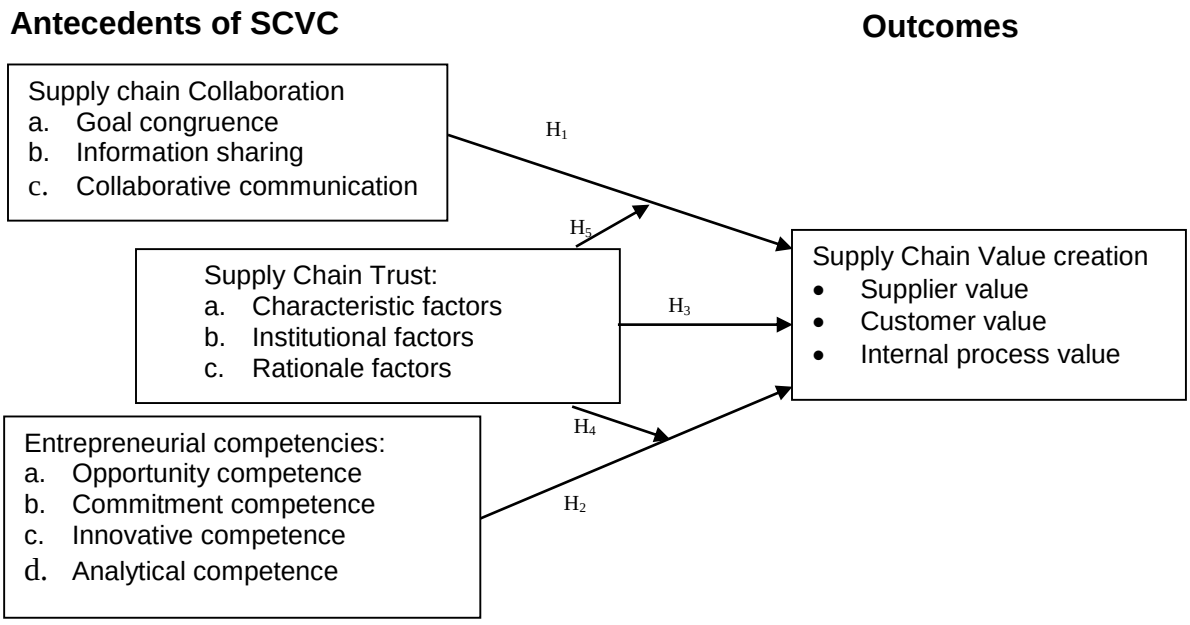
and that collaborative relationships between local suppliers influence a supplier's efforts to create value for customers, while this in turn influences individual SME performance. Additionally, SMEs embedded in local communities create more significant value where those entrepreneurs trust their partners. Therefore, SME access to formal markets is expected to embrace collaboration, develop and integrate entrepreneurial competencies, and cultivate trust to improve SCVC.

Figure 3: Theoretical model



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CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

The section presents a systematic outline of the research design and methodology employed by the study. The unit of analysis is described in relation to the study context and the choices made concerning research methodology are explained and justified. The reliability and validity of the study are also discussed. The section also describes the sources of data, data collection methods and data analysis techniques. The discussion on data analysis highlights the key stages of structural equation modelling (SEM) and how the effects of the moderator variable were determined.

4.2 Research Design

Research design is considered by some as an action plan for moving from the initial set of questions to the conclusions (Yin, 1994) and by others as a logical model of proof that allows the investigator to draw logical inferences (Frankfort-Nachmias & Nachmias, 1992). According to Creswell (2009:3), the selection of a research design is “based on the nature of the research problem, issues being addressed, the researcher’s experience, and the audience for the study”. Implicitly, then, the research design helps the study to obtain evidence adequate to answer the research question(s). The research design is also often referred to as the plan to conduct research, combining philosophical paradigm, strategies for inquiry, and research methods (Creswell, 2009). Creswell (2009) proposed three types of research design; qualitative research, quantitative research and mixed methods. Qualitative research is used to explore and understand the meaning individuals or groups ascribe to a social problem. Quantitative research provides the means to test theory by investigating relationships among measurable variables (Creswell, 2009). This scholar described mixed methods as the combination of qualitative and qualitative designs, making the overall study more robust than one employing a single method alone (Creswell, 2009). In choosing a research design, this study was guided by the research questions

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described in earlier chapters. The primary research question points towards a survey design in which cross–sectional data is collected at a single point in time. The study does not require longitudinal data because the research focus is not how people's behaviours change over time. The survey design selected (described below) was appropriate both because it suits the post-positivist paradigm and because it offers economy (because the researcher is able to identify the attributes of a large population using a small group).

4.3 Research Paradigm

Researchers engaged in quantitative research predominantly adopt a post-positivist worldview. For Creswell (2009), this means their approach rests on determinist philosophical assumptions: causes determine effects and outcomes. By contrast, pragmatists focus on the outcomes, actions, situations and consequences of inquiry. According to Creswell (2013), pragmatic researchers do not embrace antecedent conditions in the manner of the post-positivists, but rather focus on application and solution to a research problem. Researchers who adopt mixed-methods strategies often start from pragmatic assumptions, whereas post-positivists adopt a more conventionally 'scientific' approach which assumes "an individual begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions before additional tests are made" (Creswell, 2009:7).

Other philosophical starting points, however, are also possible but not appropriate for this study. One is social constructivism, where individuals seek to understand the world they live and work in by relying on participants' views of the situation. Researchers who locate themselves within this worldview generate, or inductively develop, a theory or pattern of meaning through their interpretation of the meanings participants generate about the world (Creswell, 2013:25). The social constructivist research paradigm often manifests in phenomenological studies and in the grounded theory perspectives of qualitative research. This study nevertheless locates itself within a post positivist paradigm because of the choice to undertake a quantitative inquiry this study. A quantitative inquiry is justified because the research's intention was to test a theory using scientific methods. According

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to Jayaram et al. (2004), a quantitative inquiry offers a better fit for answering research questions seeking to understand the relationship between independent and dependent variables.

4.4 Unit of analysis

The unit of analysis of this study is SMEs and the level of analysis is the SME owner-manager, because the unit of 'the firm' does not actually provide the information sought. Specifically, the study targets the owners of SMEs actively participating in the management of their businesses. Micro-enterprises are not the target because many lack adequate capital and permanent location and are thus very difficult to track. Moreover, many do not meet the minimum registration requirements for participating in procurement and instead play the role of suppliers to SMEs. Classifying SMEs based on the number of their employees is a common practice, because the figures are readily available (Wignaraja, 2003). The American Small Business Administration defines a manufacturing firm as "small" if it employs fewer than 1,500 people (Storey, 1994). According to the European Commission (2005), SMEs are businesses that employ fewer than 250 persons and have an annual turnover not exceeding 50 million Euro, and/or an annual balance sheet total not exceeding 43 million Euro. The South African SME Act describes a small business as one that is normally owner-managed and employs between five and 50 people; and a medium-sized business as one that is owner/manager-controlled and employs a workforce of up to a maximum of 200 people.

In the Ugandan context, the classification of SMEs considers the number of employees and sales/revenue or turnover. According to the Uganda Investment Authority (2008), a small enterprise is defined as one employing a minimum of five people, with annual sales/revenue turnover of maximum Ugandan Shillings 360 million (approximately US $100,000) and total assets of maximum Ugandan Shillings 360 million. A medium enterprise is defined as an enterprise employing a minimum 50 people, with annual sales/revenue turnover of more than Ugandan Shillings 360 million and total assets of

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more than Ugandan Shillings 360 million. The study adopts Supyuenyong, Islam and Kulkarni's (2009) framework to describe the characteristics of SMEs studied as follows:

(a) Ownership and management structure: SMEs in the study context are owned and managed by owner-managers who also play the role of the business's strategic initiator. They have a flatter organisational hierarchy, which leads to greater flexibility in working with supply chain partners; communication lines are shorter, which allows for easier and more direct information flow but with a less clear division of responsibilities.

(b) Customers and markets: Local SMEs have a small customer base. They mainly depend on individuals and other SMEs focusing on the local market. They sell less to large companies and local government. At the same time, employees of SMEs have close relationships with their suppliers.

(c) Systems, processes and procedures: SMEs in the study context have simple planning and control systems, and informal rules and procedures. Hence, their processes are more fluid and are adaptable to various situations. They have a narrow scope of activities and mostly focus on operational, rather than strategic, processes.

(d) Human capital management: SMEs have less clear employee responsibilities, leading to a lower degree of job specialisation and greater employee flexibility. Generally, the workforce in Uganda is not well skilled, so employees require continuous training which is not even budgeted for in many SMEs.

(e) Culture and behavior: SMEs usually have an informal, organic, and unified culture. Their size thus makes it easier for workers to focus on the business as an entity instead of looking at single departments or functions.

f) Knowledge acquisition and creation: SMEs in the study context depend on knowledge and innovation created by larger companies, universities and research institutions. They do not create knowledge because of resource constraints.

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(g) Ownership of resources: SMEs in the study context have resource-related constraints especially on finance and skilled human capital. They have limitations in accessing financing, a general challenge to all SMEs in the country.

4.5 Research methodology

4.5.1 Study Population

Although, the current statistics show a population of 1,100,000 micro, small and medium Enterprises (MSMEs) in Uganda (Uganda Ministry of Trade, Industry and Cooperatives, 2011), this study defined its population as all SMEs that fulfil the following criteria. One, they should employ a minimum of 10 and a maximum of 259 employees; this criterion eliminates micro-enterprises. The Uganda Bureau of Statistics (UBOS) databases include a total of 45,835 registered SMEs operating in the country; 31,326 of which are small and 14,406 medium enterprises (Ntayi & Eyaa, 2012). Two, the SMEs should belong to sectors that rely on the procurement of local content. In general, SMEs in Uganda are predominantly engaged in education, wholesale, retail trade, manufacturing, finance and insurance, health, social work, furniture, agriculture, professional services and information and communication technology (Uganda Investment Authority, 2011). Using the above criteria, the study population includes SMEs engaged in the sectors of agriculture, construction, food processing and furniture and fitting. Uganda Bureau of Statistics (UBOS: the national body with a database of all SMEs in Uganda) databases are employed, because UBOS provides a comprehensive profile of SMEs in the country, including their contact details and physical locations.

4.5.2 Sampling

According to Jayaram et al. (2004), sample size affects the researcher's ability to estimate variables accurately and to estimate the model fit. For most surveys, it is not practical to include in the sample all the units of the population. Where all units in a population are

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measured, this is a census: a type of study that is very expensive. Summary data obtained from a census are further not extrapolations, since every element in the population is measured. However, the total size of a population and the number of variables do provide a basis for estimating the ideal sample size (Jayaram et al., 2004). A sample size between 30 and 500 respondents at a 5% level of certainty is generally sufficient (Wahid, Rahbar & Shyan, 2011).

Stratified simple random sampling was undertaken, based on the databases of registered SMEs in Uganda. The total population of registered SMEs in Uganda was 45,835 (UBOS, 2011). Those in the sectors of interest numbered 974; based on all this, a sample size of 294 SMEs was determined. The sample size was calculated using Krejcie and Morgan's (1970) table for determining minimum returned sample size for a given population. The margin of error used in Krejcie and Morgan's table was 0.5 for categorical data and 0.3 for continuous data. According to the tables, for a population of 950 units, a sample size of 274 is appropriate and for the remaining population of 74 units, a sample size of 19 is appropriate. Thus, given a population of 974 registered SMEs, a sample size of 293 was appropriate for the study.

4.6 Sources of Data

The rationale of the study was to investigate the processes, roles, attitudes and behaviours of SME owner-managers. Two main types of data have utility for this study: secondary data and primary data sources.

4.6.1 Secondary data

A desk review of the literature on procurement in Uganda considered policy documents, procurement laws, regulations, and national strategies. Specifically, the researcher reviewed the Public Procurement and Disposal of Assets Act 2003; the Uganda PPDA Amendment Act 2013; the National Development Strategic Investment Plan (DSIP); and the Local Government Act 2010. The documents from the Ministry of Trade, Industry and Cooperatives include the "Buy Uganda Build Uganda" Policy 2015; the National

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Cooperative policy 2011; the National Standards and Quality Policy 2012; the Uganda Micro, Small and Medium Enterprises (MSME) Policy 2015; and the National Trade Policy 2007. The researcher continued to capture and update information regarding supply chain management in the SME sector throughout the study period. Contracts are the main indicator of SME involvement in procurement. Information profiling SME operations was gathered from the Private Sector Foundation of Uganda, and was compared with information gathered from UBOS. This study considered SMEs directly locally contracted by companies.

The literature review considered journal sources to understand the various constructs and identify the drivers of value creation in general and for SMEs in particular. Additional online databases were accessed through the University of Pretoria Online repository. These include Google Scholar, Emerald, EBSCO and leading SME journals. The literature review covered journal articles, reports and government documents. This study was inspired by the researcher's previous experience in the field; he was part of the implementing team overseeing the adoption of local procurement approaches in local government. This exposure helped him to understand the challenges of procuring from local sources. This work experience motivated further reading to understand how resource-constrained firms can improve participation in local procurement. The research gap was identified by analyzing the theoretical and empirical studies in the literature, specifically, Esteves et al.'s (2011) work on local procurement and similar resources from International Finance Corporation (IFC) of the Word Bank. This documentation provided good foundation to appreciate the subject. Thus, practical experience plus an intensive literature review were the basis for identifying the research gaps investigated here.

However, the review of relevant empirical information was also important in establishing the definitions of key terminologies and the operationalization of constructs, while the examination of the theory established the theoretical grounds for the relationship between different constructs. Finally, empirical evidence was reviewed to support the various claims and findings.

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4.6.2 Primary data

Primary data offers multiple independent views that can expand understanding about an under-researched phenomenon. There are many methods of gathering primary data; this study employed the survey method as the most common systematic method of generating primary data. Surveys utilize questionnaires to collect information from individuals at a given time. A large proportion of the respondents in the sample frame understand the English language, however some respondents do not use English. Thus, some of the questionnaires had to be administered in the local language and because the definitions of some phenomena vary, the 'back translation' technique was used to ensure equivalence between the surveys in the local language and English (Mullen, 1995).

During data collection, the researcher administered the questionnaires with help of two research assistants. To ensure consistency in the approach of the research assistants, the researcher conducted a two-day training workshop for them. This involved discussing each of the questions in the questionnaire. Day One discussed the English-language questionnaire; Day Two, the local-language version. The two phases were important to ensure that the questionnaires were well understood before the survey commenced. The survey questionnaires were then completed by the respondents in the presence of either the researcher or the research assistants, to reduce the incidence of non-response (which is normally very high in developing countries).

4.7 Data collection

Data collection was undertaken mainly using survey questionnaires plus field notes. The survey instrument was developed using questions already established in the literature. Before pretesting, the questionnaires were discussed with professionals in the field of supply chain management to verify whether all the questions asked were relevant and to ensure that language errors were corrected. The questionnaires, together with the methodology section, were sent for ethical clearance before pre-testing. This process was managed by the researcher himself to ensure that feedback given by the ethics committee

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was captured and discussed with the supervisor, and any necessary amendments effected immediately. All of these processes were designed to ensure face validity.

Collecting data for pretesting was done by the researcher himself. The questionnaire was piloted under similar conditions to those to be used during actual data collection. The pretest targeted 40 respondents, 30 of these responded within the set timeframe. After data collection, the questionnaires were coded and the data captured for preliminary analysis. During data analysis, reliability tests were conducted using Cronbach's alpha (α). Specifically, IMB SPPS Statistics 23 was utilized in calculating Cronbach's alpha. Although the results of preliminary statistical analysis suggested deleting, adapting or adding a few items to the questionnaire, no major changes were necessary. When the final revision of the instruments ended, the researcher conducted field visits to the various locations where data was to be collected to establish contacts and set up appointments before data collection began. This was very useful; the preliminary visits reduced the cost of data collection by locating respondents.

4.7.1 Questionnaire design

Questionnaires were used to elicit opinions and attitudes from SME owner-managers, to test the different relationships stated by the hypotheses in the conceptual model. The survey targeted managers as the most likely to give reliable information related to supply chain procurement. The survey instrument was designed with two parts; part one targeted the manager's views on customers; part two targeted the manager's views on suppliers. The decision to split the questionnaire followed the pretest phase, which revealed that respondents' views differed in relation to customers and suppliers.

The survey instruments consist of two main sections, outlined in Table 2 below. Section one contains demographic information about the respondents and the businesses they own; section two contains 74 items previously developed by scholars in different environments. Twenty-one items related to the value creation process were utilized. For each item, a five-point Likert scale was developed that focused on the importance of the

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specific practice. To assess supply chain collaboration, three commonly used measures of supply chain collaboration were utilized - information sharing, goal congruence and collaborative communication (Cao et al., 2010). For each item, a seven-point Likert scale was developed related to SME collaboration with supply chain partners. Regarding entrepreneurial competencies, four competence areas were assessed (innovative competence, opportunity competence, commitment competence and analytical competence). For each item, a seven-point Likert scale was developed. To assess supply chain trust, three measures were utilized (characteristic factor, rational factor and institutional factors). These items are grouped in accordance to Laeequddin et al.'s (2010) study. For each item, a ten-point Likert scale was developed related to assessment of trust in supply chain relationships. The table sums up the topics covered by the instrument, and indicates the number of questions devoted to each.

Table 1: Questionnaire design according to sections and factors

Section	Factors	Number of items/scale
One	**Biographic information**	
	Gender of respondent	2
	Number of years in business	1
	Position or title in the business	1
	Level of education	4
	Form of enterprise	1
	Number of full time employees	1
	Branch/sector	1
	Subtotal	**11**
Two	Supply chain value creation	
	• Customer value (CV)	08
	• Supplier value (SV)	08
	• Internal Process Value (IPV)	05
	Supply Chain collaborations • Information sharing, Goal congruence, Collaborative communication	13
	Entrepreneurial competencies • Opportunity competence, Innovation competence, Analytical competence, Commitment competence	25
	Supply chain Trust • Institutional factors, Rational factors Personal characteristics	15
		85

Reliability tests suggested the possible deletion of some items in the questionnaire. It is understood that the size of a questionnaire may not affect the quality of response (De

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Rada, 2005), so the 85 items were initially retained to leave scope for further adjustments as the process progressed. Ultimately, the questionnaire was reduced to an appropriate size.

4.7.2 Operationalization of variables

According to Turyakira et al. (2012), it is necessary first to establish the operational procedures that specify how the measurement will be made and to define the meaning of the variable. The main parts of the study-questionnaire utilized existing scales that had previous tested satisfactorily for validity and reliability. The measurement items were derived from the extensive literature review. The operational definitions of supply chain collaboration and its sub components as identified in the literature are shown in the table below.

Table 2: Definition of supply chain collaboration and sub-components

Construct	Definition	Citations
Supply chain collaboration	A long-term partnership process where supply chain partners with common goals work closely together to achieve mutual advantages greater than the firms would achieve individually	Ellram and Hendrick 1995; Lambert et al. 1999; Mentzer et al. 2000; Stank et al. 2001; Bowersoxet al. 2003; Golicic et al. 2003; Manthou et al. 2004; Sheu et al. 2006
Information sharing	The extent to which a firm shares a variety of relevant, accurate, complete and confidential ideas, plans, and procedures with its supply chain partners in a timely manner.	Angeles and Nath 2001; Simatupang and Sridharan 2005; Sheu et al. 2006; Elofson and Robinson 2007
Goal congruence	The extent to which supply chain partners perceive their own objectives are satisfied by accomplishing the supply chain objectives	Angeles and Nath 2001; Lejeune and Yakova 2005; Simatupang and Sridharan 2005
Collaborative communication	The contact and message transmission process among supply chain partners in terms of frequency, direction, mode, and influence strategy	Mohr and Nevin 1990; Prahinski and Benton 2004; Paulraj et al. 2008

Source: Cao, Vonderembse, Zhang and Ragu-Nathan (2010)

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Based on the above definitions of selected indicators of supply chain collaboration, the table below provides a summary of the instruments and citations adopted from recent studies on supply chain collaboration and its sub-components.

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Table 3: Constructs and citations for supply chain collaboration

Constructs	Items and sub component	Citations
Supply chain collaboration constructs	***Goal congruence*** SCGC1 → Our firm and supply chain partners have agreement on the goals of the supply chain SCGC2 → Our firm and supply chain partners have agreement on the importance of collaboration across the supply chain SCGC3 → Our firm and supply chain partners have agreement on the importance of improvements that benefit the supply chain as a whole SCGC4 → Our firm and supply chain partners agree that our own goals can be achieved through working toward the goals of the supply chain	Angeles and Nath (2001), Eliashberg and Michie (1984), Lejeune and Yakova (2005), Poirier and Houser (1993), Simatupang and Sridharan (2005)
	Collaborative communication SCCM1 → Our firm and supply chain partners have frequent contacts on a regular basis SCCM2 → Our firm and supply chain partners have open and two-way communication SCCM3 → Our firm and supply chain partners have informal communication SCCM4 → Our firm and supply chain partners have many different channels to communicate SCCM5 → Our firm and supply chain partners influence each other's decisions through discussion rather than request	Farace et al. (1977), Jablin (1987), Mohr and Nevin (1990), Mohr et al. (1996), Prahinski and Benton (2004), Rogers and Agarwala-Rogers (1976), Chen and Paulraj (2004), Paulraj et al. (2008)
	Information sharing SCIS1 → Our firm and supply chain partners exchange timely information SCIS2 → Our firm and supply chain partners exchange accurate information SCIS3 → Our firm and supply chain partners exchange complete information SCIS4 → Our firm and supply chain partners exchange confidential information	Angeles and Nath (2001), Cooper et al. (1997), Kim and Umanath (2005), Monczka et al. (1998), Sheu et al. (2006),Simatupang and Sridharan (2005), Stuart and McCutcheon (1996), Tyndall et al. (1998), Cagliano et al. (2003), Li et al. (2006)

Source: Cao and Zhang (2011)

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4.7.3 Operational definition of entrepreneurial competencies

Understanding competencies is still challenging for scholars. As a result, the approaches for measuring competencies are diverse (Mitchelmore & Rowley, 2010; Morris et al., 2013); different researchers use different approaches to understand the concept. Some researchers explicitly adopt the antecedent perspective, employing a wide review of the literature to develop statements, which respondents use to self-assess their own level of competence or their level of agreement with a competence-related statement. Other scholars argue for qualitative methods such as interviews and case studies, arguing that exploratory designs give more insight into competencies from a process perspective (Mitchelmore & Rowley, 2010). Unlike the latter, this study utilized the antecedent perspective to explain how entrepreneurial competencies influence the creation of value in SME supply chains. Mitchelmore and Rowley (2010) further observed that since competencies are situational and context-specific (Hayton & McEvoy, 2006), researchers who adopt the antecedent perspective may prioritize some competencies over others in relation to specific contexts. Table 4 below shows a description of the key competencies extracted from a meta-analysis conducted by Man, et al. (2002). Man et al. (2002) categorized competencies into six major areas, namely opportunity; commitment; relationship; conceptual; organizing; and strategic competencies, as defined in the table below.

Table 4: Entrepreneurial competencies and behavioural focus

Competency area	Behavioural focus
Opportunity competence	Competencies related to recognizing and developing market opportunities through various means
Commitment competencies	Competencies that drive the entrepreneur to move ahead with the business
Relationship competencies	Competencies related to person-to-person or individual-to-group-based interactions, e.g., building a context of cooperation and trust, using contacts and connections, persuasive ability, communication and interpersonal skill
Conceptual competencies	Competencies related to different conceptual abilities, which are reflected in the behaviours of the entrepreneur, e.g., decision skills, absorbing and understanding complex information, and risk-taking, and innovativeness
Organizing competencies	Competencies related to the organization of different internal and external human, physical, financial and technological resources, including team-building, leading employees, training, and controlling
Strategic competencies	Competencies related to setting, evaluating and implementing the strategies of the firm

Source: Man et al. (2002)

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Following Man et al.'s (2002) meta-analysis, a further study was conducted to compare entrepreneurial competencies by industry. The study identified four new competencies to add to the earlier theoretical framework, increasing the number of competencies to ten (Man & Lau, 2005). The new competence areas that were developed from Man and Lau's (2005) study include learning competence; innovative competence; operational competence; and human and personal strength competence. It is worth noting however that the four additional competence areas proposed by Man and Lau (2005) are simply a breakdown of the conceptual and organizing competence areas already captured in the earlier theoretical framework. This variation in the nature of competencies is explained by the influence of contextual factors (Man & Lau, 2005).

Following Man and Lau's (2005) study, a qualitative study conducted by Man, Lau, and Snape (2008) proposed two further competence areas: learning and personal strength competence. These were used to develop a new instrument for entrepreneurial competencies. Similar to Man and Lau's (2005) study, the new competence areas suggested by Man et al. (2008), were considered as a way of minimizing cross-loading in other competence areas. To avoid cross-loading, Man et al. (2008) separated conceptual competencies into two competency areas: analytical competence and innovative competence. Organizing competence was also separated into two competence areas: operational and human competence. These represent business management and people-related operations respectively. The refined items incorporated into Man et al.'s (2008) questionnaire gave a Cronbach's alpha ranging between 0.78 and 0.94, considerably beyond the recommended value of 0.7 (Nunnally, 1978). Table 6 below shows the items in the new instrument utilized for measuring entrepreneurial competencies in this study, as well as citations for the items adopted.

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Table 5: Items in the new instrument and citation for entrepreneurial competencies

Construct	Items	Citations
Commitment Competence	CMC1 →Even if we could, we would not drop our partners because we like being associated with them CMC2 →We want to remain a member of our partners' network because we genuinely enjoy our relationship with them CMC3 →Our positive feelings towards our partners are a major reason we continue working with them CMC4→We expect our relationships with our partners to continue for a long time CMC5 →The renewal of our relationships with our partners is virtually automatic CMC6 →It is likely that our firm will still be doing business with our current partners in two years CMC7→We are willing to put more effort and investment in building our business in relation to our partners CMC8 →In the future we will work to link our firm with our partners in the customer's mind	Man et al. (2002); Man and Lau (2005), Man et al. (2008) Mitchelmore and Rowley (2010); Solesvik (2012)
Conceptual Competence	***Innovative Competencies*** IC1 → We look at old problems in new ways IC2 → We explore new ideas IC3 → We monitor progress towards objectivities in risky actions	Man et al. (2002) Man and Lau (2005); Man et al. (2008)
	Analytical Competencies AC1→ We understand what others mean by their words and actions AC2→ We apply ideas, issues and observations to alternative context AC3→ We integrate ideas, issues and observations into more general context	
Opportunity competence	OPC1→ Searching for new ways to integrate the local supply chain OPC2→ Involving new supply chain members in firm's activities OPC3→ Extending the supply chain beyond immediate members OPC4→ Recognizing and developing market opportunities OPC5→ Creating new products and services OPC6→ Making timely decisions OPC7→ We are bold in our efforts to maximize the probability of exploiting opportunities in the supply chain	Man et al. (2008); Man and Lau (2005); Man et al. (2002)

Source: Author's review of related literature

4.7.4 Operational definition of SCVC

Value creation in supply chain relationships is conceived as a multifaceted construct that may be measured via three sub-dimensions, namely customer value, supplier value and internal process value. Internal process value is the set of benefits a firm generates from its internal processes. The definition of value in relationships related to the supply chain is defined in terms of benefits that accrue to customers, suppliers and the focal firm. Unlike the measures for competencies, the items measuring supply chain value capture the manager's evaluation of the firm, his/her suppliers, and his/her customers. Table 7 below lists the items selected for the questionnaire, and the citations adopted from the literature.

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Table 6: The items in instruments and citations

Supplier value	SV1-Supplier's ability to meet due dates SV2-Emphasis on quality in supplier selection SV3-Ability to develop new or improve existing products SV4-Correct quantity provided SV5-Overall service level provided SV6-Flexibility to respond to unexpected demand changes SV7 -Supplier ability to reduce the total product cost SV8-supplier's ability to transfer knowledge	Ulaga, 2003; Ulaga and Eggert, 2003; Walter, Müller, Helfert and Ritter (2003); Jayaram, Kannan and Tan, 2004; Hald, Cordón & Vollmann, 2009.
Customer value	CV1 -Employing routine follow-up procedures CV2 -How the customer use products and services CV3 -Factors for improving customer satisfaction CV4 -Firm's ability to meet due dates set by the customer CV5 -Determination of customer future expectations CV6 -Successful resolution of customer complaints CV7 -Making easier for the customer to seek assistance CV8 -Willingness to pay higher price CV9 -Willingness to take higher volume at slightly reduced unit cost	Ulaga, 2003; Ulaga and Eggert, 2003; Walter, Müller, Helfert and Ritter (2003); Jayaram, Kannan and Tan, 2004; Hald, Cordón & Vollmann, 2009.
Internal process value	IPV 1-Reducing supplier base IPV 2-Increasing delivery frequencies IPV 3-Reducing inventory size to free up investment IPV4- Developing capacity of employees	Ulaga, 2003; Ulaga and Eggert, 2003; Walter, Müller, Helfert and Ritter (2003); Jayaram, Kannan and Tan, 2004; Hald, Cordón & Vollmann, 2009

Source: Author's review of related literature

4.7.5 Measurements of supply chain trust

Past measures of trust in business relationships predominantly employed a single dimension: trustees' characteristics. However, recent attempts to measure trust in supply chain management suggest that decisions to trust require multiple judgments. Because of this, trust in this study was measured along three dimensions: institutional factors, individual characteristics and rational factors (Laeequddin et al., 2010; Laeequddin, Sahay, Sahay, & Waheed, 2012; Delbufalo, 2012). According to Laeequddin et al. (2010), trust is a context-dependent concept, and due to the dynamic nature of supply chain member relationships, trust in the supply chain should be measured from a perspective of risks, including the partner's characteristics (characteristic trust); the level of willingness to take risks (rational trust); and the risk-coping mechanisms that exist to protect supply chain members from external risks (institutional trust/ security system). The three dimensions of trust were constituted as follows: characteristic factors were judged based on the partner's

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past experience (e.g. credibility, fairness, transparency); rational factors represented the reasons for taking a risk (e.g. economics of relationships, technology benefits, dynamic capability); and institutional factors represented risk-coping mechanism (e.g. contracts, bank guarantees, insurance, agreements between partners, commercial laws). In sum, trust is treated as equivalent to risk; both risk and uncertainties about prospective outcomes are evaluated to produce a measurement of trust (Laeequddin et al., 2010). Whereas risk is measurable and can be manageable, uncertainty may be neither. However, uncertainty relates to a trustee's characteristic factors (e.g. competence, benevolence, ability, integrity, honesty, goodwill, credibility, identification, predictability).

To measure trust, the study adopted Laeequddin et al.'s (2010) measurements of the sub-components of supply chain trust. Using this approach, the study identified the trustor's requirements of risk factors (characteristics, rational, institutional) and evaluated each of them on a scale of one to ten. Table 8 below gives the measurements of trust, and the citations based on this multi-level approach.

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Table 7: Trust measurement items from risk perspective

Perspective of risk (No trust)	R1 -We do not develop relationship with suppliers /customers who pursue on their economic interest R2 -We do not depend on suppliers/customers who do not have the operational flexibility R3 - We do not maintain relationship with our suppliers /customers without clearly written terms and conditions of delivery and payment R4 - We do not develop relationship with a supplier/customer who is not fair to us R5 - We do not depend on a single supplier/customer though they have ability to be served by just one	Laeequddin et al., (2010); Laeequddin et al. (2012);Tejpal et al. (2013); Schoorman, Mayer & Davis, (2007).
Perspective of no risk (trust)	NR1-We enter in business relationships with customers/suppliers having good market credibility NR2 -We build relationship with customers/suppliers who have capability to re organize the assets and resources as per our requirements NR3 -We develop relationships with customers/suppliers who meet our quality requirements NR4-Till we find our customers reliable, we do not offer open credit facility and insist for advance payment, post-dated cheques NR5-We develop relationship with our customer/supplier only after visiting their facility and assessing their capacity and capabilities	Laeequddin et al.(2012); Laeequddin et al. (2010); Gaurav Tejpal, R.K. Garg, Anish Sachdeva, (2013); Schoorman, Mayer & Davis, (2007).
Perspective of risk worthiness (trustworthiness)	RW1- We start relationship with a new customers/suppliers when they are transparent, suggesting elimination of unwanted value additions in discussions RW2- We do not mind paying a higher price than the market price for a right product/service of our critical operations and ask the same from our customers RW3-We adopt our supplier's new technology only when the price task, and utility fit together matching with our customer's requirement RW4-When the economic or political situation of our international customers/supplier's country gets in turbulence we re-negotiate our agreements, though there is a long term relationship with them RW5- We develop relationship with few selected customers/suppliers	Laeequddin et al. (2012); Laeequddin et al. (2010); Tejpal et al. (2013); Schoorman, Mayer & Davis, (2007).

Source: Author's review of literature

4.7.6 Data Analysis

Data analysis is a key stage in research because it helps the researcher to generate findings. Therefore, to undertake data analysis the researcher worked to ensure that the findings generated during data analysis would emerge in a form that precisely and accurately answered the research questions. The study employed structural equation modelling (SEM) to conduct the analysis. To ensure overall study quality and trustworthiness, the key consideration was objectivity, which in this context has two components: reliability and validity (Kirk & Miller, 1989). Reliability is described as the degree to which a measurement procedure gives similar outcome whenever it is carried

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out, while validity is the extent to which the research instrument gives the right type of answer. Constructs were tested for validity using confirmatory factor analysis and this helped to confirm whether the observed results from the dependent variable accurately represented the manipulations of independent variables.

4.7.7 Reliability of the measurement instrument

The preferred statistical index for measuring the reliability of the measuring instrument is Cronbach's alpha (Javali, 2011:2). This reliability index was computed even for the variables that had already been tested in earlier studies for reliability, because some of the items for measuring these variables had been removed to provide a better fit for the theoretical assumptions. The initial calculation of Cronbach's alpha was based on the data collected during the pre-testing of the questionnaires. As the sample size increases, the value for Cronbach's alpha changes as well. Therefore, it was important to subject the main data set to reliability tests before further analysis. A reliability analysis using Cronbach's alpha helps a researcher dealing with survey data to establish whether the responses given in the survey are consistent and reliable. When Cronbach's alpha is greater that 0.5 ($\alpha > 5$), this confirms that the data collected using the survey is likely to be highly reliable. When alpha is below 0.5 ($\alpha < 5$), this suggests that the data collected may well be affected by latent or unobserved variables. Statistical Package for Social Scientist (SPSS) software was utilized to calculate the values of Cronbach's alpha (α) for both numerical and categorical data.

4.7.8 Validity of the measuring instrument

Validity is defined as the extent to which a test measures what it purports to measure. The validity of an instrument is commonly measured in four forms: construct validity; content validity; face validity; and criterion validity. Content validity pertains to "the degree to which a sample of items, taken together, constitute an adequate operational definition of a construct" (Polit & Beck, 2006:489), while face validity represents a cursory review of

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instrument by expert judges (Hardesty & Bearden, 2004). Both content and face validity were assessed using a team of experienced research experts who could be easily accessed. The selected experts (from the College of Business and Management Sciences, Makerere University) were furnished with definitions of the various variables to help them in judging whether the elements in the instruments were capable of measuring the different variables. The experts were invited to add or remove what was not relevant for this survey.

Construct validity is the most valuable as well as the most difficult measure for assessing validity. Construct validity measures how meaningfully the items in an instrument measure a hypothetical construct or concept (Creswell, 2009). Westen and Rosenthal (2003:2), show that researchers establish the construct validity of a measure by correlating it with a number of other measures; several different methods of obtaining information about the same concept or trait are compared. Specifically, operational measures are compared with the theoretical concept being investigated. This may assist in refining a theory. Measuring instruments exhibit construct validity if the scale employed is satisfactory in terms of other measures (convergent, divergent and predictive) as well as in terms of face validity and content validity (Hardesty & Bearden, 2004). Convergent validity means that different methods for obtaining the same information about a given trait or concept will produce similar results. Divergent validity is the ability of a measure to estimate the underlying truth in a given area. It must be possible to demonstrate that it does not correlate too closely with similar but distinct concepts or traits. Exploratory factor analysis (EFA) was utilised in refining measures, evaluating construct validity (divergent and convergent validity). A confirmatory factor analysis (CFA) was done using Structural Equation Modelling (SEM) to confirm discriminant validity: the study established discriminant validity by comparing the square root of Average Variance Extracted (AVE) and correlations between constructs.

4.7.9 Effect of demographic variables

Demographic variables represent categorical data may be either nominal data (for example; gender, designation, form of enterprise and sector of business) or ordinal data (number of years in business and number of employees). Some of this data is not

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numerical and therefore cannot be measured. According to Mitchelmore and Rowley (2010:98), the "entrepreneur's demographic, psychological and behavioural characteristics as well as their skills and technical know-how are often cited as the most influential factors on performance". Based on Mitchelmore and Rowley (2010), it was important to determine whether demographic variables influenced the results. To determine the nature of the influence of the independent variables on the dependent variable, new models were created where each demographic variable became a control variable. These new models were compared with their 'sister' models to determine whether the model fit improved. The results associated with these control variables are not reported, because they did not cause significant improvement in model fit. Additionally, since the main interest of this study was not to understand how demographic variables influenced the empirical results, the results were not reported.

4.7.10 Structural Equation Modelling

Structural equation modelling (SEM) is a widely used multivariate statistical tool for theory testing and theory development. SEM employs a number of techniques such as confirmatory factor analysis, path analysis and multiple regressions to evaluate interdependent relationships between multiple independent variables and dependent variables simultaneously. The study employed SEM both to test the hypotheses constructed from existing literature, and in assessing the existence, significance and direction of relationships between the antecedent variables; (supply chain collaboration and entrepreneurial competencies), moderating variable (supply chain trust) and the dependent variable (SCVC).

The SEM process of analysis begins with a hypothesis represented in a theoretical model. It then operationalises the variables of interest with a measurement instrument, and tests the model for appropriateness. In the first part of SEM, the researcher used the measurement model to specify the relationships between the latent variables and their constituent indicators. The measurement model was utilised to identify relationships between all the variables identified in the model and their respective constituent indicators.

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For example, the relationship between the three indicators of supply chain collaboration was established to identify how appropriate they were for measuring supply chain collaboration. For the measurement model, the area of interest is model fit. However, at this stage, the focus on model fit indices disregards the importance of factor loadings. Factor loadings communicate discriminant validity of the variables in the measurement model.

The second part of the model – that is, the structural equation model – was useful in designating the causal relationships between the latent variables (both the independent and dependent variables), taking into account the direct and indirect causal relationships between the proposed variables (Violato & Hecker, 2007). If the model fails to fit the researcher's understanding of outcomes, then the model can be re-specified. It is advisable to utilise strong theoretical background model specification. SEM also has the ability to assess relationships between both observable (scaled) and unobservable (latent) variables when the paths between variables have been specified. SEM can incorporate latent variables into the analysis during the estimation process.

According to Violato and Hecker (2007: 9), SEM is suitable for a relatively large sample of respondents (such as was employed in this study). In the absence of such, compensation can be provided if a large number of observable variables are identified for analysis (Jayaram et al., 2004). In addition, SEM requires extensive theoretical and substantial prior empirical evidence (Violato & Hecker, 2007:9). To construct the models tested using SEM, the researcher ensured that all the models had a sound theoretical justification via extensive literature search. Table 9 below gives a summary of the stages that were adopted for SEM as recommended by Hair, Anderson, Tatham and Black (1998: 592-616) and a description of how this study handled each of the stages.

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Table 8: Steps in Structural Equation Modelling

Steps	Hair et al. (1998: 592-616)	Proposed approach
1.	Developing a theoretical model	A significant portion of work was done for stage one. The work involved a thorough understanding of the model specification (that is, the measurement model and structural model), variables and associated indicators, relationships and directions of relationships) and the underlying theory that gave rise to the models, in order to defend the analysis
2.	Constructing a path diagram of causal relationships	A path diagram represents a system of simultaneous equations. Using SPPS AMOS, the path diagrams were constructed using the hypothesized relationships represented in Figure 6 showing observed variables (square shape), unobserved (ellipse) and relationship in form of arrows.
3.	Converting the path diagram into a set of structural equations and measurement models.	Generally, there are two models generated by SEM: the measurement model and the structural model (Figure 6 combined both models). The structural model is used to identify relationship between constructs while the measurement model is used in assigning relationships between constructs based on the proposed theoretical model. Therefore, the components or factors in each construct were subjected to CFA to assess the items that are well established in measuring the constructs.
4.	Choosing the input matrix type (correlation matrix or covariance matrix and estimating proposed model.	Structural equation analysis uses either the variance-covariance or the correlation matrix as its input data type. The covariance matrix was preferred because covariance matrices are not standardized and contain a fuller information content, offering the researcher some degree of flexibility.
5.	Assessing the identification of model equations	To reduce the risk of model identification problems, the researcher assessed the model's ability to generate unique estimates or the inability to yield meaningful results. The researcher used the three-measure rule (a variable must have at least three indicators) to be identified in the model specification.
6.	Evaluating the results for goodness-of-fit.	Since SEM is a confirmatory technique, it was important to establish whether the model proposed for this study was specified correctly based on the type of analysis that is appropriate for this study. Since SEM generally generates a variety of indices to measure model fit simultaneously, the researcher selected the most appropriate measures depending on the nature of data. Specifically the researcher considered; GFI, CFI, RMSEA and CMIN/d.f. with non-significant p-value. In estimating regression, the p-values were halved having used directional hypotheses, since AMOS by default uses two-tailed t-tests. This helps to avoid double inflation of p-values for directional hypotheses (Cho and Abe, 2013).
7.	Making the indicated modifications to the model, if theoretically justified.	The final step of SEM may involve modification of the model if it does not have a better fit, or when the researcher does not have better understanding outcomes. In case the process requires model re-specification, thorough understanding of the theory is needed if relationships are to be modified. In the current study, it was necessary to re-specify only one model – the model that represent the relationship between supply chain trust and customer value – because all the other models had acceptable fit indices.

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4.7.11 Estimation of interaction effects

The study utilized SEM to estimate the interaction effects of the moderator variable in the relationships between entrepreneurial competencies and supply chain collaboration on SCVC. The modelling of the interaction effects was done via a two-stage method. This process is commonly known as the residue centering or orthogonalising approach (Little, Bovaird & Widaman, 2006). Residue centering is a powerful statistical approach to guard against the multicollinearity problem (Little et al., 2006). The technique helps in developing indicators of the interaction term. This technique is preferable to mean centering because the results are readily generalizable, the model fit is not degraded, and the main effect parameter estimates are not affected by introducing the interaction latent construct into the model (Little et al., 2006). This method is regarded as conceptually and technically straightforward, because it uses residues as indicators of the interaction term, and the resulting specified interaction model has no constraints (Steinmetz, Davidov & Schmidt, 2011). The residue centering approach is a two-stage OLS procedure during which the product term is regressed on its respective first order indicators.

Stage one involves the creation of a new variable – an interaction term – which is a product of the independent variable and the moderator variable. Specifically, the un-centered indicators of the moderator latent variable and the independent variable are multiplied to produce product terms. These are saved in the data set. The product terms generated after multiplying un-centered indicators of the moderator latent variable and the independent variable term were then regressed on the un-centered indicators of both variables using a simple OLS procedure to generate residuals for each product term. The residuals were utilized as indicators of the interaction term.

Stage two involves constructing the measurement and structural model in SEM. In constructing the model, the residue value generated in the OLS procedure were utilized as items to measure the interaction term. The interaction term was added into the model that had originally comprised the moderator variable and the independent variable. After constructing the model, the researcher proceeded with model estimation. The main foci of

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testing the interaction effects on the outcome variable were the size of the coefficient, the significance of the interaction term, and information on model fit (Little et al., 2006).

4.8 Ethical consideration

This study gave equal importance at every stage of proposal writing to the key ethical requirement, required to secure ethical clearance from the university. In identifying the research problem and purpose statement, the researcher ensured that the solutions to the research problem were capable of benefitting individuals (SME owner-managers and policy makers) who for many years have been struggling to ensure efficient participation of SMES in local procurement. In addition, the researcher precisely defined the purpose statement to ensure clarity and to represent the true motives of the research, to avoid misleading potential respondents and other interested parties.

During data collection, the researcher developed a consent form that was signed by all participants, acknowledging that their rights will be protected during data collection. According to Creswell (2009), an informed consent form includes the following elements; these were adopted for the current study.

- Researcher's identity
- Sponsoring institution
- Sampling procedure
- Purpose of the research
- Benefits of participating in the research
- Statement guaranteeing confidentiality
- Assurance to withdraw at any time
- Names of supervisor to contact if questions arise

A professional translator from the Makerere University School of Language, Literature and Communication translated the consent form and questionnaire into the local language. The translation produced in the local language was re-translated into the English language. The two source language versions were compared to discover any problems in

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the target language text. The consent form and questionnaire were pretested and the weaknesses identified mainly resulted from the translation of the questionnaire. The weaknesses were shared in a meeting with the translator and changes were incorporated during the meeting. In this way, the final instrument and consent form used in collection of data were developed.

During data analysis, the researcher maintained the anonymity of individuals, their roles, the incidents they mentioned or those that occurred during data collection. After data analysis, processed data was kept for future reference. The data was kept securely to protect it from people who might misuse it. The study gives an accurate account of the information generated during data analysis. In addition, the information generated during data analysis is presented in tables and structural models generated using SEM.

During report writing, the researcher ensured that the language and words used contained no discrimination against gender, ethnic group, sexual orientation, disability or age. The researcher also guarded against falsifying findings to meet his own motives. The thesis and any papers generated from the thesis include details of the research design, so readers have the opportunity to assess the credibility of the study and detect any manipulation.

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CHAPTER FIVE

EMPIRICAL RESULTS

5.1 Introduction

The results of the study were generated employing the various statistical tools highlighted in the methodology chapter above. The analysis process included the following: checks for missing data and outliers; tests for normality; test for common method bias, factor analysis; validity and reliability tests; construction of the structural and measurement models; and tests for model fit. The validity and reliability tests used factor analysis and Cronbach's alpha technique respectively, and the regressions were estimated using structural equation modelling (SEM). Factor analysis was undertaken to explore the factor structure, convergence of items and to ascertain percentage variance explained by the factors. Since exploratory factor analysis (EFA) does not provide a strong basis for ascertaining validity, the factors were subjected to confirmatory factor analysis (CFA). After the CFA, the items that were utilized to measure the constructs were selectively retained to construct the structural model.

It was necessary to revisit the measurement models before proceeding to estimate the structural models, based on the items that passed confirmatory tests. A measurement model was constructed for each independent variable as well as the outcome variable to ensure model identification. When the observable parameters are greater than the unobservable parameters, the estimated model will not be identified (Hair et al., 1998). To avoid this risk and to avoid overloading the software - analysis of moment structures (AMOS) – the researcher constructed four separate structural models for the relationships between independent variables and dependent variables. Goodness-of fit indices were estimated for each of the different models. In addition, separate models were constructed to test for moderation.

5.2 Validity and reliability test

Tests for reliability and validity were performed on each construct in the study. Specifically, face and content validity were tested using a team of experts prior to data collection, while

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construct validity was assessed for each construct using statistical tools. Four main constructs were tested: entrepreneurial competence; supply chain collaboration; supply chain trust; and SCVC. To understand how focal firms, interact with both customers and suppliers, the measurement instrument was divided into two main sections, one capturing the SME owner-managers' views of customers; the other capturing their views of suppliers. This was important to facilitate comparison between managers' perceptions of upstream and downstream clients.

To test for discriminant validity and reliability, CFA and the calculation of Cronbach's alpha were performed respectively. CFA is often relied upon to assess discriminant validity. However, Farrell and Rudd (2009) warn that relying on this method alone poses risks – specifically, fit indices alone may be unreliable when conducting CFA without comparable interest in the factor loadings of observed variables. Factor loadings indicate the amount of variance in the observed variables explained by the latent variables. If the factor loading is too low, then more variance is likely to be explained by exogenous variables or measurement error (Pittaway, Robertson, Munir, Denyer, & Neely, 2004).

To reduce the risk of producing misleading results, it is recommended that Average Variance Extracted (AVE) is used alongside CFA, precisely because CFA alone does not show individual item factor loading. Utilizing Fornell and Larcker's (1981) criteria, the researcher evaluated whether AVE for each pair of constructs was considered greater than the square root of the correlation between two constructs. The criterion for assessing convergent validity using factor analysis is that when the factor loadings are high, the latent variable is capable of accounting for more variance than the exogenous variables or measurement error in the observed variables theoretically associated with it.

To reduce the risk of producing misleading results, it is recommended that Average Variance Extracted (AVE) is used alongside CFA, precisely because CFA alone does not show individual item factor loading. Utilizing Fornell and Larcker's (1981) criteria, the analysis process evaluated whether AVE for each pair of constructs is considered greater than the square root of the correlation between two constructs.

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During factor analysis, Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were employed to gauge the factor analysability of the data. The study used Principal Component Analysis and Varimax with the Kaiser normalization rotational method to extract factor loadings. KMO is used to assess whether the sample size is adequate to perform factor analysis. There is no minimum required value for KMO, but when KMO tends towards 1, this suggests factor analysis can be performed on the data. Overall, the results show values of KMO ranging between 0.5 and 0.9, which are within the recommend range (Öcal, Oral, Erdis & Vural, 2007)

In addition, eigenvalues greater than 1 were considered significant and were employed to explain the variance captured by a factor. The factors that had eigenvalues below 1 were considered insignificant and excluded from the tables of results. The eigenvalues, percentage of variance and individual factor loadings for each construct and KMO are presented in Appendix 2, to demonstrate the level of variance that can be explained by each factor. Below are the results from the analysis of each of the domains.

5.2.1 Validity and reliability test for entrepreneurial competence

The results of EFA demonstrate that of the eighteen (18) items selected to measure entrepreneurial competencies, only seven (7) items loaded on the factor matrix. These represented three factors out of four proposed on this construct. The competence areas common among the targeted SME owner-managers include commitment competence and opportunity competence. Both analytical and innovative competencies loaded poorly on the factor structure, because the indicators previously employed to measure these competence areas could not converge to a single factor. The very low factor loadings observed in the items selected to measure innovation and analytical competencies indicate that the variance in both variables explained by the latent variable (entrepreneurial competence) was too small. This implies that other factors (such as measurement error) may have had considerably greater influence on the observed variable than the latent variable that was measured. Further, EFA shows a new factor (relationship competence)

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that is displayed in the factor structure. However, this could only be confirmed after CFA. Below is a detailed description of the items that loaded on the different factors.

Table 9: Factor structure - Entrepreneurial Competence areas

Items	Commitment competence	Opportunity competence	Relationship competence
CMC5	**.877**		
CMC3	**.869**		
OP3		**.721**	
OP1		**.716**	
OP2		**.696**	
CMC1			**.857**
CMC2		.126	**.826**
Eigen value	1.817	1.485	1.209
Percentage of variance	25.960	21.219	17.270
Cumulative variance (%)	25.960	47.179	64.449

5.2.2 Factor 1: Commitment competence

Commitment competence is defined as a competence that drives the entrepreneur to move ahead with the business (Man et al., 2002). Commitment competence was measured using six items (CMC1, CMC2, CMC3, CMC4, CMC5, CMC6). However, the results from factor analysis show only two items (CMC1, CMC2) that loaded together on this factor. The factor loadings of the two items were above 0.8, indicating a high correlation with the latent variable. The high correlation between the two items and the latent variable is an indication of discriminant validity. (The high level of discriminant validity for this latent variable is further illustrated in Appendix 3, where a comparison was made between the square root of AVE and correlations between factors.) In addition, an eigenvalue of 1.536 and a percentage variance of 19.20 from the factor analysis are also a robust indication that the observed variables (CMC1, CMC2) had enough variance explained by commitment competence. The Average Variance Extracted (AVE) computed to test for convergent validity was 0.762. This result means that the latent variable explains

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more than half of the variance in its indicators, which is sufficient evidence of convergent validity.

Further, the results of reliability testing showed a Cronbach's alpha (α=0.730). This result demonstrated that the data was sufficiently reliable to merit further analysis

5.2.3 Factor 2: Opportunity competence

Opportunity competence was defined as the ability to recognize and develop market opportunities through various means (Man et al., 2002). Opportunity competence was measured using five items (OP1, OP2, OP3, OP4 and OP5). However, the results from exploratory analysis demonstrated that only three items loaded on this factor (OP1, OP2 and OP3). The factor loadings ranged between 0.696 and 0.721, exhibiting high correlation between opportunity competence and its indicators. An eigenvalue of 2.026 and a percentage of variance of 25.33% demonstrated a significant level of variation in the data explained by the latent variable. This was a clear indication of discriminant validity. The Average Variance Extracted (AVE= 0.506) was above 0.5: additional good evidence of convergent validity.

The assessment of reliability gave rise to a Cronbach's alpha of 0.516 – above the recommended minimum limit of 0.5 and signifying that the measurement instrument accurately measured this factor. Further evidence regarding discriminant validity is provided in Appendix 3.

5.2.4 Factor 3: Relationship competence

Relationship competence is defined as competence related to person-to-person or individual-to-group-based interactions – for example, building a context of co-operation and trust; using contacts and connections; the ability to persuade; and possessing communication and interpersonal skills (Man et al., 2002). This competence area was generated as a new factor from the analysis; the original measurement instrument did not have specific items dedicated to measure relationship competence. However, items

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(CMC5 and CMC6) loaded separately on the factor structure, suggesting relationship competence. The factor loadings recorded for both items was above 0.8, which signifies high correlation between this factor and the latent variable. The items that loaded on this factor had been selected to measure commitment competence. Theoretically, these items represent relationship competence. The eigenvalue calculated for this factor was 1.242 and the percentage variance explained in the data by this factor was 15.267%. These, figure indicate clear discriminant validity. The AVE was 0.706 – far above the recommended minimum value of 0.5 –signifying robustly that the factor has a high convergent validity.

To demonstrate that this factor differs significantly from commitment competence, a comparison of AVE and correlation coefficients was conducted for all factors. The results in Appendix 3 provide good confirmatory evidence for discriminant validity. The test for reliability generated a Cronbach's alpha of 0.697: also, adequate to demonstrate that the measurement instrument was reliable.

5.3 Validity and reliability test for supply chain collaboration- upstream clients

The principal component analysis and varimax rotation were specified as the appropriate rotational methods in conducting factor analysis. To determine whether the data was amenable to factor analysis, Keizer-Meyer-Okin (KMO) was estimated using the Bartlett test of Sphericity. At 0.722 ($p<0.000$), this result confirmed factor analysis as an appropriate method. Following from this, EFA were conducted to establish discriminant validity for supply chain collaboration.

Regarding the managers' relationships with suppliers, fourteen (14) items were utilized to measure supply chain collaboration with respect to suppliers. The fourteen items were reduced to ten items loading together on the different factors. The factor structure is illustrated in Table 11 below. The selection of the factors was based on the number of factors with eigenvalues exceeding 1.0. Considering eigenvalues above 1.0, the cumulative percentage variance of the indicator variables explained by the latent variable

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was 71%. Table 10 below shows the factor structure. The definition of each item loaded in the factor structure is shown in Appendix 1.

Table 10: Factor Structure - Collaboration with Suppliers

Items	Goal Congruence	Information Sharing	Information Quality	Collaborative Communication
SCGC2	**.905**			
SCGC1	**.885**			
SCGC3	**.837**			
SCIS4		**.806**		
SCIS3		**.776**		
SCIS5		**.768**		
SCIS1			**.879**	
SCIS2			**.798**	
SCCM1				**.811**
SCCM2			.	**.727**
Eigenvalue	2.845	1.826	1.382	1.087
Percentage of variance	28.450	18.259	13.815	10.875
Cumulative variance (%)	28.450	46.709	60.525	71.399

5.3.1 Factor 1: Goal congruence

Regarding this factor, five items were initially utilized to measure goal congruence. However, the results of EFA indicated that only three items (SCGC1, SCGC2 and SCGC3) loaded together on this factor. The factor loading coefficients under this were all above 0.8, demonstrating high correlation between observable variables and the latent variable. AVE was computed to show how much variance in the indicator variables could be explained by goal congruence. In this case AVE was 0.708 –far higher than the critical value of 0.5 and thus confirming convergent validity. The reliability test showed a Cronbach's alpha of 0.858, which evidences good internal consistency of the data used in subsequent analysis. Tables showing the factor loading for each item on the factor are provided in Appendix 2, while a comparative analysis of discriminant validity is in Appendix 3.

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5.3.2 Factor 2: Information sharing

Information sharing was defined as the extent to which a firm shares a variety of relevant, accurate, complete and confidential ideas, plans, and procedures with its supply chain partners in a timely manner (Cao et al., 2010). The outcome of EFA indicate that information sharing generated three items that loaded together on this factor, with factor loading coefficients ranging between 0.7 and 0.8. These high factor loadings indicate high correlation between the three items (SCIS3, SCIS4 and SCIS5) and the latent variable, which is a clear demonstration of discriminant validity. The results from a comparative procedure for assessing discriminant validity using AVE confirm this position. The percentage variance of the observed variable explained by the latent variable was 28.450; AVE at 0.613 was higher than the critical value of 0.5: both these results offer robust evidence of convergent validity. The reliability test produced a Cronbach's alpha of 0.694, indicating that the data collected on this factor is reliable and adequate for subsequent analysis.

5.3.3 Factor 3: Information quality

Information quality is the new factor that emerged from the results of factor analysis. The two items (SCIS1 and SCIS2) that loaded on this factor had been utilized to measure information sharing. The items loading on information quality include timeliness and relevance of information. According to Wang and Strong (1996), these are both contextual measures of the quality of information. Other intrinsic measures of information quality include believability, reputation, objectivity and accuracy (Wang & Strong, 1996). All the factor loadings on this factor were above 0.7: an indication of the high correlation between the items and the factor (information quality), and hence good evidence for discriminant validity. The percentage of variance in the items explained by this factor was 13.8%. However, this last result is significantly below the figure generated for both goal congruence and information sharing, raising validity concerns. AVE for this factor was 0.722, still above the recommended lower limit.

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In order to demonstrate how this factor is different from the rest, the value of AVE was compared with the correlation coefficients between factors. The results corroborate the earlier conclusion of discriminant validity, which was based on factor analysis. The results for discriminant validity are illustrated in Appendix 3.

5.3.4 Factor 4: Collaborative communication

Collaborative communication is defined as the contact and message transmission process among supply chain partners in terms of frequency, direction, mode, and influence strategy (Cao et al., 2010). Two items (SCCM1 and SCCM2) loaded together on this factor. The factor loadings for both items were above 0.7, but the percentage variance of 10.875% is not very convincing to confirm discriminant validity. AVE was used to test for convergent validity and the resulting value of 0.722 for this factor (again, higher than 0.5) provided a good indication that collaborative communication is able to explain more than half of the variance in the indicator variables (SCCM1 and SCCM2). However, the computation of Cronbach's alpha yielded a value of 0.388: far below the acceptable criterion. This raised a significant question about internal consistency. Since collaborative communication demonstrated moderate correlation with information quality, it was necessary to perform to a CFA.

5.4 Validity and reliability test for supply chain collaboration with downstream clients

Managerial collaboration with customers is an attempt by a firm to integrate customers into the supply chain. This not only improves customer value but also impacts on the other performance areas in the supply chain. A separate section of the questionnaire was utilized to collect data from SME owner-managers about the extent of collaboration with customers. EFA was utilized to extract the factors influencing managers' decisions to collaborate with customers. Using principal component analysis and the varimax rotational method, the value of KMO generated from factor analysis was 0.669, demonstrating that the data was good enough for factor analysis.

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Fourteen (14) items were initially utilized to measure supply chain collaboration in respect to customers, but only 11 items loaded in the factor matrix, as shown in Table 12 below. Of these, three items (SCGC11, SCGC12 and SCGC13) loaded together on goal congruence, another set of three items loaded on information sharing (SCIS13, SCIS15, SCIS14) and, again, only two items (SCIS11 and SCIS12) loaded on information quality. The definition of each item loaded in the factor structure is provided in Appendix 1.

Table 11: Factor Structure - Collaboration with Customers

Items	Goal Congruence	Information sharing	Information quality	Collaborative communication
SCGC12	**.908**			
SCGC11	**.894**			
SCGC13	**.744**			
SCIS13		**.830**		
SCIS15		**.792**		
SCIS14		**.749**		
SCIS11			**.865**	
SCIS12			**.841**	
SCCM12				**.810**
SCCM11				**.711**
SCCM13				**.657**
Eigenvalue	3.001	1.885	1.621	1.154
Percentage of variance	27.286	17.133	14.735	10.489
Cumulative variance (%)	27.286	44.419	59.154	69.643

5.4.1 Factor 1: Goal congruence

The factor loadings for items that loaded together on goal congruence in regard to customers were high, ranging between 0.7 and 0.9. Percentage variance was 27.286 %. Although this was slightly lower than the figure recorded for suppliers (28.450%), there was sufficient evidence of discriminant validity. An AVE of 0.726 provided additional evidence of convergent validity. Tests of reliability for this factor generated a Cronbach's alpha of 0.821, indicating sufficient evidence of data consistency.

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5.4.2 Factor 2: Information sharing

Five items were utilized to measure information sharing with respect to customers, but only three items loaded together on this factor, with factor loadings above 0.7. The high factor loadings for these items, (SCIS3, SCIS4 and SCIS5), is a clear demonstration of discriminant validity. The percentage variance of the observed variable explained by the latent variable was 28.450%: also, good evidence for discriminant validity. An AVE of 0.626 signifies that information sharing was able to explain the variance in the three indicators by more than half. A Cronbach's alpha of 0.719 demonstrates that the data collected for this factor is reliable.

5.4.3 Factor 3: Information quality

Information quality is a new factor not initially envisioned among factors influencing SME owner-managers' decisions to collaborate with customers. The results from the factor analysis generated two items (SCIS11 and SCIS12) that loaded together on this factor. The factor loadings for the two items were both above 0.8, but a percentage variance of 14.735% compared to other factors raised doubts about discriminant validity. AVE, at 0.728, was large enough to support evidence of convergent validity. A Cronbach's alpha of 0.747 signified that the measurement instrument was reliable in capturing responses on this construct. However, the comparatively lower figure for variance suggested the need for CFA to confirm this factor.

5.4.4 Factor 4 - Collaborative communication

Regarding this factor, out of the five items utilized to measure collaborative communication only three (SCCM11, SCCM12 and SCCM13) loaded together on this factor. The indicators for collaborative communication are defined in Appendix 1. The low values of item-total correlation and a high factor loading of above 0.6 are both good indicators of discriminant validity. An AVE of 0.531 was slightly above the recommended criterion (AVE>0.5), showing potential for convergent validity. A Cronbach's alpha of 0.771 suggested that the indicators measure what they were intended to measure.

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5.5 Validity and reliability test for supply chain trust in relationships with suppliers

Regarding managers' trust in suppliers, EFA was utilized to extract the factors influencing managers' decisions to collaborate with suppliers. Using Principal Component Analysis and the varimax rotational method, the value of KMO generated from the factor analysis was 0.672, demonstrating that the data merited factor analysis (Öcal et al., 2007).

Regarding the managers' trust for suppliers, thirteen (13) items were utilized to measure supply chain trust in respect of suppliers. These items were selected to measure three components of supply chain trust, namely rational factors; individual characteristics; and institutional factors. Out of the thirteen (13) items, the results of EFA show that three items (PRS2, PRS4 and NRS2) loaded together on individual characteristics, and another set of three items (RWS2, RWS4 and PRS3) loaded together on rational factors. One of the items (PRS3) that was utilized to measure institutional factors, loaded on rational factors. Overall, the results of EFA show two factors influencing supply chain trust in the manager's relationship with suppliers: individual characteristics and rational factors. Detailed definitions of the items in Table 12 below are provided in Appendix 1.

It is worth noting that the items selected to measure institutional factors did not converge to a single factor, except PRS3, which was found to exhibit high correlation with rational factors. This suggests that managers' trust for suppliers depends mainly on characteristic factors and rational factors.

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Table 12: Factor structure - TRUST with respect to suppliers

Items	Characteristic Factors	Rational Factors
PRS4	**.809**	
PRS2	**.789**	
NRS1	**.784**	
RWS2		**.793**
RWS4	.137	**.747**
PRS3		**.729**
Eigenvalue	2.118	1.532
Percentage of variance	35.293	25.537
Cumulative variance (%)	35.293	60.830

5.5.1 Factor 1: Individual Characteristic of suppliers

Regarding individual characteristics, the analysis demonstrated that the fairness, market credibility and flexibility of a supplier influenced managerial decisions to trust suppliers. The coefficients of the factor loadings for each of the three items loading on this factor exceeded 0.7, and a percentage variance of 35.293 on this factor explained by the latent variable, both clearly demonstrated the presence of discriminant validity. In addition, an AVE of 0.631 sufficed to support convergent validity. A Cronbach's alpha of 0.837 is also a clear indication of the internal consistency of the data collected on this factor.

5.5.2 Factor 2: Rational factors

In regard to rational factors, three items (RWS2, RWS4 and PRS3) loaded together on this factor, with factor loadings above 0.7. The percentage variance of 25.537, the high factor loadings and the low item-total correlation indicated in Appendix 1, show sufficient evidence of discriminant validity. An AVE of 0.573 from the factor loadings is a good indication of convergent validity. A Cronbach's alpha of 0.678 also confirms the internal consistency of the data collected on this construct.

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5.6 FACTOR STRUCTURE – SUPPLY CHAIN TRUST FOR CUSTOMERS

The results of the analysis indicated that the level of trust between SME owner-managers and customers is also driven by customers' behavioral characteristics and rational factors. Institutional factors did not emerge as key drivers of trust in customer relationships. This implies that the use of risk-coping mechanisms such as cheques, bills of exchange and other financial instruments commonly utilized in developed economies are not common in the Ugandan context. This is not surprising: transactions are conducted mainly on a cash basis. The results of EFA show three items (PRC1, PRC2, and PRC3) that loaded together to measure rational factors and two items (NRC2 and RWC1) that loaded together to measure individual customer characteristics. The factors loading on the factor matrix had eigenvalues above 1. The cumulative percentage variance in the factor that is explained, supply chain trust, is 63.2%. This yields a variance in the factors explained by other factors of only about 36.8%. Appendix 1 gives a detailed account of the factors and the definitions of indicators.

Table 13: Factor structure for Trust for Customers

ITEMS	Rational Factors	Characteristic Factors
PRC2	**.832**	
PRC1	**.762**	
PRC3	**.687**	
NRC2		**.848**
RWC1		**.796**
Eigenvalue	2.034	1.130
Percentage of variance	40.679	22.598
Cumulative variance (%)	40.679	63.276

5.6.1 Factor 1: Rational factors

As stated above, three indicators (PRC1, PRC2 and PRC3) loaded together on this factor to measure rational factors. The items comprised operational flexibility, willingness to use written terms and conditions, and shared economic interests. The high coefficients of

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factor loadings and a percentage variance of 40.679 provided sufficient evidence of discriminant validity. The outcome value computed for AVE was 0.582, demonstrating sufficient evidence of convergent validity. The reliability test produced a Cronbach's alpha of 0.641, sufficient evidence that the indicators utilized to measure this factor were fit for purpose.

5.6.2 Factor 2: Characteristic factors

Regarding this factor, two items (NRC3 and RWC1) loaded together on it to measure the individual customer characteristics that served as a basis for trusting customers. These comprised the transparency and reliability of customers. The high coefficients of factor loadings – above 0.796 – and a percentage of variance of 22.598 provided sufficient evidence of discriminant validity. In addition, an AVE of 0.676 demonstrated clear evidence of convergent validity. A Cronbach's alpha of 0.539 offered sufficient evidence of reliability.

5.7 FACTOR STRUCTURE: SUPPLY CHAIN VALUE CREATION

SCVC was measured using three factors: customer value, supplier value and internal process value. However, the factor analysis for SCVC generated two factors: supplier value and customer value. These results suggest that resources do not seem to be a major value driver for SMEs involved in local procurement once internal process value is eliminated. The main value drivers seem to be output indicators (customer responsiveness, quantity and quality of outputs) and flexibility indicators (supply chain compatibility to accommodate fluctuations in volume and schedules). This factor structure suggests that SMEs involved in community procurement are more involved in external integration (with both suppliers and customers) than in internal integration.

EFA generated three items that loaded on supplier value and two items that loaded on customer value, as shown in Table 14 below. A cumulative variance of 60.645 % demonstrates that the latent variable has the capacity to explain up to 60.645 % of the variance in the two factors. Other exogenous factors, such as measurement error, account for the remaining percentage.

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Table 14: Factor structure for supply chain value

ITEMS	Supplier value	Customer value
SV6	**.739**	
SV1	**.692**	
CV4	**.774**	
CV1		**.849**
CV2		**.760**
Eigenvalue	1.940	1.092
Percentage of variance	38.808	21.837
Cumulative variance (%)	38.808	60.645

5.7.1 Factor 1: Supplier Value

Eight items were selected to measure supplier value, but of these only three loaded highly on this factor. The high factor loadings (above 0.7) and a percentage variance of 38.808 are sufficient evidence of discriminant validity. Convergent validity was tested using AVE and a resulting value of 0.541 was a clear indication of the presence of convergent validity. A Cronbach's alpha of 0.593 was generated, which also confirms that the data collected on this factor was reliable. In other words, there a clear indication of internal consistency in the data collected to measure supplier value.

5.7.2 Factor 2: Customer Value

The measurement for customer value comprised sixteen (16) items, from which the EFA successfully loaded only two items on this factor. Both items loaded with a factor loading above 0.7, and generated a percentage variance of 21.837. These results demonstrate that there is clear indication of discriminant validity. Convergent validity was assessed using AVE and the value computed, 0.649 suggested adequate evidence of convergent validity. A Cronbach's alpha of 0.504 confirmed that the data collected on these indicators was reliable. However, since the items generated during EFA were few, it was important to perform a CFA.

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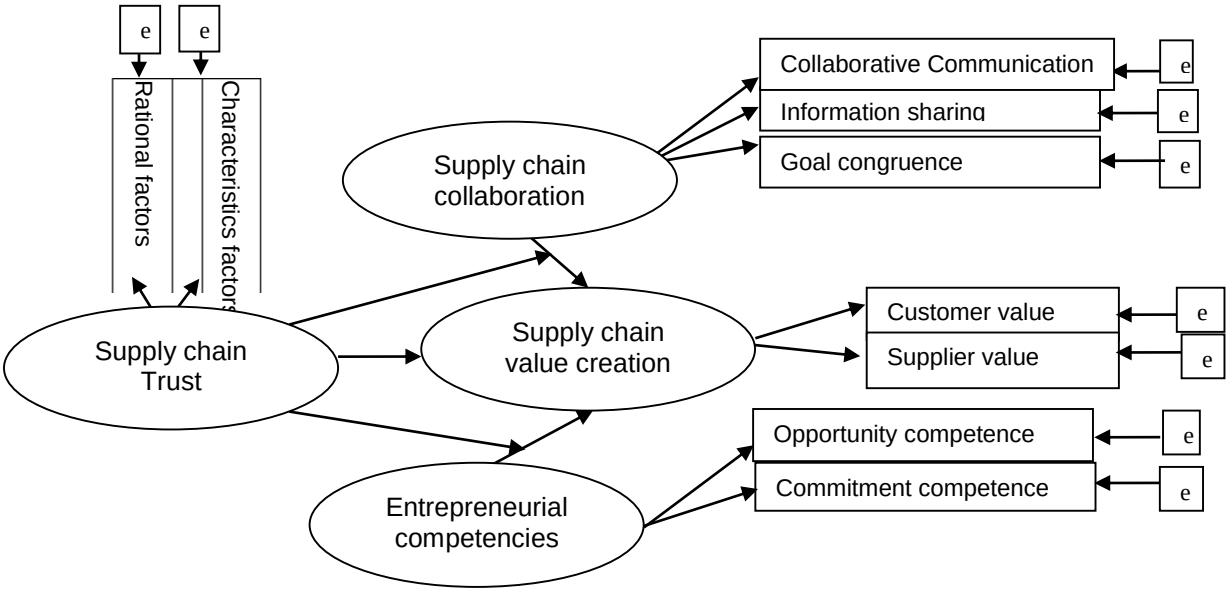
5.8 REVISED HYPOTHESISED MODEL

The results of the exploratory factor analysis summarised above suggested some modification in the conceptual model. Some of the items that were anticipated to be good measures of the latent variable did not load very well during factor analysis. This is possibly because the context within which this study was undertaken differed from the contexts of earlier studies employing the same measurements. In addition, some of the measures were applied to large companies, whereas the current study focused on small, resource-constrained companies. However, because this was still an exploratory study, it was important to utilize AMOS software to conduct a CFA for each variable.

After CFA, two factors were dropped from entrepreneurial competencies (innovative competence and analytical competence); one (institutional factor) from supply chain trust, and another (internal process value) from supply chain value. Further, the factors information quality and relationship competence that had been added in the factor structure during EFA were dropped due to the Heywood case identified during CFA. The Heywood case (negative or near zero variance estimates) can be as a result of identification problems; outlier cases; model misspecification; or sampling fluctuations. Figure 6 below shows the revised model.

Figure 4: Revised model



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5.9 Common method bias

As with all self-reported data, there is a potential for common method biases resulting from the effects of response style, item wording, consistency motif, proximity and reversed items, social desirability (Podsakoff & Organ, 1986; Liang, Saraf, Hu, & Xue, 2007). The study enforced procedural remedies as recommended by Podsakoff & Organ (1986) to control for method biases. The questionnaire was shared with senior researchers to remove ambiguity and reverse-coded items. The measurements of the predictor and criterion variable were obtained from different sources to minimize the possibility of common method biases. In addition, respondents were asked to answer anonymously and were assured that there were no right or wrong answers to reduce tendencies of social desirability.

The researcher performed statistical analyses to estimate the possibility and magnitude of common method biases, first by using Harmon one-factor test (Podsakoff & Organ, 1986) on the study variables in the five theoretical models. The theoretical model in figure 6 was split into five models in order to test the variables at dimension level. The intention was to extract the dimensions that explain the predictor variables in the study context. The results from testing the five measurement models showed that the variance explained by one factor range between 25.9 percent and 40.6 percent, which is below the lower limit (50 percent) for detecting CMB. This suggests that common method biases were not likely contaminants of study results.

To confirm whether CMB was not a likely contaminant of the study results, the researcher performed a common latent factor (CLF) test. The test involved a comparison of the standard regression weights from the model with CLF against standard regression weights for the model without CLF. This comparison showed no significant differences, a result that rules out common method biases. In addition, a comparison of model fit indices showed that the CFA for models without CLF had better model fit indices than CFA with CLF. Table (a) in Appendix 3 illustrates the results generated from the Harmon one-factor test and compares the fit indices generated for models without a CLF and models with a CLF.

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5.10 EMPIRICAL RESULTS OF THE STRUCTURAL EQUATION MODELING ANALYSIS

The empirical results from SEM were generated using AMOS software. SEM is a multivariate analysis tool that encompasses confirmatory factor analysis, path analysis and multiple regression equations. Since the SEM technique is appropriate for the analysis of multiple variables simultaneously, it was used to generate estimates for the measurement and structural models displayed on the path diagrams. For each model constructed, it was important to ascertain the degree to which both the measurement and structural model represented an acceptable approximation of the data. This was established using different Goodness of Fit indices including the normed chi-square expressed as the ratio of Chi-square to the Degrees of Freedom (χ^2/d.f.); Root Mean Square Error of Approximation (RMSEA); Goodness of Fit index (GFI); and Comparative Fit Index (CFI). These indices were utilized to test the hypothesis that the data that was collected fits the model perfectly. In light of this, hypothesis six was expressed as follows.

H_6: The data fits the model perfectly.

Hypothesis six (H_6) was tested to evaluate model fit for each of the structural models constructed. Table 15 below presents the criteria for goodness-of-fit measures that were utilized to assess whether data fits the models.

Table 15: Goodness of Fit measures

Goodness of Fit Index	Acceptable criteria
Chi-square (χ^2)/ Degrees of freedom (d.f.)	≤3.00
χ^2 p-value	≥ 0.05
Root Mean Square Error of Approximation (RMSEA)	≤ 0.05
Comparative Fit Index (CFI)	≥ 0.9
Goodness of Fit Index (GFI)	≥ 0.9

Source: Jayaram et al. (2004)

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5.11 Sub model 1: Entrepreneurial competencies and SCVC

5.11.1 Hypotheses and path diagram

The path diagram in Figure 9 below shows the hypothesized model and the parameters. It was hypothesized that entrepreneurial competencies (opportunity competence, commitment competence, relationship competence) positively influence SCVC. The revised factor structure for entrepreneurial competence includes relationship competence, which is a new factor that emerged during exploratory factor analysis. The measurement models were further subjected to CFA, to confirm the new factor that had emerged from exploratory factor analysis. In addition, both innovative competence and analytical competence were dropped because they had exhibited poor factor loadings, which indicated that the items utilized to measure both constructs did not converge on a single factor. In human terms, neither innovative nor analytical competence are common among the targeted respondents. This result points towards the potential utility of a more in-depth analysis of conceptual competencies in future.

SCVC was reduced to two factors – customer value and supplier value – because the third factor (internal process value) also exhibited poor factor loadings and was dropped. To confirm the elimination of internal process value, a CFA was conducted. The outcome of this pointed towards dropping the items utilized to measure internal process value from the measurement model: internal processes do not appear to be a key value driver for local SMEs. This is possibly because the small scale of local SMEs in Uganda means they lack internal resources to create value. Instead, they seek opportunities and resources outside the firm in order to create supply chain value.

Having dropped the two competence areas, but also adding a new factor, it was important to revisit the hypotheses to incorporate the new changes into the factor structure. To confirm that each of the competence areas identified during EFA actually measured what they were intended to measure, the factors were subjected to a CFA whose results exhibited no need to create a new factor. Those items converging on a new factor were

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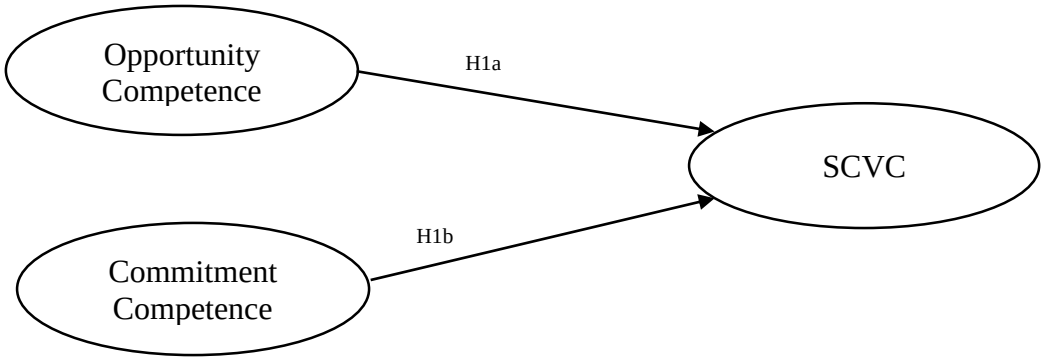
confirmed as belonging to commitment competence. The outline of the hypotheses and path diagram appears below.

Hypotheses:

H_{1a}: *There is a positive relationship between opportunity competence and SCVC*

H_{1b}: *There is a positive relationship between commitment competence and SCVC*

Figure 5: Path diagram of the model of entrepreneurship competencies and SCVC



5.11.2 Structural and measurement variable

The structural and measurement models are defined in Table 16 below. The manifest variables for SCVC were adjusted to include items CV4 and SV3 respectively, after CFA. The outcome of CFA suggested six indicators (SV1, SV3, SV6, CV1, CV2 and CV4) for measuring SCVC. Items SV1, SV3 and SV6 represent supplier value: supplier's ability to meet due dates set by the focal firm (SV1); supplier's ability to respond quickly to emergencies, problems and special requests made by the focal firm (SV6); and commitment to continuous improvement (SV3). The items SV1 and SV6 represent responsiveness while SV3 relates to quality improvement. The three items (CV1, CV2 and CV4) represent customer value. CV4 was added to the items during CFA. The manifest variables (CV1 and CV2) relate to customer service levels, while CV4 relates to the

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management of lead time. Appendix 1 gives the detailed definition of the items in Table 16.

Table 16: Definition of structural and measurement variables

Structural model	
Endogenous variable	**Exogenous variable**
Supply chain value creation	Opportunity competence, Commitment competence
Measurement model	**Manifest variables**
Supply chain value creation	SV1, SV3, SV6, CV1, CV2 and CV4
Opportunity competence	OP1, OP2, OP3,
Commitment competence	CMC1, CMC2, CMC3, CMC5

5.11.3 Measurement and Structural model estimation

The p-value of the indicator variables in the measurement model were above the minimum critical value of 1.96 ($p<0.05$), providing sufficient evidence of their level of significance in measuring entrepreneurial competencies. Having adjusted the measurement model during CFA, both validity and reliability tests proved sufficient to proceed with analysis. Following the convincing estimates of the measurement model, the structural model was subjected to empirical testing to establish the relationship between entrepreneurial competencies and SCVC. Below is a discussion of the outcomes from estimating the relationships between entrepreneurial competencies and SCVC.

5.12 Relationship between entrepreneurial competencies and SCVC

The structural model in Figure 8 below illustrates that opportunity competence exerted positive influence on SCVC. The estimated path coefficient for the relationship between opportunity competence and SCVC was 0.398 ($p=0.017$) and the coefficient for the relationship between commitment competence and SCVC was 0.273 ($p=0.049$). In the light of this evidence, both hypotheses H_{1a} and H_{1b} were accepted, both relationships being significant.

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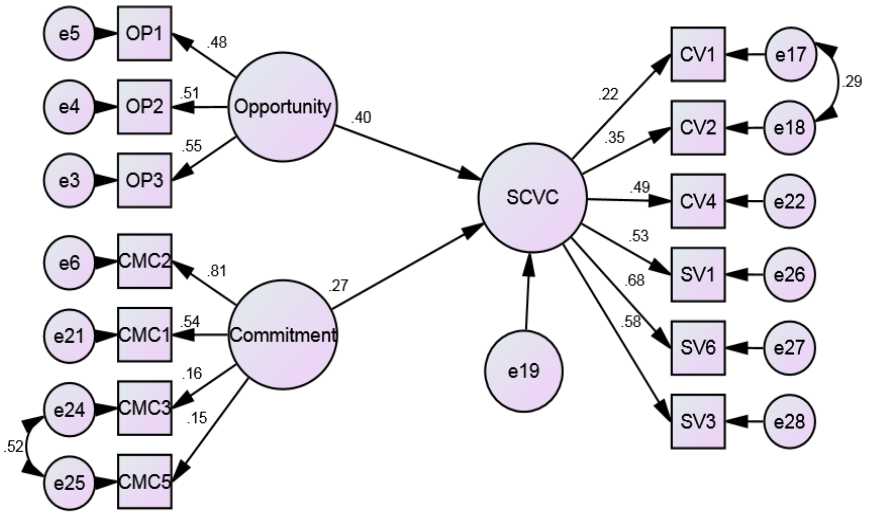
The strong positive relationship between opportunity competence and SCVC suggests that managers who are competent in both identifying new business opportunities and involving new members in their internal decision-making processes excelled in serving customers. This may be because making both customers and suppliers part of internal decision-making processes brings in new knowledge and ideas, which in turn increases creativity and helps a firm to become more relevant to customers. Additionally, the positive relationship between commitment competence and supply chain value means that managers who are committed to members of the supply chain create value for both suppliers and customers.

These results suggest that SME owner-managers who integrate opportunity competence and commitment competence are valued by members of their local supply chain.

Figure 6: Structural Model Estimation



Key: Opportunity (Opportunity competences), Commitment (Commitment competences), SCVC (supply chain value creation)

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5.12.1 Evaluating goodness-of-fit indices

The goodness-of-fit indices for the structural model illustrated in Figure 8 above are given in Table 17 below. The different entrepreneurial competence areas were combined into a single model because competencies are not strongly correlated with one another.

Table 17: Goodness-of-fit indices for the structural model

Goodness-of-fit Criteria	
Sample size	294
Degree of freedom	61
Satorra- Bentler scaled Chi-square (χ^2)	134.356, p=0.16
Chi-square (χ^2)/Degrees of Freedom	1.427
Root Mean square error approximation	0.038
90% Confidence Interval for RMSEA	0.17, 0.055
Goodness of Fit Index (GFI)	0.946
Comparative Fit Index (CFI)	0.957

From Table 17 above, the ratio of Chi-square to the degree of freedom was 1.427. This is within the acceptable range. The p-value of 0.16 also indicates no difference between the estimated model and a saturated model. This confirms a good fit. However, the ratio of chi-square to degree of freedom is not a very reliable index when used alone, because chi-square values increase with sample size; hence the p-value also becomes more significant as sample size becomes larger. A significant p-value for a chi-square test implies that the estimated model is significantly different from the saturated model. To reduce the risk of drawing misleading conclusions, other measures of model fit were also utilized in the interpretation of results. The RMSEA value of 0.038 indicates a good fit and both the lower limit and the upper limit of RMSEA are within the acceptable range. The value generated for GFI is above 0.9, which indicates good fit, and CFI is also above 0.9 which confirms a good fit. Overall, the model fit indices suggested a good fit but not necessarily a perfect one. It nevertheless confirmed the hypothesis. The results suggest that the data collected for this study fit the model adequately, providing support for hypothesis six (H_6).

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5.13. Sub model 2: Collaboration with suppliers

Regarding supply chain collaboration, the managers' perceptions of suppliers were assessed differently from their perceptions of customers. The need for these distinct approaches became apparent during the pretesting of questionnaires. Two sets of data were thus collected, to estimate owner-managers' perceptions of suppliers and customers separately. The result from testing the determinants of collaboration between SME owner-managers and their suppliers is provided below.

5.13.1 Hypotheses and path diagram

The extent to which managers collaborate with suppliers was measured using three factors: goal congruence, information sharing, and collaborative communication. The outcome of EFA had suggested information quality as a factor that influences the level of collaboration, but this factor was not admissible during CFA. Results from the factor analysis had displayed good factor loadings for the items utilized to measure information quality, but with negative variance. For this reason, information quality was dropped from the factor structure. Therefore, the items (SCIS1 and SCIS2) utilized to measure information sharing, but loaded on information quality, were removed after CFA. Consequently, only three factors (goal congruence, information sharing and collaborative communication) were utilized in the structural model to estimate the extent to which supply chain collaboration creates value for local SMEs. Below is the outline of the hypotheses.

H_{2a}: *There is a positive relationship between goal congruence and SCVC in the relationships between SMEs and their supplier*
H_{2b}: *There is a positive relationship between information sharing and SCVC in the relationships between SMEs and their supplier*
H_{2c}: *There is a positive relationship between collaborative communication and SCVC in the relationships between SMEs and their supplier*

The above hypotheses are illustrated in the path diagram below.

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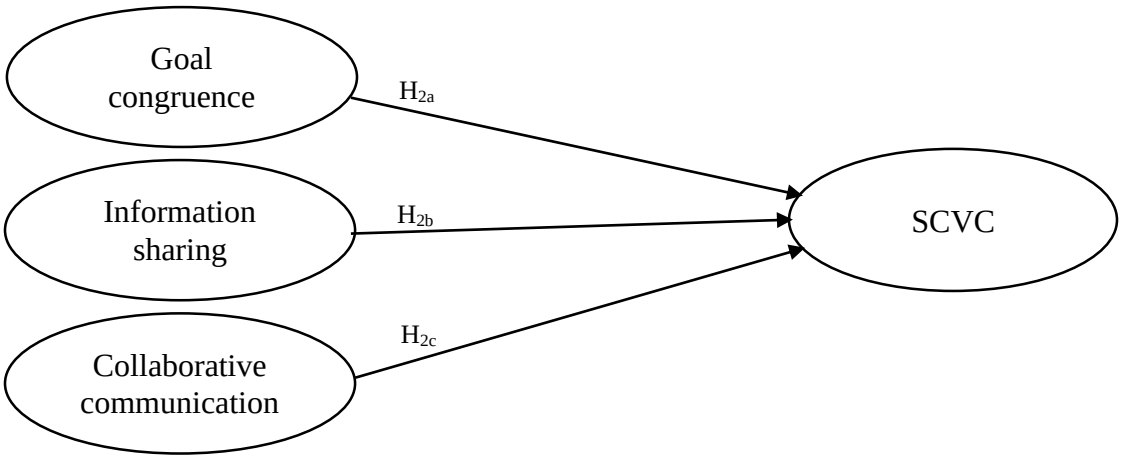
Figure 7: Path diagram of the model for supply chain collaboration - suppliers



5.13.2 Structural and measurement variable

The items for the proposed measurement model extracted from EFA were subjected to a CFA to confirm whether those items that converged actually measured the different factors. The CFA established that the new factor, labeled information quality, was not well established. Its p-value exceeded the critical value. Consequently, information quality was dropped from the factor structure. Table 18 below summarizes the items utilized to measure each construct in the measurement and structural models. SCVC was measured using items SV1, SV3, SV6, CV1, CV2 and CV4. Goal congruence was measured using items SCGS1, SCGS2 and SCGS3. Information sharing was measured using three items: SCIS3, SCIS4, SCIS5, and collaborative communication was measured using items SCCM1, SCCM2 and SCCM5. Detailed definitions of the items listed in Table 18 are presented in Appendix 1.

Table 18: Definition of structural and measurement variable

Structural model	
Endogenous variable	**Exogenous variable**
SCVC	Goal congruence, Information sharing, Collaborative communication
Measurement model	**Manifest variables**
SCVC	SV1, SV3, SV6, CV1, CV2, CV4
Goal congruence	SCGS1, SCGS2, SCGS3
Information sharing	SCIS3,SCIS4, SCIS5
Collaborative communication	SCCM1, SCCM2, SCCM5

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5.13.3 Measurement and structural model estimation

The results from estimating the structural model illustrated in Figure 10 below demonstrate that goal congruence exerted negative influence on supplier value. Information sharing had a positive (but weak) relationship with supplier value, while collaborative communication had a both positive and significant influence on supplier value. The path coefficient for goal congruence was negative at -0.148 (p= 0.045) while the path coefficient for information sharing was positive at 0.035 (p=0.654), though this is not statistically significant. Similarly, the path coefficient for collaborative communication was positive at 0.387 (p=0.010) and statistically significant. The results from the analysis confirm that both collaborative communication and information sharing have a positive relationship with SCVC, supporting the acceptance of hypotheses H_{2b} and rejection of H_{2c}. Since the direction of the relationship between goal congruence and SCVC is negative, this provides sufficient evidence to reject hypothesis H_{2a}.

The above findings suggest that sharing a common strategy with suppliers does not have an immediate payoff and is a disadvantage to SMEs in local supply chains. However, both collaborative communication and information sharing bring private benefits to all firms. The relationship between goal congruence and SCVC is negative possibly because of a lack of shared priorities between SME owner-managers and their suppliers. In such circumstances, SMEs may need to invest more resources in relationships with suppliers to persuade them to refocus their priorities. The figure below illustrates the structural model and the values estimated for the various relationships.

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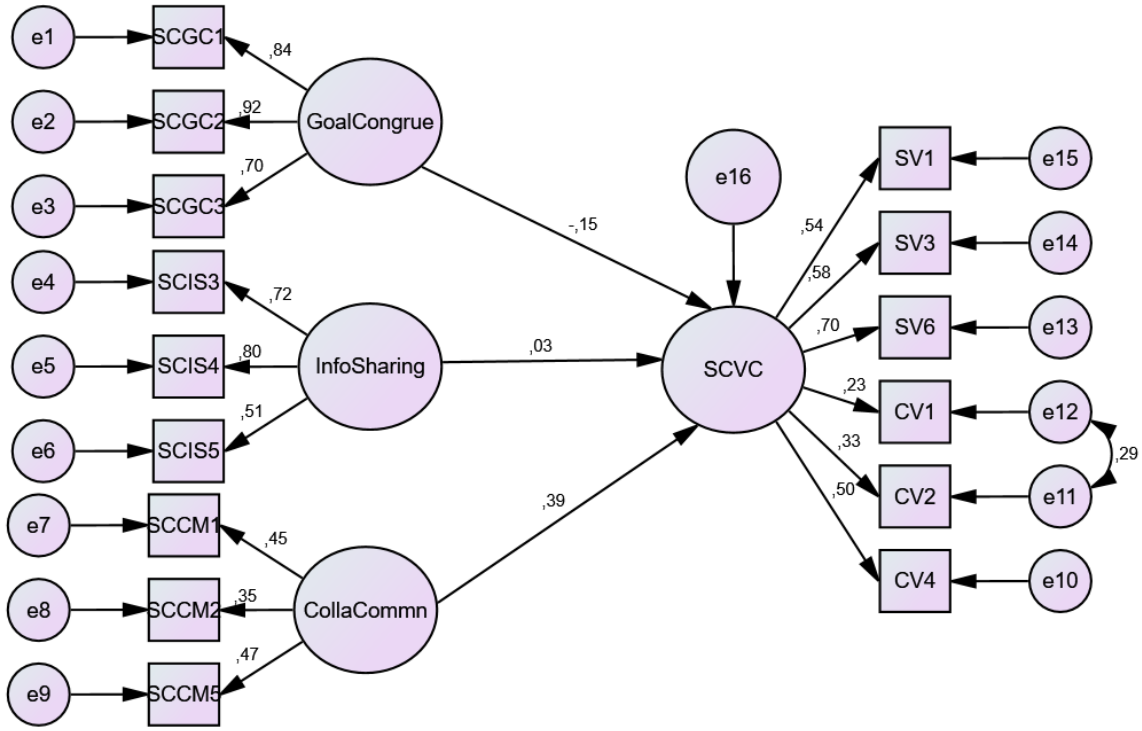
Figure 8: Structural Model Estimation



Key: GoalCongr (Goal congruence), CollaCommun (Collaborative communication), InfoSharing (Information sharing), SCVC (supply chain value creation)

5.13.4 Evaluating goodness-of-fit indices

Table 19 below details the goodness-of-fit indices that were estimated for the above model.

Table 19: Goodness of fit indices

Sample size	294
Degree of freedom	86
Satorra- Bentler scaled Chi-square (χ^2)	187.881, p=0.000
Chi-square (χ^2)/Degrees of Freedom	2.185
Root Mean square error approximation	0.064
90% Confidence Interval for RMSEA	0.051, 0.076
Goodness of Fit index (GFI)	0.925
Comparative Fit Index (CFI)	0.894

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From Table 19 above, the ratio of chi-square to the degree of freedom is 2.185, which indicate good model fit. However, since chi-square values change with sample size, a significant p-value for the chi-square test cannot influence the decision on the chi-square test. When the chi-square value is significant, it implies that the estimated model is significantly different from a perfect model, but this cannot be relied upon due to the lack of stability associated with the chi-square index. The RMSEA value of 0.064 is below the upper limit, which indicates a moderate fit. Both the lower limit and the upper limit of RMSEA are also within the acceptable range, confirming that the data used in the analysis fits the model. In addition, GFI was above 0.9, which signifies a good fit, while CFI is slightly below the low limit. Overall, the model fit indices confirm that the data used in the analysis fit the model moderately well, supporting hypothesis six (H_6).

5.14 Sub model 3: Collaboration with customers

5.14.1 Hypothesis and path diagram

The extent to which the focal firm collaborates with customers was also measured using three factors: goal congruence, information sharing and collaborative communication. However, the outcome of EFA suggested an additional factor, resulting from two indicators that loaded together on a new factor that was labelled information quality. As in the previous case, the CFA conducted on the measurement model suggested the elimination of those items that converged to measure information quality, because the p-value for item SCIS11 exceeded the critical range. Therefore, CFA on the measurement model confirmed only three factors (goal congruence, information sharing and collaborative communication). A close look at item SCIS11 – utilized to measure information quality – revealed that the factor loading indicated a Heywood effect. This ruled out the possibility of utilizing information quality as a factor that measures supply chain collaboration in the study context. Based on these findings, three hypotheses were suggested, as shown below.

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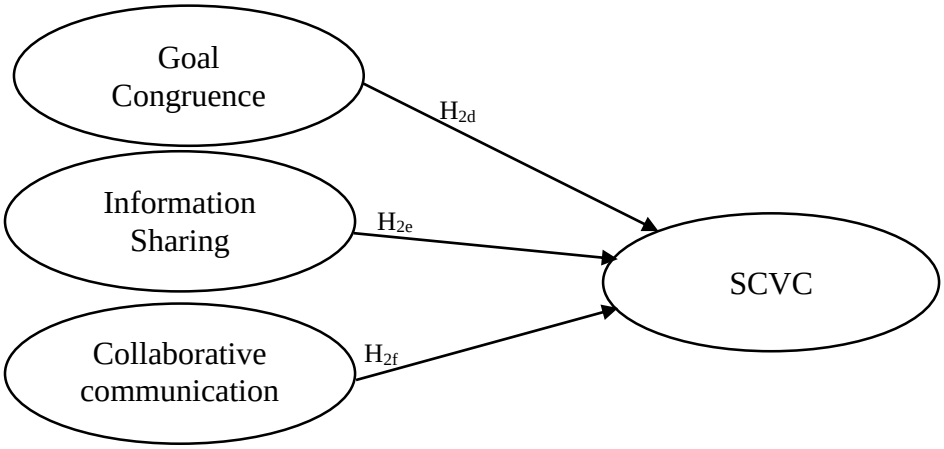
H_{2d}: *There is a positive relationship between goal congruence and SCVC in the relationships between SMEs and their customers*

H_{2e}: *There is a positive relationship between information sharing and SCVC in the relationships between SMEs and their customers*

H_{2f}: *There is a positive relationship between collaborative communication and SCVC in the relationships between SMEs and their customers*

The above hypotheses are displayed in the path diagram below.

Figure 9: Path diagram



5.14.2 Structural and measurement variables

The table 20 below shows the definition of the structural model, the measurement model and the manifest variables. Three exogenous variables, namely goal congruence, information sharing and collaborative communication, were regressed on customer value in the structural model. The indicators of each of the variables in the structural model, selected during EFA, were established after CFA. The details of each indicator are given in Appendix 1.

In the case of customers, goal congruence was measured using three items: SCGC11, SCGC12, and SCGC13. For information sharing, three items were similarly utilized to

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measure information sharing: SCIS13, SCIS14, and SCIS15. In addition, collaborative communication was measured using three items; SCCM11, SCCM12 and SCCM13.

Table 20: Definition of structural and measurement variable

Structural model	
Endogenous variable	**Exogenous variables**
SCVC	Goal congruence, Information sharing, Collaborative communication
Measurement model	
Exogenous	**Manifest variables**
SCVC	CV1, CV2, CV4, SV1, SV3, SV6
Goal congruence	SCGC11, SCGC12,SCGC13
Information sharing	SCIS13, SCIS14, SCIS15
Collaborative communication	SCCM11, SCCM12, SCCM13

5.14.3 Measurement and structural model estimation

CFA revealed that the p-value of the indicators that loaded on the measurement model were statistically significant, displaying a 95% confidence level for all three: information sharing, goal congruence and collaborative communication. This was sufficiently convincing evidence to proceed with the estimation of the structural model for the three factors.

The results from the estimation of the structural model revealed that the relationship between information sharing and SCVC was positive and significant at 0.227 (p=0.004). The relationship between goal congruence and SCVC was negative and significant, at -0.205 (p=0.004). Finally, the relationship between collaborative communication and SCVC was also positive but not statistically significant, at 0.113 (p=0.08). These outcomes provided good evidence for rejecting hypotheses; H_{2e} and $H_{2f.}$ Hypothesis H_{2d} was rejected due to the negative relationship between goal congruence and SCVC. Information sharing emerged as the most important factor, because of the large influence it exerted on SCVC. Collaborative communication was also important, but had very small effects on SCVC. In this study, SCVC was measured in terms of customer service level, timely delivery of supplies to customers, flexibility and suppliers' ability to improve quality.

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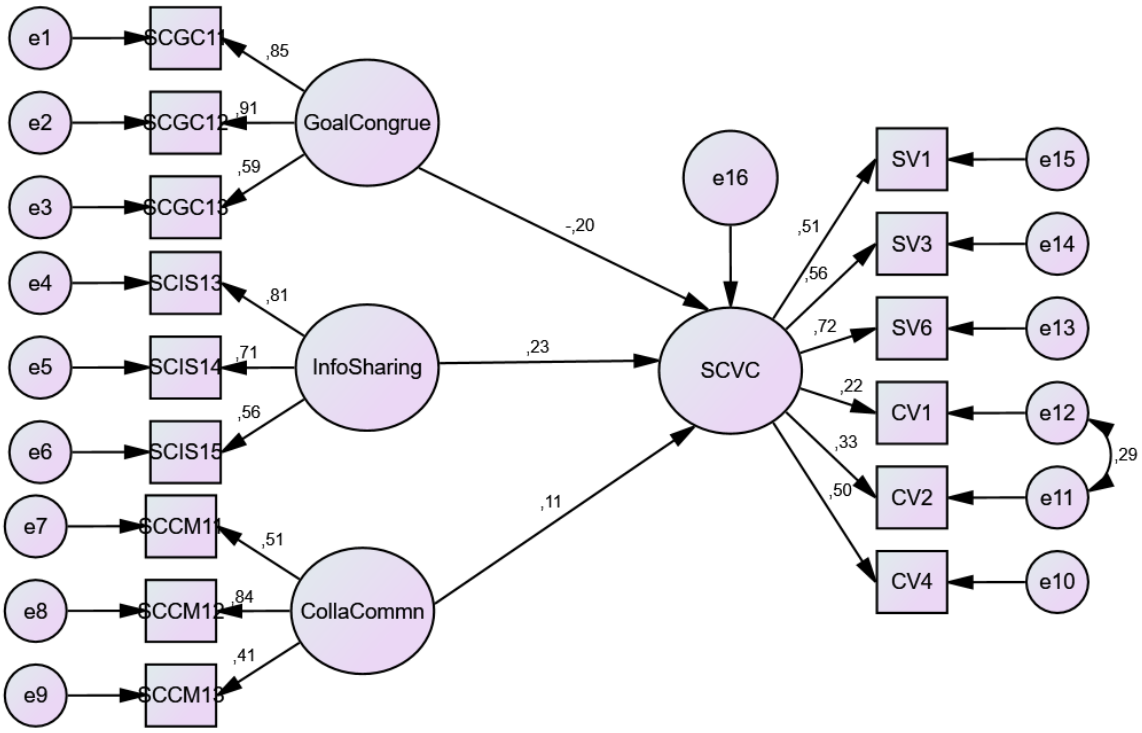
Figure 10: Structural Model Estimation



Key: GoalCongrue (Goal congruence), InfoSharing (Information sharing), CollaCommn (collaborative communication) SCVC (supply chain value creation)

5.14.4 Evaluating goodness-of-fit indices:

The GFIs generated from the estimation of the above structural model are presented in Table 21 below. The results indicated that the ratio of chi-square to the degree of freedom was 2.278, which suggests a good fit. The RMSEA value of 0.071 also indicated a good fit, since at 90% confidence interval, both the lower limit (0.055) and the upper limit (0.097) of RMSEA were within the acceptable range. GFI is expected to be above 0.9, which this model achieved. Overall, the model fit indices confirm that the data demonstrate a good fit and thus the data utilized to estimate the model was adequate to support hypothesis six (H_6).

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Table 21: Goodness of Fit indices

Goodness –of- fit Criteria	
Sample size	294
Degree of freedom	51
Satorra- Bentler scaled Chi-square (χ^2)	125.948 p=.000
Chi-square (χ^2)/Degrees of Freedom	2.278
Root Mean square error approximation	0.071
90% Confidence Interval for RMSEA	0.055, 0.087
Goodness of Fit index (GFI)	0.935
Comparative Fit Index (CFI)	0.905

5.15 Sub model 4: Trust for suppliers

As in the case of supply chain collaboration, trust in the relationship between SME owner-managers and suppliers was measured separately from trust in the relationship between SME owner-managers and their customers. For suppliers, the relationship between supply chain trust and SCVC is discussed below.

5.15.1 Hypotheses and path diagram

The initial theoretical model considered three factors that were utilized to measure supply chain trust in a supply chain relationship. However, the results of EFA generated two factors with explanatory power for supply chain trust in local supply chains. These are characteristic factors and rational factors. Characteristic factors are judged based on the partners' past experiences, while rational factors represent a manager's willingness to take risks. These factors were used to evaluate the level of trust in supply chain relationships. Items utilized to measure institutional factors were eliminated during EFA because of their low factor loadings and lack of convergent validity. Consequently, only two factors (characteristic factors and rational factors) formed the basis for the hypotheses below.

> H_{3a}: *There is a positive relationship between characteristic factors and SCVC in the relationship between SMEs and their suppliers*
>
> H_{3b}: *There is a positive relationship between rational factors and SCVC in the relationship between SMEs and their suppliers*

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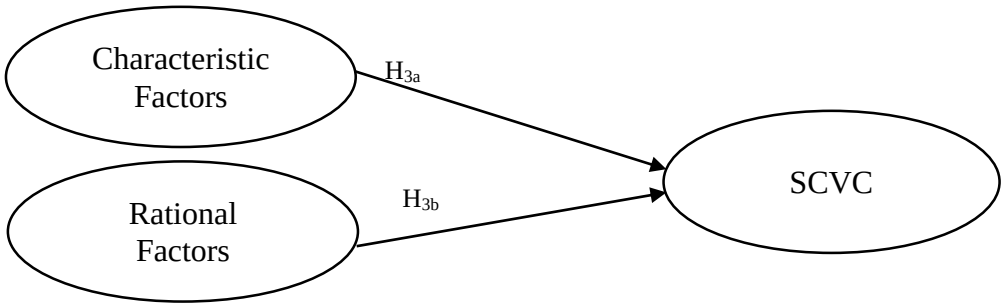
Figure 11: Path diagram



5.15.2 Structural and measurement variable

The CFA performed on supply chain trust confirmed two factors that loaded on supply chain trust: characteristic factors and rational factors. Definitions of the endogenous, exogenous and manifest variables are provided in Table 22 below. Rational factors were measured using three indicators: RWS2, RWS4 and PRS3, and characteristic factors were also measured using three different indicators: PRS2, PRS4 and NRS1. SCVC was measured using items SV1, SV3, SV6, CV1, CV2 and CV4. Definitions of the items in Table 23 can be found in Appendix 1.

Table 22: Definition of structural and measurement variable

Structural model	
Endogenous variable	**Exogenous variable**
SCVC	Rational Factors, Characteristics factors
Measurement model	
Exogenous variable	**Manifest variables**
SCVC	SV1, SV3, SV6, CV1, CV2 and CV4
Rational factors	RWS2, RWS4, PRS3
Characteristics factors	PRS2, PRS4, NRS1

5.15.3 Measurement and structural model estimation

The p-values for the items utilized to measure the factors of supply chain trust in the measurement model exceeded the minimum critical value of 1.96 ($p<0.05$). Because of this outcome, the structural model was subjected to empirical testing.

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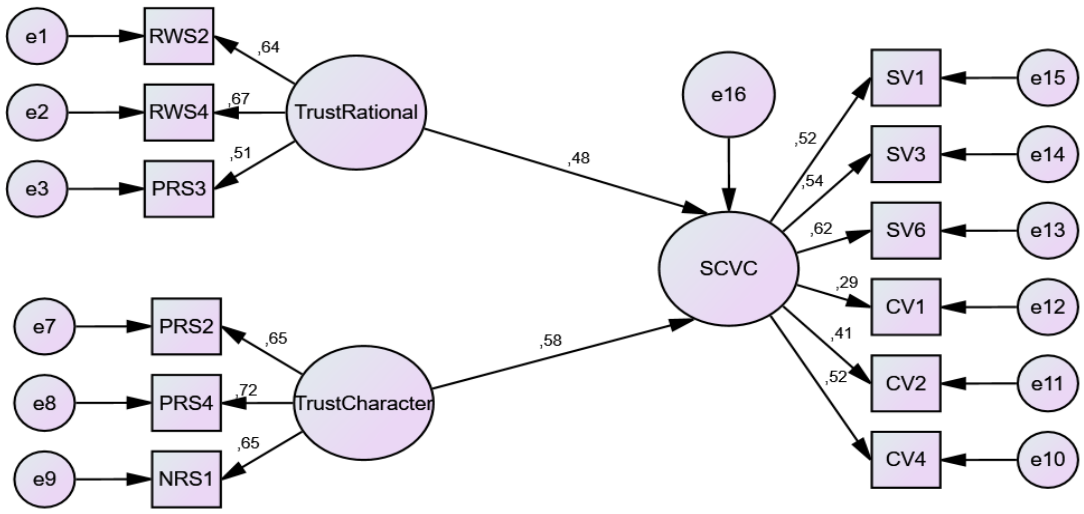
The results from estimating the relationships between supply chain trust factors (characteristics factors and rational factors) and supplier value show positive and statistically significant effects. The path coefficient of the relationship between characteristic factors and SCVC was 0.576 (P=0.000), and the coefficient for the relationship between rational factors and SCVC was 0.477 (P=0.000). This implies that there is a positive relationship between supply chain trust and SCVC. This provided the basis for accepting hypotheses H_{3a} and H_{3b}. Figure 14 below represents the measurement and structural models.

Figure 12: Structural Model Estimation



Key: TrustRational (Rational Factors), TrustCharacter (Characteristic factors), SCVC (supply chain value creation)

5.15.4 Evaluating goodness of fit indices

The GFIs for the structural model in Figure 14 above are reported in Table 23 below. The ratio of chi-square (χ^2) to degrees of freedom is 1.183, representing a very good fit. The

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chi square p-value of 0.240 is a good indication that the default model is not significantly different from the saturated model. The RMSEA of 0.025 indicates a very close fit, with the upper limit of RMSEA at 0.055 and the lower limit at 0.00. GFI was above 0.9, signifying that the data utilized in the analysis had a very close fit to the saturated model. The table below gives the detailed estimate for each of the indices.

Table 23: Goodness of fit indices for the structural model

Goodness-of- fit criteria	
Sample size	294
Degree of freedom	52
Satorra- Bentler scaled Chi-square (χ^2)	87.616, p=0.001
Chi-square (χ^2)/Degrees of Freedom	1.685
Root Mean square error approximation	0.048
90% Confidence Interval for RMSEA	0.030, 0.066
Goodness of Fit index (GFI)	0.953
Comparative Fit index (CFI)	0.940

5.16 Sub model 5: Trust for customer value

In terms of trust in the relationship between SME owner-managers and customers, the initial theoretical model considered three factors that could be utilized to measure supply chain trust. However, the results of EFA generated two factors with explanatory power for supply chain trust in customer relationships: characteristic factors and rational factors. Similarly, the items utilized to measure institutional factors were eliminated during EFA because of their low factor loadings and lack of convergent validity. Thus, only characteristic factors and rational factors formed the basis for the hypotheses below.

5.16.1 Hypotheses and path diagram

H_{3d}: *There a positive relationship between characteristics factors and SCVC in supplier relationships*

H_{3e}: *There a positive relationship between rational factors and SCVC in customer relationships*

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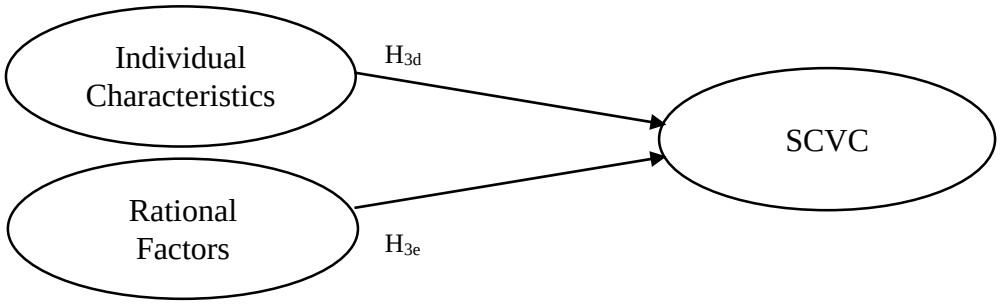
Figure 13: Path diagram



5.16.2 Structural and measurement model

The structural and measurement models are defined in the table below. Table 24 indicates how the endogenous factor (SCVC) was measured using six manifest variables: SV1, SV3, SV6, CV1, CV2 and CV4. Although the measurement model had been constructed for the three factors that were customarily utilized to measure supply chain trust. However, CFA suggested that only two of these factors (rational and characteristic factors) should be retained in the model. The manifest variables utilized to measure rational factors comprised PRC1, PRC2 PRC3, details of which are provided in Appendix 1. The items utilized to measure characteristic factors were items NRC2 and RWC1.

Table 24: Definition of structural and measurement model

Structural model	
Endogenous variable	**Exogenous variable**
SCVC	Rational factors, Characteristic factors
Measurement model	
Exogenous variable	**Manifest variables**
SCVC	CV1, CV2, CV4, SV1, SV3, SV6
Rational factors	PRC1, PRC2, PRC3
Characteristic factor	NRC2, RWC1

5.16.3 Measurement and structural model estimation

The p-value for the factor loadings in the measurement model exceeded the critical value of 1.96 ($p<0.05$), which was a clear motivation to proceed with estimating the structural model. The results from the analysis revealed a positive coefficient of 0.696 ($p=0.000$) for the relationship between characteristic factors and SCVC. This result offered sufficient

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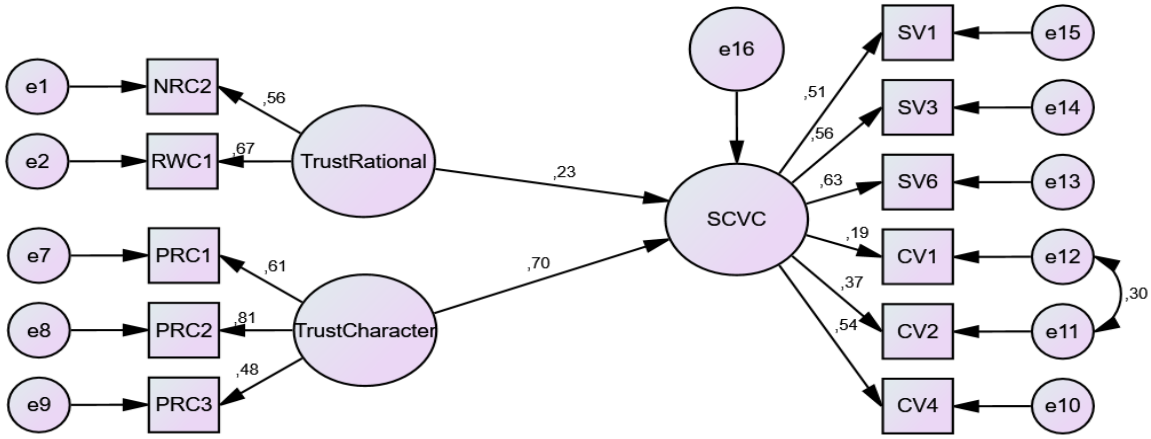
evidence to accept hypothesis H_{5c}. In addition, the regression coefficient of 0.228 (p=0.010) estimated for the relationship between rational factors and SCVC was positive and significant. These results supported the decision to accept hypotheses H_{5c} and H_{5d}. The implication of these results is that trust between SME owner-managers and customers is influenced by both individual characteristics and rational factors. Figure 16 below shows the structural and measurement model.

Figure 14: Structural Model Estimation



Key: TrustRational (Rational Factors), TrustCharacter (Characteristic factors), SCVC (supply chain value creation)

5.16.4 Evaluating goodness of fit indices

The GFIs for the structural model in the above figure are reported here. The ratio of chi-square to degrees of freedom is 2.014, which represents a good fit. The RMSEA of 0.059 indicated acceptable fit, and the upper limit of RMSEA (0.077) at 90% confidence interval was also within the acceptable range, signifying that the data fits the model. Both GFI, at

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0.952, and CFI, at 0.920 are above 0.9, which also indicates a good fit. The model fit indices are presented in Table 25 below.

Table 25: Goodness of fit indices for the structural model

Goodness -of- fit Criteria	
Sample size	294
Degree of freedom	41
Satorra- Bentler scaled Chi-square (χ^2)	82.567, P=0.000
Chi-square (χ^2)/Degrees of Freedom	2.014
Root Mean square error approximation	0.059
90% Confidence Interval for RMSEA	0.040, 0.077
Comparative Fit Index (CFI)	0.952
Goodness of Fit index (GFI)	0.920

5.17. Moderation effects of supply chain trust on SCVC

Testing for moderation of continuous variables is typically a test for the influence of the interaction term/product term on the outcome variable. The interaction term was created by multiplying the independent variable and the moderator variable. The outcome was incorporated into the model together with both the independent and moderator variables, to monitor the direction and significance of its estimates and overall model fit.

In testing the moderation effects, those factors with high reliability values were considered for inclusion as moderators, because multiplying two factors that already have small reliability, results in a product term with smaller reliability values. This methodological problem deflates the interaction effect. The study tested the interaction between supply chain trust and those factors showing positive relationships on SCVC, as per the hypotheses. In addition, the study provides a graphical interpretation of results only for the models that showed the presence of moderation. This is because, where there are no moderation effects, the slope for lines that display moderation does not change. Thus, the moderation effects of supply chain trust on the independent variable were reported for collaborative communication, information sharing and opportunity competence and commitment competence. Models were constructed accordingly: each with three latent variables – the independent variable, the moderator variable and the interaction term. Since the interaction term is a product of the independent variable and the moderator

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variable, the possibility of encountering a collinearity problem was very high. To guard against this, a residue centering technique was utilized in creating the product term.

Moderation was tested at construct level but also at dimension level. At construct level, the study found no indication of moderation except at dimension level. At construct level, the indicators with low factor loadings deflated interaction effect when multiplied with other indicators with high factor loading. The risk of deflation increases with the number of items on the construct. Whenever a dimension of such opportunity competence was tested alone, the interaction term improved in size. This prompted the researcher to test moderation at dimension level for items that had high reliability values. Dimensions with lower reliability, and so insignificant moderation effects, are not reported.

5.17.1 Sub model 6: Interaction between supply chain trust and collaborative communication on supplier value

It was hypothesized that trust moderates the relationship between collaborative communication and supplier value creation. To interpret the interaction effects, focus was placed on the coefficient of the interaction term, to establish whether it is significant and whether model fit improved when the interaction term was included in the model. The interaction term was generated through a two-stage OLS technique using SPSS Statistics. The outcome was incorporated into the structural model to assess its effects on the outcome variables. The hypothesis and path diagram formulated to test the interaction effect is shown below.

5.17.2 Hypothesis and path diagram

> **H_{5a}**: *Trust positively moderates the relationship between collaborative communication and supplier value*

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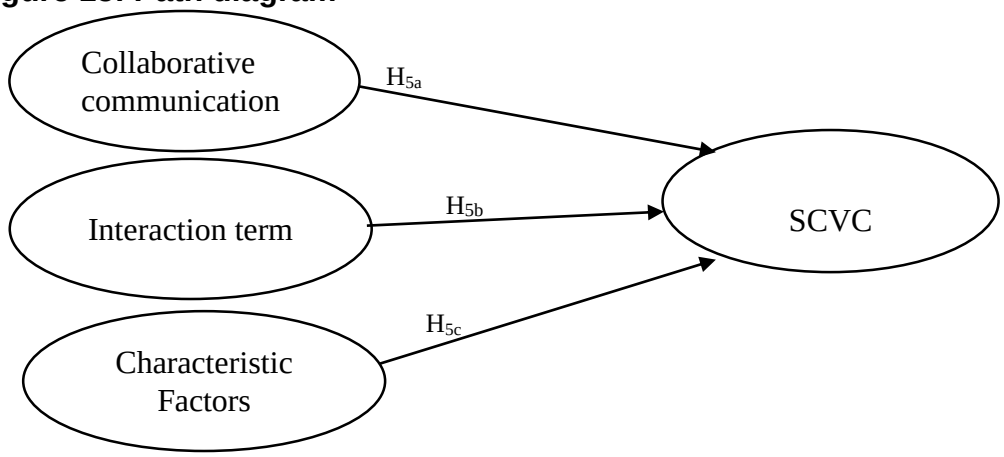
Figure 15: Path diagram



5.17.3 Structural and measurement variable

The structural and measurement models are defined below. Table 26 shows how the endogenous factor (supplier value) was measured using three manifest variables; SV1, SV3 and SV6. The manifest variables utilized to measure supply chain trust (characteristic factors) were PRS2, PRS4 and NRS1. Characteristic factors were considered in estimating the moderation effect because they had a large effect on SCVC. It is advisable to employ a variable with a high reliability figure, because when the factors that are multiplied have low reliability levels, the product term will be very weak in its influence on the model. Characteristic factors had higher reliability values and a greater impact on SCVC than rational factors. The items utilized to measure the interaction term are residues, generated through a two-stage OLS process. The variables representing the measurement and structural model are presented the table below.

Table 26: Definition of structural and measurement variables

Structural model	
Endogenous variable	**Exogenous variable**
Supplier value	Collaborative communication, Characteristic factors, Interaction term
Measurement model	
Exogenous variable	**Manifest variables**
Collaborative communication	SCCM1, SCCM2, SCCM5
Characteristic factors	PRS2, PRS4, NRS1
Interaction term	Residual values

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5.17.4 Measurement and structural model estimation

The analysis was conducted in two stages (Little et al., 2006). In stage one, the un-centered indicators of collaborative communication were multiplied by the un-centered indicators of characteristic factors. This multiplication of indicators resulted in nine products. Each of the product terms was regressed on all un-centered indicators. The residues for each of the regression outcomes were saved in the data set, and used in stage two. The outcome of the regressions resulted in nine residuals, which were then utilized for the measurement of the latent interaction term.

In stage two, the structural model was constructed. In this model, the nine residual items were specified as indicators of the latent interaction term. Both collaborative communication and characteristic factors utilized un-centered indicators for the measurement model. For each factor, the factor loading of one of the items was fixed to one to provide a scale for the respective latent variable. Additionally, covariances were specified between pairs of the residual product indicators. Residual centering technique sets the covariance between the interaction term, the moderator variable and the independent variable at zero, to rule out multicollinearity.

Estimating the structural model with the interaction term revealed a negative coefficient of the interaction term at -0.036 (p=0.143). This outcome is negative (but also not statistically significant) and suggests the rejection of hypothesis H_{5b}. This implies that the positive effect of collaborative communication on supplier value does not depend on the level of trust in supply chain relationships. The structural model used to estimate the interaction effect between collaborative communication and trust on supplier value is presented in Appendix 4.

5.17.5 Evaluating goodness of fit indices

The GFIs for the structural model utilized to estimate the interaction between collaborative communication and characteristic factors on supplier value are reported in Table 27 below. The ratio of chi-square (χ^2) to degrees of freedom is 1.308, which is within the acceptable

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range of 1 - 3. The value of RMSEA was at 0.032, which indicates good fit, while the upper limit of RMSEA (0.050) at 90% confidence interval was below the cut-off point of 0.08, signifying that the data displays a very good fit. Both CFI and GFI were above 0.9, which indicates an excellent fit. Overall the results suggest that the data used in the analysis of the interaction between collaborative communication and characteristic factors on supplier value have an excellent fit.

Table 27: Goodness -of- Fit indices

Goodness -of- fit criteria	
Sample size	294
Degree of freedom	65
Satorra- Bentler scaled Chi-square (X^2)	85.035, P=0.048
X^2 /Degrees of Freedom	1.308
Root Mean square error approximation	0.032
90% Confidence Interval for RMSEA	0.003, 0.050
GFI	0.962
CFI	0.982

5.18 Sub model 7: Interaction between trust and information sharing on customer value

It was hypothesized that trust moderates the relationship between information sharing and SCVC. To test this interaction effect, focus was placed on the direction and level of significance of the coefficient of the interaction term. The hypothesis and path diagram formulated to test the interaction effect is shown below.

5.18.1 Revised hypothesis and path diagram

> **H_{5c}**: *Trust moderates the positive relationship between information sharing and SCVC*

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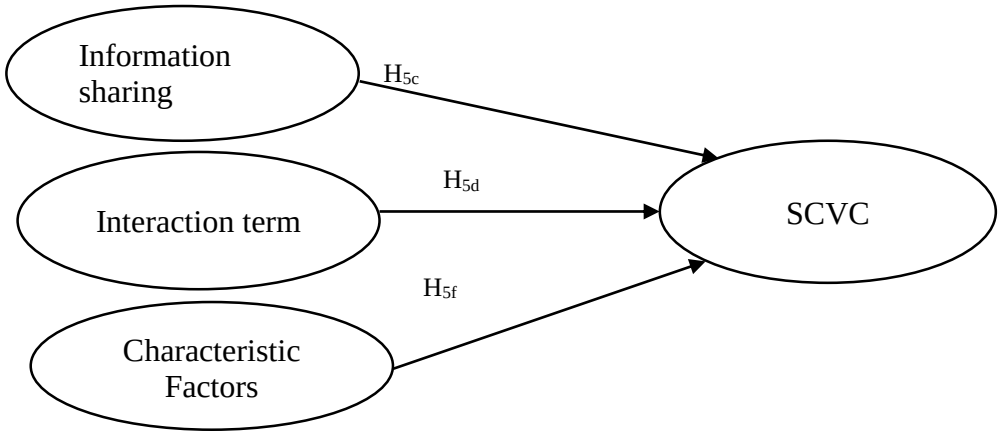
Figure 16: Path diagram



5.18.2 Structural and measurement variable

The structural and measurement model are defined in Table 28 below. The table shows how the endogenous factor (customer value) was measured, using three manifest variables: CV1, CV2 and CV4. The manifest variables utilized to measure supply chain trust (characteristic factors) comprised PRS2, PRS4, and NRS1. The items utilized to measure the interaction term are the residues generated through a two-stage OLS process. Table 28 below shows the variables representing the measurement and structural models. The items utilized to measure these variables are defined in Appendix 1.

Table 28: Definition of structural and measurement variable

Structural model	
Endogenous variable	**Exogenous variable**
Customer value	Information sharing, Characteristic factors, Interaction term
Measurement model	
Exogenous variable	**Manifest variables**
Information sharing	SCIS13, SCIS14, SCIS15
Characteristic factors	PRS2, PRS4, NRS1
Interaction term	Residuals values

5.18.3 Measurement and structural model estimation

The analysis was conducted in two stages. In stage one, the un-centered indicators of information sharing were multiplied with un-centered indicators of supply chain trust. This resulted in nine product terms. Each of the product terms was regressed on all un-centered

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indicators. The residues for each of the regressions were saved in the data set. The outcome resulted in nine residuals, which were utilized to measure the latent interaction term variable.

In stage two, the structural model was constructed, including the interaction term, the moderator variable, the independent variable and the outcome variable. The nine residual items generated in stage one were specified as indicators of the latent interaction term, and the un-centered indicators were utilized as indicators of information sharing and supply chain trust. In addition, for each of the factors, the factor loading of one of the items was fixed to one to provide a scale for the respective latent variable. Furthermore, covariances were specified between pairs of the residual product indicators to reduce the risk of multicollinearity. The estimated structural model is presented in Appendix 4.

The overall results of the analysis show that the interaction effect was negative at -0.025 (p=0.414), but not significant. The fact that this outcome is not statistically significant suggests that the effect of information sharing on customer value does not depend on the level of trust in supply chain relationships. This is reasonable because some information can be shared even in the absence of trust. Evidence from Wu (2008) shows that information sharing plays a mediating role between trust and competitive improvement. In addition, Nyaga et al. (2010) have observed that collaborative activities such as information sharing lead to trust and commitment. Their study reveals that the relationship between collaboration, collaborative performance and satisfaction is mediated by trust and commitment (Nyaga et al., 2010). Based on all this, the moderating role of trust in the relationship between information sharing and customer value may not be admissible.

5.18.4 Evaluating the Goodness of Fit estimation

The Goodness of Fit indices for the structural model used to estimate the interaction between information sharing and trust on customer value are reported in table 29 below. The ratio of chi-square (χ^2) to degrees of freedom is 1.314, which is within the acceptable range of 1-3. The value estimated for RMSEA was 0.033, which indicates good fit, and the

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upper limit of RMSEA (0.046) at 90% confidence interval was below the cutoff point of 0.08, signifying that the data had very good fit. GFI was above 0.9 indicating a good fit. Overall, the results suggest an excellent fit.

Table 29: Goodness of Fit indices

Goodness -of-fit criteria	
Sample size	294
Degree of freedom	114
Satorra- Bentler scaled Chi-square (X^2)	149.762, P=0.014
X^2 /Degrees of Freedom	1.314
Root Mean square error approximation	0.033
90% Confidence Interval for RMSEA	0.016, 0.046
GFI	0.948
CFI	0.976

5.19. Sub model 8: Interaction effect between trust and opportunity competence on supply chain value

It was hypothesized that supply chain trust moderates the relationship between opportunity competence and supply chain value. To test this moderation effect, attention was given to the size and direction of the coefficient of the interaction term. It was predicted that higher levels of trust strengthen the positive relationship between opportunity competence and SCVC. Based on this, the following hypotheses are stated:

5.19.1 Revised Hhypotheses and path diagram

H_{4c}: *Trust positively moderates the relationship between opportunity competence and customer value*

H_{4d}: *Trust positively moderates the relationship between opportunity competence and supplier value*

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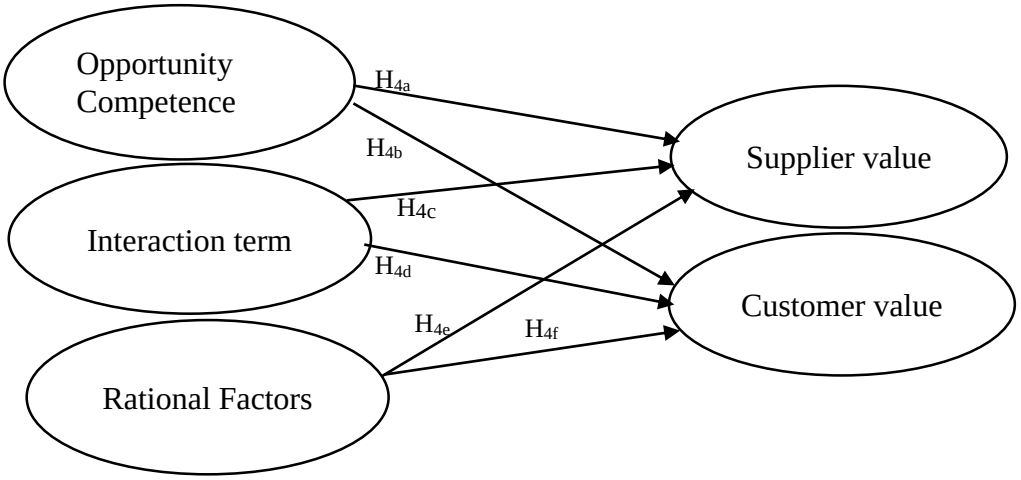
Figure 17: Path diagram



5.19.2 Structural and measurement variable

The structural and measurement models are defined in Table 30 below. Two endogenous factors were considered for the structural model: supplier value and customer value. The latter was measured using items; CV1, CV2 and CV4, and the former using items SV1, SV3 and SV6. The manifest variables utilized to measure supply chain trust (characteristic factors) comprised operational flexibility (PRS2), fairness of suppliers (PRS4) and good market credibility (NRS1). The items utilized to measure the interaction term are the residues generated via a two-stage OLS process.

Table 30: Definition of structural and measurement variable

Structural model	
Endogenous variable	**Exogenous variable**
Supplier value Customer value	Opportunity competence, Characteristic factors, Interaction term
Measurement model	
Exogenous variable	**Manifest variables**
Opportunity competence	OP1, OP2, OP3
Characteristic factors	PRS2, PRS4, NRS1
Interaction term	Residue values

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5.19.3 Measurement and structural model estimation

The analysis was conducted in two stages. Stage one involved the use of the un-centered indicators of opportunity competence. These were multiplied with un-centered indicators of characteristic factors. This resulted in nine product terms. Each of the product terms was regressed on the un-centered indicators. The residues for each of the regression estimates was saved in the data set and used in stage two. The outcome of the regression resulted in nine residuals which were utilized for the measurement of the latent interaction term.

In stage two, the interaction term was incorporated into the structural model representing the relationships between characteristic factors, opportunity competence and the outcome variables. The nine residual items were specified as indicators of the latent interaction term. For each factor, the factor loading of one of the items was fixed to one to provide a scale for the respective latent variable. Furthermore, covariances were specified between the pairs of residual product indicators.

Regarding suppliers, the effect of the interaction between characteristic factors and opportunity competence on supplier value was positive and significant at 0.187 (p=0.038). This implies that hypothesis H_{4c} is supported. In other words, the results suggest that the effect of opportunity competence on supplier value depends on the level of trust in the relationship between SME owner-managers and their suppliers. The positive value of the coefficient for the interaction term suggests that trust strengthens the positive relationship between opportunity competence and supplier value. Conversely, very low levels of trust may erode the benefits created by a manager's opportunity competence. The structural model estimated to establish the moderation is presented in Appendix 4a.

The presence of moderation effects is explained using the slope of the interaction term. Where both lines (which indicate the level of trust) have the same slope, it implies there is no moderation. Figure 20 below shows that the slope of both these lines is not the same. Figure 20 below thus provides substantiating evidence for the interaction between trust and opportunity competence on supplier value.

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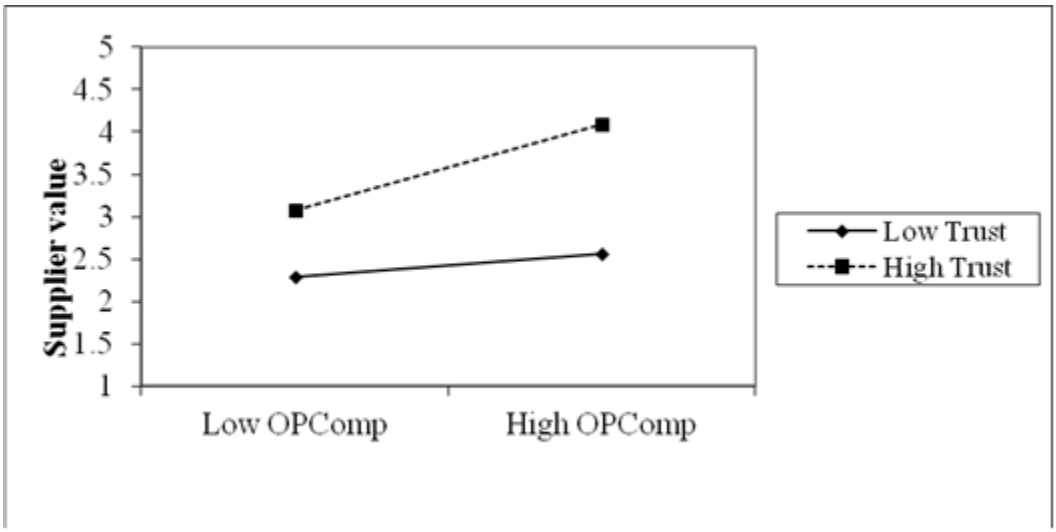
Figure 18 Interaction effect between Trust and opportunity competence on supplier value



5.19.4 Evaluating the Goodness of Fit indices

The GFIs for the structural model estimated to establish the moderation in the above figure are reported in Table 31 below. The ratio of chi-square (χ^2) to degrees of freedom is 1.056, which is within the acceptable range of 1-3. The RMSEA (0.014) indicated good fit and the upper limit of RMSEA (0.031) at 90% confidence interval was below the cutoff point of 0.05, signifying that the data fits the model. Both GFI and CFI were above 0.9, indicating excellent fit. Overall the results suggest an excellent fit.

Table 31: Goodness of Fit indices

Goodness -of- fit Criteria	
Sample size	294
Degree of freedom	144
Satorra- Bentler scaled Chi-square (X^2)	74.354.47, P=0.998
X^2 /Degrees of Freedom	0.652
Root Mean square error approximation	0.000
90% Confidence Interval for RMSEA	0.000, 0.000
CFI	1.000
GFI	0.973

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Concerning customers, the interaction effect between supply chain trust and opportunity competence on customer value was negative but not statistically significant at -0.141 (p=0.137). This means that the influence of opportunity competence on customer value does not depend on the level of trust in the relationship between SME owner-managers and their customers. The results therefore suggest that hypothesis H_{4d} is not supported.

5.20 Sub model 9: Interaction effects of trust and commitment competence on supply chain value

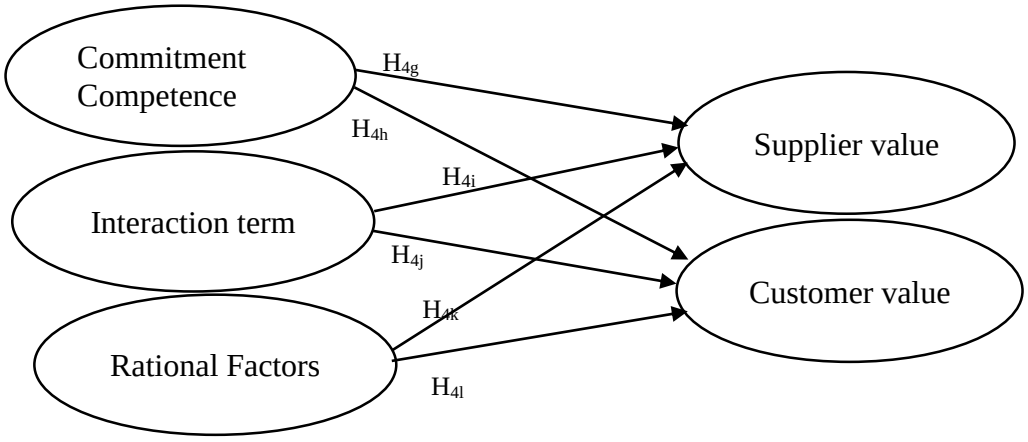
It was hypothesized that supply chain trust moderates the positive relationship between commitment competence and supply chain value. To test the interaction effect, attention was given to the direction and size of the coefficient of the interaction term and to model fit. The study predicted that high levels of trust will strengthen the positive relationship between commitment competence and supply chain value. The hypotheses formulated to test the moderation effect are given below.

5.20.1 Revised hypothesis and path diagram

H_{4g}: *Trust positively moderates the relationship between commitment competence and customer value*

H_{4h}: *Trust positively moderates the relationship between commitment competence and supplier value*

Figure 19: Path diagram



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5.20.2 Structural and measurement variable

The structural and measurement models are defined in Table 32 below. This table shows how the endogenous factor (supplier value) was measured using three manifest variables: SV1, SV3 and SV6. The manifest variables utilized to measure supply chain trust (characteristic factors) comprised PRS2, PRS4 and NRS1 and the items utilized to measure commitment competence were CMC1 and CMC2. The items utilized to measure the interaction term are residual values generated in a two-stage OLS process.

Table 32: Definition of structural and measurement variable

Structural model	
Endogenous variable	**Exogenous variable**
Supplier value Customer value	Opportunity competence, Characteristic factors, Interaction term
Measurement model	
Exogenous variable	**Manifest variables**
Commitment competence	CMC1, CMC2
Characteristic factor	PRS2, PRS4, NRS1
Interaction term	Residue values

5.20.3 Measurement and structural model estimation

The analysis was conducted in two stages. In stage one, the un-centered indicators of commitment competence were multiplied with un-centered indicators of characteristic factors. This resulted in twelve product terms. Each of the product terms was regressed on all the un-centered indicators. The residues for each of the regression outcomes were saved in the data set. The six residuals were utilized in the measurement model as indicators of the latent interaction term.

In stage two, the structural model was constructed. The interaction term was incorporated into the structural model for the relationships between characteristic factors, commitment competence and supplier value. For each factor, the factor loading of one of the items was fixed to one to provide a scale for the respective latent variable. Furthermore, covariances were specified between pairs of the error terms on the indicators of the interaction term.

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The analysis shows that, in relation to suppliers, the interaction effect was negative at -0.752 (p=0.211) but not significant. In other words, the results also suggest that the effect of commitment competence on supplier value does not depend on the level of trust in the relationships between SMEs managers and their suppliers. The negative direction of the coefficient for the interaction term suggests that high levels of trust dampen the positive relationship between relationship competence and supplier value, though the impact is not sufficiently significant to cause a reduction in supplier value.

Concerning customers, the interaction effect was also negative but not significant at -0.678 (p=0.185). In other words, the results suggest that the effect of commitment competence on the creation of customer value does not depend on the level of trust in relationships between SME owner-managers and customers. The negative direction of the coefficient for the interaction term suggests that high levels of trust dampen the positive relationship between relationship competence and supplier value, though the impact is not sufficiently significant to cause a reduction in customer value.

5.20.4 Evaluating the goodness of fit indices

The Goodness of Fit indices for the structural model in the above figure are reported in table 33 below. The ratio of chi-square (χ^2) to degrees of freedom is 1.146, which is within the acceptable range of 1-3. The RMSEA (0.022) indicated excellent fit, whereas the upper limit of RMSEA (0.039), at 90% confidence interval, was below the cutoff point of 0.05, signifying that the data displays perfect fit. Both GFI and CFI were above 0.9, indicating excellent fit. Overall, the results suggest an excellent fit.

Table 33: Goodness -of- Fit criteria

Goodness-of-fit-criteria	
Sample size	294
Degree of freedom	104
Satorra- Bentler scaled Chi-square (X^2)	119.217, P=.146.
X^2 /Degrees of Freedom	1.146
Root Mean square error approximation	0.022
90% Confidence Interval for RMSEA	0.000, .039
CFI	0.955
GFI	0.985

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5.21 Summary of results

The summary of results from testing the various research hypotheses is presented in the Table 34 below, which presents the different hypotheses, the evidence from structural equation modelling, the p-values, and the hypotheses that are supported.

Table 34: Summary of results and hypotheses

Hypotheses	Evidence	Significant?	Supported?
H_{1a}: *Opportunity competence -->SCVC*	0.398**		Yes
H_{1b}: *Commitment Competence-->SCVC*	0.273**		Yes
H_{2a}: *Goal congruence---> SCVC (Suppliers)*	-0.148**		Not
H_{2b}: *Information Sharing ---> SCVC (Suppliers)*	0.034	(ns)	Not
H_{2c}: *Collaborative Communication --->SCVC (Suppliers)*	0.387***		Yes
H_{2d}: *Goal congruence ---> SCVC (Customer)*	-0.205**		Not
H_{2e}: *Information Sharing---> SCVC (Customer)*	0.227**		Yes
H_{2f}: *Collaborative Communication---> SCVC (Customer)*	0.113	(ns)	Not
H_{3a}: *Characteristic Factors---> SCVC (Supplier)*	0.576***		Yes
H_{3b}: *Rational Factors---> SCVC (Supplier)*	0.477***		Yes
H_{3c}: *Rational Factors ---> SCVC (Customer)*	0.210**		Yes
H_{3d}: *Characteristic Factors--> SCVC (Customer)*	0.696***		Yes
Interaction	**Interaction effect:**		
H_{4a}:Trust moderates the relationship between Opportunity competence and SCVC (customers)	-0.141	(ns)	Not
H_{4b}:Trust moderates the relationship between opportunity competence and SCVC (suppliers)	0.187 **		Yes
H_{4c}:Trust moderates the relationship between commitment competence and SCVC (customers)	-0.752	(ns)	Not
H_{4d}:Trust moderates the relationship between commitment competence and SCVC (suppliers)	-0.678	(ns)	Not
H_{5a}:Trust moderates the relationship between Collaborative communication and SCVC (suppliers)	- 0.036	(ns)	Not
H_{5b}: Trust moderates the relationship between Information sharing and SCVC (customers)	-0.025	(ns)	Not

(ns) –Not significant, *** P<0.001; ** P<0.05

The results from the analysis presented above confirm a positive relationship between entrepreneurial competencies and SCVC. However, not all competence areas were

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supported. Out of the four competence areas (opportunity competence, commitment competence, innovative competence and analytical competence) predicted to have a positive impact on SCVC, only two were found to influence SCVC in local SME supply chains within Uganda. The most influential competence areas in the management of local SME supply chains in Uganda were opportunity competence and commitment competence. Commitment competence mainly influenced the value created for the focal firm, but did not benefit customers. Both analytical and innovative competencies were eliminated from the model because these competence areas were not common among the entrepreneurs sampled.

Regarding collaboration, the analysis revealed a positive relationship between supply chain collaboration and SCVC. The evidence presented in Table 34 above shows that out of the three factors (goal congruence, information sharing and collaborative communication) utilized to test the relationship between supply chain collaboration and SCVC, only two were supported. Specifically, the relationship between goal congruence and supplier value was negative, and the relationship between goal congruence and customer was positive but not significant. This implies that SME owner-managers value having a common strategy with their suppliers less than they value this strategic sharing with customers. This affects their level of commitment as members of the supply chain.

Finally, the test for moderation had only one significant result. Whereas the study results portray strong positive effects for the direct relationships between supply chain trust and SCVC, moderation effects were observed in only one variable: the moderating effect of opportunity competence on supplier value.

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CHAPTER SIX
DISCUSSION OF RESULTS

6.1 Introduction

Previous literature offered only scant consideration of the options available to local SMEs involved in local procurement when creating value for their supply chains. SMEs involved in local procurement face serious challenges, underpinning their continued dependence on large companies for survival. This creates a vulnerability to exploitation and opportunistic behaviour on the part of larger companies in their supply chains. Yet as indicated in earlier chapters, understanding how local SMEs can improve supply chain value has important economic, social and environmental implications. This research investigated this gap in the literature by testing three initiators of SCVC: entrepreneurial competencies, supply chain collaboration and supply chain trust, as well as the moderation effects of supply chain trust on value creation. Supply chain trust was examined for both direct and indirect effects to determine its role in influencing value creation in the study context.

We know that the size of a firm determines the nature of the benefits it derives from collaborations (Thakkar et al., 2009). Large companies often squeeze the narrow margins of their smaller supply chain partners in order to dominate local markets. The situation of these smaller partners is exacerbated by emerging trends in procurement practices such as e-procurement and the prioritization of value for money over other procurement goals. This trend has increasingly favoured new global actors penetrating the slowly growing local markets. For instance, in Uganda's Albertine region, contracts to supply foodstuffs to oil-drilling companies are managed by multinational companies, because local firms are less competitive. This study therefore seeks to understand the possible options available to local SMEs to improve value creation, and the new supply chain management capabilities SME owner-managers need to retain their local relevance.

Since trust-based relationships reduce opportunistic behaviours between firms (and depending on the level of proximity between firms involved in local procurement) the level

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of trust in supply chain relationships will certainly influence key economic activities between supply chain partners. Proximity to suppliers causes feelings of trust to develop between customers and suppliers. This is the biggest advantage local actors have over other firms. A local firm in the study context deals with (predominantly) large, as well as small, enterprises downstream, and with many more small companies upstream. These upstream clients usually operate within a short physical distance and can be reached quickly and easily by walking or on public transport. This suggests that SME owner-managers will need to be mindful of their conduct when dealing with clients within the local community boundary for trust building, with alterations in behaviour determined by the level of trust required to create optimal value for the supply chain. This lends considerable theoretical importance to understanding how a manager can alter the level of trust between downstream and upstream clients to enhance supply chain value, and the capabilities needed to manage local SME supply chains.

6.2 Discussion of relationships

The study utilized SEM to test twelve direct relationship between entrepreneurial competencies, supply chain collaboration, supply chain trust on SCVC. Out of the twelves hypotheses that were tested, eight were significant and supported and the four hypotheses were not supported. The discussion below gives a clear explanation of the hypotheses that were supported and those that were not.

6.2.1 The Relationship between entrepreneurial competencies and SCVC

Research Question One was formulated to establish the relationship between entrepreneurial competencies and SCVC. The intention was to probe the key entrepreneurial competence areas that contribute to value creation. The relationship between entrepreneurial competencies and SCVC was tested using four competence areas: innovative, analytical, commitment and opportunity competence. Of the four hypotheses that were tested (H_{1a}, H_{1b}, H_{1c}, H_{1d}), only H_{1a} and H_{1b} were supported in favour of opportunity and commitment competence respectively. These have significant effects on SCVC. This finding confirms the positive relationship between entrepreneurial competence and SCVC. SCVC was measured in terms of customer value and supplier

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value, since internal process value had been eliminated during factor analysis. The factor analysis shows that the items chosen to measure internal value mechanisms are not effective in SMEs studied. This means internal processes are not key value drivers for SMEs in the study context. SMEs mainly depend on external sources of supply chain value. This lack of impact may be explained by the low level of resources present at firm level for SMEs in the study context, which makes it difficult for firms to create value internally. In addition, since SMEs in Ugandan local procurement operate geographically close to one another, the transaction costs associated with local sourcing are minimal (Lentz et al., 2013). Below is a detailed discussion of the relationships.

6.2.2 Relationship between opportunity competence and SCVC (H_{1a})

It was hypothesized that there is a positive relationship between opportunity competence and SCVC (H_{1a}). The outcome from the regression estimated for the relationship between opportunity competence and SCVC was positive and significant, confirming hypothesis H_{1a}. This implies that SME owner-managers competent in recognizing and developing market opportunities and diverse in their methods, were able to improve their firm's routine follow-up procedures (CV1), improve follow-ups on how customer used products and services (CV2), and enhance their firm's ability to meet the due dates set by customers (CV4). This is consistent with Solesvik's (2012) demonstration that successful entrepreneurs are associated with opportunity competence. Solesvik's (2012) work studied the key competencies attained by successful entrepreneurs, but did not show those that are of importance in managing supply chains. The current study adds value to Solesvik's (2012) evidence by demarcating the competencies useful in managing local supply chains. Opportunity competence enables SME owner-managers to create supply chain value through integrating customers into the firm's activities, developing new market opportunities and searching for new ways to integrate the supply chain. When customers become part of the firm's activities, it becomes much easier to reduce risk and lead-time on deliveries and so improve] customer loyalty.

The positive relationship between opportunity competence and SCVC also suggests that involving suppliers in discussions regarding market opportunities had three main benefits.

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It (i) improved suppliers' ability to meet the due dates set by the focal firm (SV1); (ii) influenced the suppliers' level of commitment to quality (SV3); and (iii) enhanced their flexibility in responding to the focal firm's demands and emergencies (SV6). The implication of this result is that if local SMEs need to maximize value from suppliers, the manager's focus should be on upgrading opportunity competence.

Thus, in order to enhance the performance of small suppliers involved in local procurement, it is important to strengthen their competencies in (i) recognizing and developing market opportunities; (ii) searching for new ways to integrate the local supply chain; and (iii) involving new supply chain members in the firm's activities. When SME owner-managers' capacities are developed in these respects, it is likely that focal firms will offer faster response to customer needs and hence increase their appeal to new customers. One way to achieve (ii) – better integration – is by improving information sharing and collaborative communication, and better utilising relevant technology (Leuschner et al., 2013). All these improved competencies, combined, will improve the owner-manager's ability to manage time, adequately respond to customers' needs, and enhance customer service.

If emphasis is given to improving the manager's opportunity competence, this evidence suggests that local sourcing has the potential to improve a firm's operational flexibility, time management, and quality management. To reduce the gap between sales and operations in local SMEs supply chains, there is a need to develop owner-managers' opportunity competence. This will enhance their ability to manage time and product quality. However, we know that local suppliers, operating on a small scale, often struggle to meet quality specifications. This research offers one pointer to a solution: low quality can be addressed when the SMEs create more opportunities for local suppliers and involve them in developing products to suit prevailing demand. The owners of enterprises willing to adopt local procurement, should therefore be ready to invest in capacity building or collaboration to enhance the sharing of competencies.

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6.2.3 Relationship between commitment competence and SCVC (H_{1b})

It was postulated that there is a positive relationship between commitment competence and SCVC. The analysis revealed a significant positive relationship between commitment competence and SCVC, confirming hypothesis H_{1b}. This implies that the owner-managers' commitment competence was effective in ensuring SMEs involved in local supply chains work together. Specifically, SME owner-managers expressed willingness to remain members of local supply network because (i) they genuinely enjoy their relationships (CMC1); (ii) they have positive feelings towards their partners (CMC2); (iii) they expect their relationships with partners to continue for a long time; and (iv) they are hopeful that they will be doing business with these partners in future. The owner-managers' commitment competence (i) influenced their suppliers' ability to respond to special requests made by SMEs; (ii) enhanced suppliers' ability to make timely deliveries; and (iii) developed their commitment to improving quality. In brief, commitment competence influenced the suppliers, motivating three main value drivers: flexibility, time management and quality. This result corroborates Singh's (2011) earlier findings supporting commitment as a driver for the kind of coordination that improves value creation. Quality is always a challenge for local SMEs in Uganda (Ernst & Young 2011), and this research strongly implies that maintaining strong working relationships with small suppliers can counteract this challenge.

Concerning customers, commitment competence improved the managers' routine follow-up procedures for customers (CV1); improved follow-ups on how customers used products and services (CV2); and enhanced their firm's ability to meet the due dates set by customers (CV4). Commitment competence improves customer value because it facilitates the creation of strong relationships between SMEs and customers. This is because commitment helps collaborating partners to share resources with members of the supply chain (Fynes et al., 2005).

In sum, the above results suggest that Ugandan local SMEs can indeed improve their SCVC through developing owner-managers' supply chain value-creating competencies. These competencies can be called the Entrepreneurial Supply Chain Value-creating

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Competencies (ESCVC) to show that they are distinct from other competencies. ESCVC have an integrative role for SMEs involved in local supply networks. The competence areas meriting attention in this context are opportunity and commitment competence. These two competence areas jointly influence the quality of goods supplied to SMEs, time management, the level of customer services offered, flexibility and supplier responsiveness. Both innovative and analytical competencies are rare among Ugandan entrepreneurs operating in local supply chains. As a result, those SME owner-managers lacking opportunity and commitment competence are likely to be less competitive than their counterparts possessing these.

6.3 Supply chain collaboration

Research Question Two was formulated to establish the relationship between supply chain collaboration and SCVC. In the case of collaboration, three factors were tested to establish how they influenced SCVC: information sharing, collaborative communication and goal congruence. From these three factors, only information sharing and collaborative communication were supported for having positive effects on SCVC. Information sharing had significant influence with respect to customers, while collaborative communication had positive effects regarding suppliers. However, the relationship between goal congruence and SCVC is negative.

Below is a detailed discussion of the significant results that emerged from testing the hypotheses relating to supply chain collaboration for both upstream and downstream clients.

6.3.1 Relationship between Information sharing and SCVC (H_{2b})

It was hypothesized that there is a positive relationship between information sharing and SCVC. The results from the analysis confirmed this, hence supporting hypothesis H_{2b}. This suggests that SME owner-managers have the potential to create supply chain value through sharing information with their customers. Specifically, the results show that the managers' ability to exchange accurate, complete and confidential information with

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customers improved the focal firm's routines in serving customers as well as the manager's ability to fulfil customer deadlines.

Sharing information with customers caused three main benefits to accrue to the focal firm. These benefits rest on three main value drivers: customer responsiveness, customer service level and reduced lead-time. The first has been found to reduce the 'bullwhip effect' (Hudnurkar, Jakhar & Rathod, 2014), while improved time management may help the focal firm to fit into customer schedules. The 'bullwhip effect' refers to increased demand variability in supply chains (Fransoo & Wouters, 2000). Discussion of the relationship between information sharing and the creation of supply chain value is not novel. For instance, Hall and Saygin's (2012) study found a significant relationship between information sharing and suppliers' ability to meet due dates set by customers. In a related study, Zhao, Xie, and Zhang's (2002) findings also demonstrate the positive influence of information sharing on customer service levels and total cost. The evidence from this research confirms the positive relationship between information sharing and SCVC.

Yet although the study results show a positive significant relationship between information sharing and SCVC in respect to customers, it has been found that information sharing between SMEs and large companies is often problematic (Esteves et al., 2009). This opens the possibility that SMEs may benefit more from collaborating with their small counterparts. It is the complexity and extensive management structures of large companies that cause delays in the flow of information between firms. Since SMEs do not possess such managerial hierarchies, they are likely to benefit more from collaborating with their small counterparts. The lean management structure of SMEs facilitates a speedy flow of information between firms, offering an advantage that could enhance value for their supply chains.

Regarding suppliers, the lack of a significant relationship between information sharing and SCVC suggests that information shared between SMEs and their suppliers is not greatly valued in supplier relationships. This is understandable, because the information gap between SME and their suppliers is so narrow. The closer SMEs are to their suppliers, the less the value attached to information sharing. It is also possible that SMEs managers

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hoard information, or share incomplete information with their suppliers. This is very common in informal markets due to lack of standardization. One-sided information sharing has been found to have detrimental effects on both customers and the supply chain in general, but when information is shared between both parties, customers and the entire supply chain benefit (Zhang & Chen, 2013). It was evident from the interactions with respondents that focal firms felt they profited from information shared with their suppliers, especially information regarding prices. However, the weak relationship discovered between information sharing and SCVC in relationships with suppliers suggests the potential value of implementing incentives to encourage all parties to share complete information with one another. As one example, Zhang and Chen (2013) propose a revenue-sharing contract as an incentive retailers and suppliers can use to incentivize the exchange of complete information and the coordination of decision-making.

6.3.2 Relationship between collaborative communication and SCVC (H_{2c})

It was hypothesized that there is a positive relationship between collaborative communication and SCVC, and analysis of the results revealed such a positive and significant relationship, hence supporting hypothesis H_{2c}. This positive relationship reinforces the argument that supply chain collaboration has a positive influence on SCVC. This evidence further corroborates Cao and Zhang's (2011) findings demonstrating a positive relationship between collaborative communication and supply chain performance. SMEs involved in local procurement (i) maintain regular contacts with suppliers (SCCM1); (ii) use open and two-way communication (SCCM2); and (iii) influence each other decision through discussion (SCCM5). These are the main levers for SME collaborations with small suppliers.

It has been noted that conflict and misunderstandings arising from miscommunication are often the main reason for collaboration failure (Tuten & Urban, 2001). To avoid such unfruitful collaborations with downstream clients, it is important to facilitate good communication between actors. Indeed, collaborative communication has wide-ranging potential to improve local SME supply chains.

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Further, good communication positively affects information sharing, knowledge creation (Cao & Zhang, 2011), and access to the formal market (Bienabe & Vermeulen, 2008). The benefits of collaborative communication include enhancing suppliers' ability to meet due dates set by the focal firm; facilitating quick response to emergencies, problems and requests made by the focal firm; and improving the quality of supplies. The results of this research are consistent with Chen et al.'s (2004) findings of a positive relationship between collaborative communication and customer responsiveness in buyer to supplier relationships.

However, the issue of asymmetrical relationships again emerges. Cao and Zhang (2011), point out that small firms do not benefit from collaborations with large and medium size enterprises. Once more, this suggests that SMEs need to initiate collaborations with firms of similar size in order to optimise the benefits from local supply chain collaboration. Cao and Zhang's (2011) findings carry the strong implication that in future competition is likely to be between supply chains, rather than between individual firms. However, it has been observed that local SME supply chains in Uganda are often designed around partnership models that bring together a large firm or dominant entity and small suppliers. The findings of this study strongly suggest that SMEs are more likely to maximise their benefits when they collaborate with counterpart firms of similar size, relegating larger entities to the role of facilitator.

In sum, the above findings suggest that information shared between SMEs and customers, should to be communicated to suppliers in order to reduce waste and improve SCVC. This is consistent with the earlier findings of Leuschner et al. (2013), regarding the significant impact of information sharing, collaborative communication and technology on supply chain integration. Technology was not one of the factors investigated in this study. However, the power of mobile technology in penetrating local communities in Africa could have an interesting influence on SCVC and merits future investigation.

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6.3.3 Relationship between goal congruence and SCVC

The relationship between goal congruence and SCVC is negative. This points to the rejection of hypotheses H_{2a} and H_{2d}. It was hypothesized that there is a positive relationship between goal congruence and SCVC; however, the relationship was not supported. This means that SMEs in local procurement do not typically collaborate. Establishing a common goal does not benefit SMEs involved in local procurement. Instead, firms involved in setting common goals experience adversaries. The reasons for this can include possible increased information cost, operating inefficiency, manifestation of moral hazard, lack of incentives or failure to accept a common strategy (Bouillon, Ferrier, Stuebs & West, 2006). SMEs involved in local procurement have different priorities because of resource constraints. Therefore, proposals to agree a common strategy are not acceptable because at firm level prioritisation appears to be viable.

6.4 The relationship between supply chain trust and SCVC

Regarding trust, two questions were formulated to establish role of trust in value creation. The role of trust in the management of local SMEs supply chains was examined from two perspectives: both its direct (Research Question Three) and its indirect effects (Research Question Four) on value creation. For direct effects, Research Question Three was formulated to establish the relationship between supply chain trust and SCVC, while for indirect effects, the study tested how supply chain trust interacts with both entrepreneurial competencies and supply chain collaboration, and what its effects were on SCVC.

Unlike previous studies (Kwon & Suh, 2004; Cai et al., 2010; Fawcett, Jones & Fawcett, 2012) which have focused on the behavioural aspects of the trustee in both supplier and customer relationships, this study measured supply chain trust via three factors: characteristic factors, institutional factors and rational factors. This proved important, because each of these was valued differently by respondents in our specific study context. Characteristic factors represent the manager's personal qualities. Rational factors represent the manager's willingness to take risks depending on the perceived dynamic capabilities of partners; cost and benefits; and technology. Institutional factors signify the

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risk-coping mechanisms that exist in supply chain relationships. The results suggest that the drivers of trust in customer relationships differ from the drivers of trust in supplier relationships. In supplier relationships, the drivers of trust were both the characteristics of the trustee and the rational factors: the manager's willingness to take risks based on perceived economic benefits. By contrast, trust in customer relationships was mainly driven by rational factors alone. Below is a detailed discussion of how trust influenced SCVC.

6.4.1 Relationship between characteristic factors and SCVC

Regarding suppliers, the relationship between supply chain trust and SCVC was hypothesized based on three factors: characteristic factors, rational factors and institutional factors. Of these, only characteristic factors and rational factors show a relationship between trust and SCVC. A positive relationship emerged for two of these: characteristic factors and rational factors, supporting hypotheses H_{3a} and H_{3b}. The detailed discussion of outcome from testing the specific hypotheses follows below.

It was hypothesized that there is a positive relationship between characteristic factors and SCVC in the relationship between SMEs and their supplier. The analysis of results shows a positive and significant relationship between characteristic factors and SCVC and thus confirms hypothesis H_{3a}. This result confirms a positive relationship between supply chain trust and SCVC. The personal qualities found to drive trust in the relationship between SME owner-managers and their suppliers comprised market credibility (NRS1), fairness (PRS4) and operational flexibility (PRS2). Suppliers perceived as fair, flexible and credible in the market were able to fulfil deadlines set by the focal firm, could respond promptly to emergencies and special requests made by the focal firm, and were more likely to improve the quality of their products.

The influence of such qualities on SCVC is not novel in the literature: for example, both fairness and flexibility were found to be key value drivers in supply chain relationships (Hofmann & Locker, 2009; Ab Talib & Abdul Hamid, 2014). The study findings are also consistent with Panayides and Venus Lun's (2009) results, as well as Lin, Sung, and Lo's

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(2005) findings demonstrating a positive relationship between trust and supply chain performance. However, these previous authors mainly utilized examination of trustees' behaviour to assess trust in supply chain relationships. This research represents an advance, because trust is assessed using three parameters: characteristic factors, institutional factors and rational factors.

Regarding customers, it was hypothesized that there is a positive relationship between characteristic factors and SCVC. The analysis revealed a strong positive relationship between characteristic factors and SCVC in customer relationship, confirming hypothesis H_{3c}. The key personal qualities driving trust in the relationship between SME owner-managers and their customers were transparency and reliability. SME owner managers trusted customers perceived to be transparent and reliable. The qualities driving trust in customer relationships are quite different from those driving trust in supplier relationships, suggesting strongly that SME owner-managers behave differently in relation to customers and suppliers. This conclusion is further supported by the differing levels of uncertainty predicted in each of these relationships.

6.4.2 Relationship between rational factors and SCVC

Regarding suppliers, it was hypothesized that there is a positive relationship between rational factors and SCVC. The result revealed a positive relationship between rational factors and SCVC, supporting hypothesis H_{3b}. The study results exposed three incentives that created value in the relationships between SME owner-managers and their suppliers: providing products that were critical to their operations (RWS2); the use of contracts (PRS3); and dealing with a few selected suppliers (RWS2). Regarding the first, Kraljic (1983) also concluded it was beneficial for customers to collaborate with those suppliers providing goods critical to a firm's operation. Evidence from this research also suggests that focal firms found more reliable relationships through dealing with a small number of selected suppliers. This indicates that relationships with SME suppliers were perceived as very risky, possibly because of the low capacity of micro-enterprises. The importance of managers assessing which firms had the potential to supply should not be overlooked.

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The study shows that the trust developed in supplier relationship improves the quality of products, time management, and responsiveness to the focal firm's needs.

Regarding customers, it was hypothesized that there is a positive relationship between rational factors and SCVC. Analysis of the research results revealed a positive relationship between rational factors and customer value, confirming hypothesis H_{3d}. However, although this relationship was positive, it was not statistically significant. Kwon and Suh (2004:7) assert that unless trust translates into actionable commitment, no performance gains can be expected from supply chain management. The incentives driving trust in the relationships between SME owner-managers and their customers include operational flexibility, willingness to use contracts and shared economic interests.

The research findings provide robust support for a finding that the main source of trust in customer relationships is the customers' perceived characteristics. This is consonant with the perception of SME owner-managers that dealing with customers carries more risk for the focal firm than working with suppliers. But where SME owner-managers are located in the same geographical area (within the local procurement boundaries) as their customers, this improves their level of trust in those customers, suggesting frequent face-to-face contact influences positive behaviour and hence trust. This view is supported by Ketkar, Kock, Parente and Verville (2012), who observed that frequent face-to-face contact increases the level of trust in business relationships. This means that characteristic factors are the primary predictor of trust in business relationships where partners operate at much great distance apart. Both rational and institutional factors are not reliable predictors of trust where a client does not have a good character.

6.5 The moderating role of trust on SCVC

The research process began with a broad interest in whether high levels of trust moderated the positive relationship between entrepreneurial competencies and supply chain collaboration on SCVC. However, the research revealed the moderating effect of trust on SCVC only in relation to opportunity competence.

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Specifically, it was hypothesized that characteristic factors positively moderate the relationship between opportunity competence and customer value (H_{4a}). It was also hypothesized that characteristic factors additionally positively moderate the positive relationship between opportunity competence and supplier value (H_{4b}). The analysis of results revealed that there was only one significant result for a two-way interaction between characteristic factors and opportunity competence in relation to supplier value. The results were not statistically significant with regard to customer value. Thus, hypothesis H_{4b} was accepted, while H_{4a} was rejected.

Accepting hypothesis H_{4b} implies that high levels of trust increase the positive influence of entrepreneurial competencies on supplier value, whereas low levels of trust may erode those benefits. An optimal level of trust is thus needed to facilitate beneficial relationships between SME owner-managers and their suppliers. The rejection of hypothesis H_{4a} implies that the impact of opportunity competence on customer value does not depend on the level of trust in the relationship. Therefore, increasing the level of trust in customer relationship may not trigger additional benefits from opportunity competence. This is due to the high levels of uncertainty in customer relationships which result from their distance from the focal firm. Where SME owner-managers cannot accurately predict their partner' actions (especially the actions of those who are far away), increasing the level of trust alone cannot trigger additional benefits from opportunity competence.

The above evidence suggests that SME customers are less predictable than SME suppliers. This provides some explanation of why assessing trust in customer relationships is based on the trustee's character. In relationships with suppliers, both past character and rational factors can be taken into consideration. For customers, the scope of characteristics on which to evaluate trust narrows down to only transparency and reliability. SME owner-managers thus clearly need to develop effective mechanisms to identify, monitor and maintain levels of trust yielding optimal value to the focal firm. Because it is so much more difficult to maintain relationships with customers than with suppliers, SME owner-managers can only optimize value by investing more time and resources in supplier relationships.

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The importance of this research is to explain that the value local SMEs create for their customers does not depend on the level of trust in supply chain relationships. However, the valued benefits the focal firm enjoys from its suppliers (commitment to quality, flexibility and timely delivery) very much depend on the level of trust in supplier relationships.

Further, the study hypothesised that high levels of trust increases the value created by information sharing (H5a) and supply chain collaboration (H5b). The study results showed no moderation effects on SCVC for either information sharing or collaborative communication, suggesting the positive relationship between information sharing, collaborative communication and SCVC does not depend on the level of trust in supply chain relationships. This means that successful collaboration for SMEs in the study context does not depend on the level trust. Since trust increases the quality of relationships, the findings suggest that the quality of relationship in the local supply network is poor. SME in the study context create relationships but the relationships are not collaborative. Such collaboration does not lead to long-term relationship among supply chain partners. It is possible that SMEs that were studied create relationships only when the parties have a common business interest.

6.6. Model fit of structural models representing significant relationships

The fit indices of the models represented in Figure 25 above and the estimated regression coefficients for each of the significant relationship demonstrate the high level of quality of the data forming the basis of the above conclusions. As indicated in the methodology, the study used chi square tests, RMSEA, CFI and GFI to demonstrate how the data that was gathered fits the model. The fit indices are displayed in Table 35 below.

The value of RMSEA is that it measures the sample discrepancy function per degree of freedom. The RMSEA for sub model 1, 2 and 3 is above 0.05 and below 0.08, which is within the acceptable range of model fit. RMSEA for sub model 4 is below 0.05, which indicates an excellent fit, while RMSEA for sub model 5 is 0.068, again within the acceptable range. The overall picture portrays a good model fit.

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The Normed Chi-square test, which is the ratio of chi-square to the degree of freedom for all sub models lies within the desirable range of 0.1 and 0.3. A chi-square lying between 2 and 3 represent reasonable fit, and when the chi-square is below 2, this indicates a good fit. The chi-square p-values are all statistically significant, possibly because of a large sample size. Since the chi-square p-values improve as the sample size grows bigger, it was important to employ other indices for assessing model fit.

The Goodness of Fit indices (GFI) were within the expected range ($\geq$ 0.9) and the Comparative Fit Index (CFI) represents an excellent fit for sub models 2, 4, 5, and a reasonable fit for the other three sub models. All structural models were supported by measurement models with p-values that were statistically significant at 0.05 level. In general, it can be concluded that the overall model displayed an acceptable level of model fit.

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Table 35: Summary of the fit indices for the above model

Latent Variables	Factors	Regression Coefficients	Fit Indices	Recommended criteria
Entrepreneurial Competencies	OPC--->SVCC COMC --->SCVC	0. 398 (P=0.017) 0.273 (P=0.049)	χ^2 /d.f. = 1.427 RMSEA = 0.038 GFI, CFI = 0.946, 0.957	1<χ^2/d.f. <3 <0.05 good fit <0.08 acceptable fit >0.90
Supply chain Collaboration **(Customers)**	IS--->SCVC	0.387 (p=0.010)	χ^2 /d.f. = 2.278 RMSEA = 0.071 GFI,CFI = 0.935,0.905	1<χ^2/d.f. <3 <0.05 good fit <0.08 acceptable fit >0.90
Supply chain collaboration **(Suppliers)**	CCM--->SCVC	0.227 (p=0.004)	χ^2 /d.f. = 2.186 RMSEA = 0.064 GFI,CFI = 0.929,0.894	1<χ^2/d.f. <3 <0.05 good fit <0.08 acceptable fit >0.90
Supply chain Trust - **(Suppliers)**	ChF-->SCVC RLF-->SCVC	0.576 (p=0.000) 0.477 (p=0.000)	χ^2 /d.f. = 1.685 RMSEA = 0.025 GFI, CFI = 0.953,0.940	1<χ^2/d.f. <3 <0.05 good fit <0.08 acceptable fit >0.90
Supply chain Trust **(Customers)**	ChF-->SCVC RLF-->SCVC	0.697 (p=0.000) 0.228 (p=0.010)	χ^2 /d.f. = 2.014 RMSEA = 0.068 GFI ,CFI= 0.952,0.920	1<χ^2/d.f. <3 <0.05 good fit <0.08 acceptable fit >0.90

(OPC-Opportunity competence, COMC-Commitment competence, IS -Information sharing, CCM- Collaborative communication, ChF-Characteristic factors, RLF –Rational factors)

6.7 Comparison between theoretical model and empirical model

The literature on SME supply chain management suggests that a combination of entrepreneurial competencies, supply chain collaboration and supply chain trust positively influences SCVC. The theoretical model in Figure 5 shows the antecedents of SCVC that were tested to devise the revised model in Figure 23 below. The theoretical model was tested to understand managers' perspectives on SCVC in relation to suppliers as well as customers. The revised model, below, suggest that some factors suggested as valuable in creating supply chain value for SMEs in the literature are not empirically supported in the Ugandan context.

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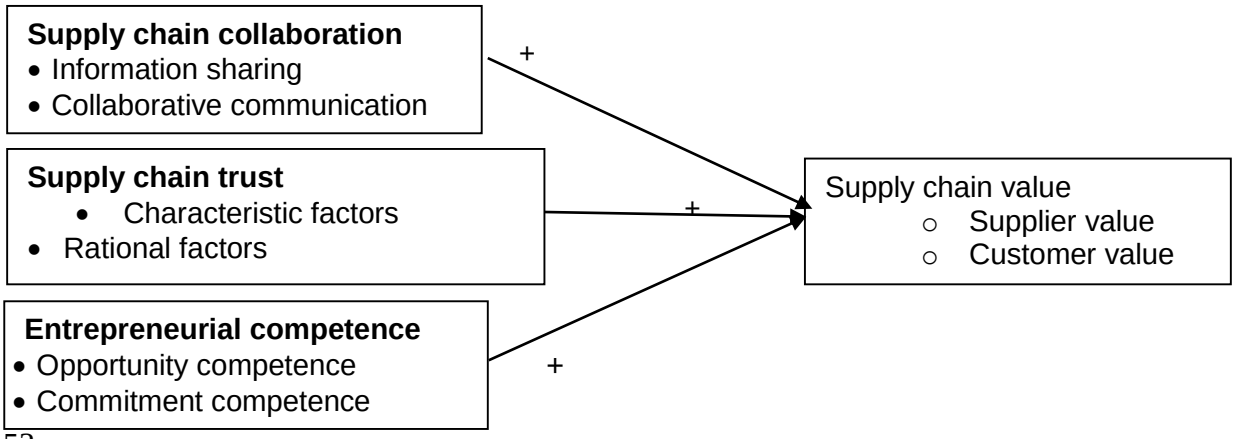
The theoretical model in Figure 5 differs from the empirical models in Figure 23 below on the following premises:

- Cost is not a major value driver for Ugandan SMEs involved in local procurement. As a consequence, local SMEs cannot derive additional value from a re-alignment of their internal processes. They are resource-constrained and, in addition, the transaction costs of sourcing locally are very low. Thus, internal process value is not a major factor in the empirical model.
- Innovative and analytical competencies are not common among SME owner-managers managing local supply chains in Uganda. As a consequence, the conceptual competencies that appear in the theoretical model do not form part of the empirical model.
- Trust in local SME supply chain relationship is mainly assessed based on individual characteristics and rational factors (such as the trustee's willingness to take risks based on mutual economic benefits). As a consequence, institutional factors are not part of the empirical model.
- Both opportunity and commitment competence areas are the dominant drivers of SCVC in local SME supply chains.
- Finally, goal congruence does not appear in the empirical model simply because different SMEs have different priorities. For this reason, having a common strategy is not valued.

6.8.1 Revised empirical model for management of local SME supply chain

Figure 20: **Empirical model**



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6.8 Summary

The above models suggest that emphasis should be put on integrating opportunity competence and commitment competence in order to improve the performance of local SME supply chains. Neither innovative competence nor analytical competence are common among managers of local SME supply chains, and so do not feature in the model.

Concerning supply chain collaboration, only two variables – collaborative communication and information sharing – can be combined to create value for local supply chains. This means that information shared by customers adds value when communicated to suppliers. Goal congruence does not bring any benefits in local supply chains, possibly because members have different priorities. Therefore, there are no immediate pay-offs from building a common strategy. Instead, trying to align goals lowers supply chain value through increased information costs and opportunistic behaviours between SMEs and other members of the local supply chain.

Regarding supply chain trust, the direct relationships revealed by the research had significant effects on SCVC. However, the interactions between trust, entrepreneurial competencies and supply chain collaboration impacted on SCVC mainly in regard to opportunity competence. In addition, moderation effects were only established in relation to value created by suppliers.

The results also suggest that characteristics factors, including market credibility, fairness, operational flexibility and transparency were the most valued for increasing SCVC. Location in the same geographical area, leading to frequent face-to-face contact between actors, means any form of misbehaviour is likely to affect performance. Unlike businesses that are located far apart, businesses within the same geographical area work in an environment where the manager's conduct has significant effects on business competitiveness.

Finally, what emerged clearly from this study is that neither entrepreneurial competencies nor supply chain collaboration affected internal process value. The lack of relationships

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between these factors suggests strongly that local SMEs cannot derive value from creating cost advantage, because the costs of local sourcing are already generally low. In addition, since Ugandan SMEs rely mainly on resources outside the firm, remobilizing internal resources may not create cost advantage.

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CHAPTER SEVEN

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

Value creation has attracted considerable attention in the discourse of supply chain management, and regarding SMEs in particular. SMEs that focus on value creation remain dominant members of supply chains (Hong & Jeong, 2006). However, according to Esteve and Barclay (2011), this claim lacked empirical evidence concerning SMEs' involved in local procurement. Local procurement presents challenges for local SMEs stemming from both the demand side and the supply side. Supply side challenges relate to capacity issues at firm level due to lack of resources, the information gap between large and small companies, the opportunistic behaviours of dominant firms, and hidden costs related to infrastructure (Porter & Kramer, 2013), among others. In contrast, demand side challenges stem from negative perceptions of procurers and the traditional criteria employed for assessing suppliers, which marginalize SMEs – such as the prioritization of "value for money" in its narrow sense at the expense of other procurement goals. These affect the value creation process of SMEs in local procurement.

According to the resource-based view, the value creation process of firms in supply chain networks depends on how the supply chain members combine resources. This study examined two potential sources of value creation: internally-focused and external efforts to establish how local SMEs can remain relevant in local supply chains. Drawing from the extended RBV (Lavie, 2006), the study investigated value creation by testing the influence of three initiators of SCVC: entrepreneurial competencies, supply chain trust, and supply chain collaboration, guided by the following research questions:

(i) How can entrepreneurial competencies facilitate the SCVC of SMEs involved in local procurement?

(ii) How can supply chain collaboration facilitate the SCVC of SMEs involved in local procurement?

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(iii) How can supply chain trust facilitate the SCVC of SMEs involved in local procurement?

(iv) How does supply chain trust moderate the relationship between entrepreneurial competencies and SCVC?

(v) How does supply chain trust moderate the relationship between supply chain collaboration and SCVC?

7.2 Research design and methodology

The research question points towards a survey design in which cross–sectional data was collected at a single point in time. The aim was to test existing theory in solving a practical problem hindering SME success in the local procurement context. The survey design selected was appropriate both because it suits the post-positivist paradigm and because it offers economy. The survey utilized a sample size of 294 SME owner-managers drawn from the population of 974 registered SMEs, which depend on local content in Uganda. The sample size was generated using stratified random sampling method and Krejcie and Morgan's (1970) simplified heuristics. The sectors where the sample was drawn include construction, food processing, furniture and fittings, and agriculture.

The study variables were measured on various scales. These items have been used in various studies (Man et al., 2002; Man & Lau, 2005; Man, Lau, Snape, 2008; Jayaram et al., 2004). Reliability tests were conducted for the measurement instruments using Cronbach alpha while validity was tested at three levels: face validity, content validity, and construct validity. In addition, Confirmatory Factor Analysis (CFA) was relied upon to assess discriminant validity. However, since CFA overlooks factor loadings, Average Variance Extracted (AVE) was used together with CFA (Farrell and Rudd, 2009). The study employed factor analysis and structural equation modelling (SEM) to conduct analysis. The unit of analysis was an SME and level of analysis was the SME owner-manager.

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Both procedural methods and statistical tests were utilized to reduce common method biases and establish the likelihood of CMB respectively. The study utilized a common latent factor (CLF) to test for CMB. The comparison of the measurement models with a CLF and those models without it showed no significant differences between standard regression weights: something which rules out common method biases. In addition, model fit indices of CFA without CLF were better than model fit indices of CFA with CLF which confirms that the results are not affected by CMB.

The study utilized structural equation modelling to test the relationship between entrepreneurial competencies, supply chain collaboration, supply chain trust and SCVC (customer value and supplier value). The models were built using IBM AMOS 23 software. Below are the summary results and conclusions for the research questions.

7.3 Results from testing the structural models

The study findings point clearly to the benefits of a shift in supply chain management strategies towards developing SME owner-managers' competencies, facilitating information sharing, and leveraging supply chain trust. In other words, adopting a strategic focus that emphasises deriving optimal value from suppliers is likely to make local procurement more successful. The study results provide empirical evidence demonstrating that opportunity competence, commitment competence, supply chain trust, information sharing and collaborative communication all impact positively on local SME SCVC indicators. However, what emerged was that the positive relationship between opportunity competence and SCVC depends on the level of trust in supplier relationships. The multivalent interaction between trust and opportunity competence in their impact on SCVC was evident mainly in relation to suppliers. It appeared there was an optimal level of trust that maximized the value realisable in local supply chains.

This directly addresses a current research gap. Establishing a solid relationship with potential suppliers within the local procurement context has always been a challenge for Ugandan SMEs. However, the past absence of a research focus on trust may explain why this problem remains relatively untheorized.

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Because of this gap, earlier research offered no clear evidence on the two-way interaction between supply chain trust, entrepreneurial competencies, supply chain collaboration and the impact of this relationship on SCVC. These lacunae suggested the relationships between supply chain collaboration and SCVC did not depend on the level of trust in supply chain relationships. Based on research from elsewhere demonstrating that SCVC is primarily influenced by supply chain collaboration and entrepreneurial competencies, the research concluded that SME owner-managers need not waste resources in building high levels of trust in local supply chain relationships until they have developed competencies. The fact that both focal firms and suppliers maintain continuous face-face contact was assumed to be sufficient to enhance SCVC.

7.3.1 Research Question One

The question aimed to establish the relationship between entrepreneurial competencies and SCVC. Data was generated by testing the relationships between four competence areas (opportunity competence, innovation competence, analytical competence and commitment competence) and SCVC. SCVC was measured using three components: customer value, supplier value and internal process value. However, internal process value was eliminated from the analysis because of the poor quality of, and inconsistencies in, the responses. The study results showed two hypotheses that were supported.

Hypothesis H_{1a} proposed a positive relationship between opportunity competence and SCVC. The significant standardised path coefficient of 0.398 ($p=0.017$) indicates that there is support for the hypothesis. The positive relationship between opportunity competence and SCVC suggests that the owner-managers' ability to recognise and develop market opportunities and the involvement of customers and suppliers in the firms' activities, improved the firms' services to customers as well as operational performance of their suppliers. SMEs that are concentrated in the same geographical area, have limited market opportunities, so managers who excel in identifying new business opportunities and new ways of integrating the supply chain are bound to benefit from their supply chain relationships. In addition, there were quality gains related to opportunity competence. This

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is expected because managers continuously sought for new ways of satisfying customers by integrating suppliers into their decision-making processes. Finally, the improved level of responsiveness exhibited by suppliers is expected to translate into better services to customers hence customer loyalty.

Hypothesis H_{1b} stated that there is a positive relationship between commitment competence and SCVC. The significant standardised path coefficient of 0.273 (P=0.049) indicates that there is support for the hypothesis. The strong influence of commitment competence on SCVC signifies actionable commitment between members of the supply chain, demonstrating how SME value the long-term relationship with SME owner-managers. The owner-managers' commitment to supply chain partners improves flexibility, time management and quality on the side of suppliers. Regarding suppliers, commitment competence improved the managers' routine follow-up procedures for customers and enhanced their ability to meet due dates set by customers.

However, internal processes do not seem to be value drivers for resource-constrained firms. The lack of a relationship between the different competence areas and internal process value implies that cost is not a value driver within the local procurement context. Therefore, SMEs cannot use it to their advantage. This result was expected because SMEs concentrated in one geographical area – as is often the case in Uganda – experience low transaction costs associated with local sourcing. Cost reduction thus does not seem to be a major value driver for firms operating in the same vicinity.

In addition, the study did not find a relationship between conceptual competencies (innovative and analytical competencies) and SCVC, suggesting that neither innovative nor analytical competencies are underdeveloped among SME owner-managers in the study context. This study contributes to existing knowledge by identifying two competence areas that have an integrative role in coordinating the local SME supply chain. These competencies grouped together form what the study recognises as Entrepreneurial Supply Chain Value creating Competences (ESCVC). The detailed discussion of the relationships between these competence areas and SCVC follows below.

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The positive relationships between opportunity competence, commitment competence and SCVC imply that these two competence areas are key intangible resources that should be developed for local entrepreneurs to improve SCVC. These competence areas have an integrative role in local SME supply chains.

7.3.2 Research Question Two

This question aimed to establish the relationship between supply chain collaboration and SCVC. Data were analysed by testing the relationships between the factors explaining supply chain collaboration (collaborative communication, goal congruence and information sharing) and SCVC (customer value, supplier value). Six hypotheses were created, all predicting positive relationships between each of the independent variables and SCVC. Of the six hypotheses tested, only two hypotheses (H_{2a} and H_{2d}) produced negative results and were rejected. Below is a discussion of the summary results for the hypotheses that were supported.

Hypothesis H_{2b} proposed a positive relationship between information sharing and SCVC. The study found a strong positive relationship between information sharing and SCVC in customer relationships, but this relationship was not supported in supplier relationships. Information sharing offered immediate operational gains for local SME supply chains. The gains in respect to customers included responsiveness to customer needs, timely delivery and improved customer services. It is possible that a detailed assessment of significant differences in correlation coefficients for the various sectors explains the deviation in results. However, since SMEs involved in local procurement are concentrated in the same geographical area, information sharing with suppliers may not be a problem and this might explain why a strong positive relationship was only revealed for customer relationships. The study compares with existing knowledge by demonstrating that information sharing is a key value driver in local SME supply chains. Therefore, local SME owner-managers should address the current supply chain management challenge by sharing information important to their customers.

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Hypothesis H_{2c} postulated a positive relationship between collaborative communication and SCVC. The study found support for the positive relationship between collaborative communication and SCVC. Collaborative communication had immediate benefits in respect to suppliers. Specifically, SMEs benefited more from maintaining frequent contacts with their suppliers than from maintaining them with their customers. The nature of the benefits enjoyed from suppliers included quality improvement, promptness, and operational flexibility. The negligible influence of collaborative communication on SCVC in customer relationships may be a result of environment factors, such as remoteness and/or market dominance. Environmental factors can have differential effects on antecedents as well as on value-creating mechanisms. The study compares with existing knowledge by demonstrating that collaborative communication is a key value driver in local SME supply chains. Therefore, local SME owner-managers involved in local procurement should address the current supply chain management challenges by communicating collaboratively with suppliers.

For Research Question Two, it can be concluded that local SMEs involved in procurement have the potential to create value for their supply chains through collaboration and information sharing. The evidence gathered by this study provides robust support for a recommendation that information shared between the focal firm and customers should be communicated to suppliers in order to create supply chain value. The operational benefits from collaboration with suppliers include operational flexibility, promptness in making deliveries and quality improvements. The benefits from collaboration with customers include; improved customer responsiveness, customer service level and timely delivery.

7.3.3 Research Question Three

The question aimed at establishing the relationship between supply chain trust and SCVC. Supply chain trust was measured using three components: individual characteristics; rational factors; and institutional factors. However, institutional factors do not influence trust in local SME supply chain relationships. For instance, the use of credit facilities and cheques are not very common among local people.

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Hypothesis H_{3a} stated that there is a positive relationship between characteristic factors and SCVC in supplier relationships. Hypothesis H_{3c} stated that there is a positive relationship between characteristic factors and SCVC in customer relationships. Both H_{3a} and H_{3c} were supported. The research findings confirm a positive relationship between characteristic factors and SCVC. This means that trust in local supply chains depends mainly on the personal characteristics of supply chain members. This implies a belief, derived from experience, that the characteristics of members are good predictors of supply chain trust. The positive relationship found between characteristic factors and SCVC implies that the clients' personal qualities were highly valued by supply chain members as a basis for evaluating trust. This is reasonable, because individuals' past behaviour is normally reliable in predicting future actions (Verplanken & Orbell, 2003). The key individual characteristics most valued by SME owner-managers include honesty, impartiality, flexibility and market credibility. It was these personal attributes that SME owner-managers used to judge whether the relationships with suppliers or customers would bring benefits to the supply chain. This finding compares with existing knowledge (Laeequddin et al., 2010; Laeequddin, Sahay, Sahay & Abdul Waheed, 2012; Tejpal, Garg & Sachdeva, 2013) by demonstrating that characteristic factors are reliable predictors of trust in the relationships between both close and distant supply chain partners.

Hypothesis H_{3b} proposed a positive relationship between rational factors and SCVC in supplier relationships. The results again show support for H_{3b}. Hypothesis H_{3d} also proposed a positive relationship between rational factors and SCVC in customer relationship. Even H_{3d} was also supported. The research findings support a positive relationship between rational factors and SCVC. This means that that trust in SME supply chains also depends on rational factors. Specifically, suppliers were trusted if they had mutual economic interests, and if they supplied goods critical to the focal firm's operations. In contrast, customers were trusted if they were flexible; if they had mutual economic interests; and if they had written terms and conditions of delivery.

However, it is important to note that the drivers of trust in customer relationships differed from the drivers of trust in supplier relationships. Because the focal firm had close proximity with suppliers, the drivers of trust there were mainly characteristic factors and rational

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factors. This was because the focal firms found it easy to accurately predict suppliers' actions. When supply chain partners were far apart, supply chain trust was assessed based on characteristic factors only. This is reasonable, because the focal firms found it difficult to use rational factors to accurately predict customers' actions.

7.3.4 Research Question Four

The question aimed at establishing the moderation effects of supply chain trust in the positive relationship between entrepreneurial competencies and SCVC. Only one hypothesis was supported: that which proposed that supply chain trust positively moderates the relationship between opportunity competence and SCVC in supplier relationships (H_{4a}). The interaction between supply chain trust and opportunity competencies and its effect on SCVC was significant and supported in relation to suppliers. This indicates that the influence of opportunity competence on SCVC depends on the level of trust in supplier relationships. Conceivably, supply chain trust improves openness and members' willingness to interact, and this was confirmed by the study findings.

Notably, the interaction effect between trust and opportunity competence on the outcome variable was observed in relation to supplier value but not to customer value. The study results suggest that SME owner- managers can influence the value created by suppliers by controlling the level of trust upstream, but do not have the same power in relation to downstream customer relationships. For local supply chains, SMEs can increase supply chain value by increasing the level of trust in supply chain relationship, where supply chain partners operate at a very small distance from one another. In the case where local SMEs operate at a distance, outside the local procurement geographical boundary, it is not valuable to increase the level of trust in supply chain relationships.

7.3.5 Research Question Five

This question aimed at establishing the moderation effects of supply chain trust in the relationship between supply chain collaboration and SCVC. Hypothesis $H5_a$ proposed that supply chain trust positively moderates the relationship between information sharing and

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customer value. This was not supported. Hypothesis $H5_b$ stated that supply chain trust positively moderates the relationship between collaborative communication and supplier value. This relationship was again not supported. The interaction effects of trust in the relationship between supply chain collaboration and SCVC were reported in relation to two factors that previously had strong positive relationships with SCVC (information-sharing and collaborative communication). The analysis showed no moderation effects on SCVC for either information sharing or collaborative communication. All statistical tests performed to establish the moderation effects of trust on SCVC were not statistically significant. This means that the positive relationship between information sharing, collaborative communication and SCVC does not depend on the level of trust in supply chain relationships.

7.4 Ugandan model of managing local SME supply chains

The revised model in Figure 23 above was split into two sub-models to improve clarity on how local SME owner-managers can improve the performance of their supply chains. One model looks at the management of suppliers while the other elucidates the management of customers.

7.4.1 Model for managing upstream clients

The models in Figure 24 suggest that to manage suppliers the owner-manager needs to develop intangible resources (opportunity and commitment competence), facilitate coordination through two-way communication and cultivate an optimal level of trust that will maximize value creation. In this model, it is important to emphasize the term ‘optimal’. High levels of trust bring benefits, whereas lower levels may erode these benefits.

In the study context, supply chain trust is a key governance mechanism. The basis for evaluating trust should include the credibility, fairness and flexibility of suppliers. In addition, because of the small number of potential suppliers within a local procurement boundary, it may be advisable for the SME owner-managers to communicate

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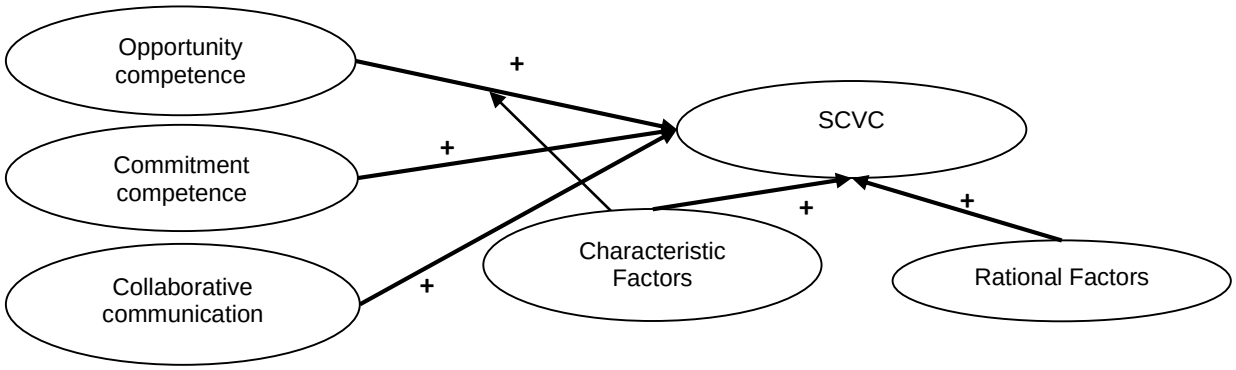
collaboratively and develop ESCVC in order to get the best value out of suppliers. The model for managing suppliers is shown below.

Figure 21: Factors that create value to the focal firm



The valued benefits from managing suppliers using the above model comprise an improvement in suppliers' ability to meet the due dates set by focal firms, and the quality and speed with which suppliers can respond to emergencies, problems, and special requests from focal firms.

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7.4.2 Model for managing downstream clients

The model for managing customers is constituted from three factors: opportunity competence, information sharing, and supply chain trust (characteristic factors). To create value for customers, a manager needs to develop opportunity competencies, share information with customers, and cultivate trust to facilitate the smooth flow of resources along the supply chain.

It is important to note that while supply chain trust overall is a key value driver, neither institutional factors nor rational factors are a big issue in assessing supply chain trust in customer relationships. Evaluating supply chain trust in customer relationships needs to take into account both transparency and consistency.

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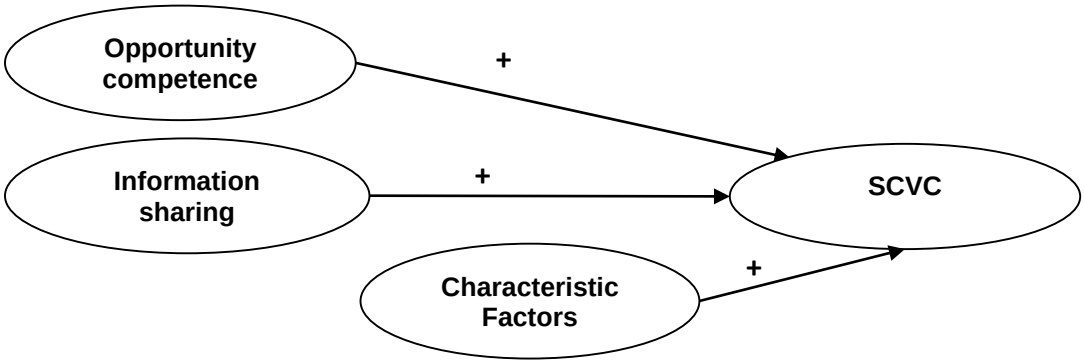
Figure 22: Factors that create value for customers



The benefits that were valued by customers as derived from the above model comprise improvement in the focal firm's routines and follow-up procedures on how customers use products and services, and focal firms' ability to meet due dates set by customers. The diagram above represents managers' value-creating processes in relation to customers.

7.5 Contribution of the study

7.5.1 Theoretical contribution

This study contributes to the supply chain management literature in several ways. First, it extends the resource-based view of the firm by demonstrating that SME owner-managers in resource-constrained firms benefit from past behaviours to develop trust, which is useful in combining resources with supply chain partners. How a manager conducts himself towards others creates a social complexity, which is difficult for other actors to imitate. This makes it impossible to imitate the factors driving trust, which facilitates how resources interact between supply chain partners. Local procurement in Uganda takes place mainly in rural areas, where it is difficult to find capable suppliers. Every supplier feels they should have the right to supply the companies that choose to locate in their communities. Sourcing from incompetent suppliers is complex. To resolve the complexity, procurers start by building initial trust (contractual trust) through training. The initial trust provides a basis on which to select potential suppliers – but their retention is also challenging. Local procurers

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resolve this challenge by creating quality relationships with a few selected suppliers through continuous interactions. Face-to-face interactions with high performers help to build breakthrough trust, which circumvents replication in how supply chain partners combine resources. The capability to manage the kind of initial trust which transforms into breakthrough trust is a key capability which SME owner-managers need to develop in order to manage successful supply chains. Such trust, which subsequently develops from one's conduct towards other members of the supply chain, builds a social complexity that circumvents any imitation of how the successful supply chain partners combine resources in creating supply chain value. Fawcett et al. (2012) posited two types of capability to develop breakthrough trust: relationship commitment capability and performance capability. The current study adds the trustee's past behaviour or conduct as a key capability to develop breakthrough trust: the trust that SME owner manager need to manage successful supply chains.

Secondly, this research adds significantly to studies that have established that entrepreneurial competencies are influential in creating supply chain value, by specifying which competencies are key. Not all entrepreneurial competencies have an integrative role. However, Leuschner et al. (2013) have proved that creating supply chain value requires entrepreneurs to integrate supply chains, a task which demands competencies with an integrative role. Hsu et al.'s (2011) work attempted to propose four competence areas expected to influence supply chain performance. Their study tested the relationships between four entrepreneurial orientations – innovation orientation, proactiveness orientation, relational orientation, risk-taking and coordination capability – and firm performance. However, they did not find any significant relationships. The main limitation of their study was a small sample size. The current study makes an empirical contribution by separating out and defining the key competencies most important in the management of local SME supply chains: opportunity competence and commitment competence. These are what the study has named the Entrepreneurial Supply Chain Value creating Competences (ESCVC).

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Thirdly, the study results show that the SME owner-manager's perspective – which varies with respect to customers and to suppliers – alters how managers assess trust in customer and supplier relationships and what actions are appropriate to build trust. For instance, managers who trust customers for being reliable and transparent, by contrast assess trust in suppliers based on operational flexibility, fairness and market credibility. This variation in perspective is possibly a result of how close or distant SME owner-managers are from their supply chain partners. The findings strongly demonstrate that where it is easier to accurately predict trustees' actions (for example in the case of geographical closeness) both characteristic factors and rational factors are important in assessing supply chain trust. However, where predicting trustees' actions is not so easy, it becomes risky to depend on rational factors. Instead, the manager is better served by relying on the trustee's past character as a basis for evaluating trust. In sum, a manager is likely to alter the value he/she attaches to the different metrics of supply chain trust depending on his/her opinion about a supply chain partner. This observation illuminates our understanding of how the managers' perspective alters the value attached to the different metrics of supply chain trust in reducing risk.

Fourth, previous research established three measurements of supply chain trust and its relationship with firm performance (Laeequddin et al., 2010; Laeequddin et al., 2012; Tejpal et al., 2013). These studies assumed the three dimensions of supply chain trust (characteristic factors, rational factors and institutional factors) are utilised together in evaluating trust in supply chain relationships, irrespective of the study context. This is not the case. The current study demonstrates that institutional factors are not valued in assessing supply chain trust in the local procurement context. In addition, rational factors are not utilized in assessing trust in customer relationships. The research achieved this by testing the relationships between the metrics of supply chain trust and SCVC.

Fifth, the study paints a more complete picture of how supply chain trust facilitates or impedes the value created by entrepreneurial competencies, adding a more nuanced understanding of the differences between supplier and customer relationships. The results revealed that high levels of trust increase the value suppliers attach to the owner-

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managers' competencies, while mistrust erodes it. By contrast, the level of trust does not alter the value customers attach to SME owner-managers' competencies. This difference in value attachment between customers and suppliers is again related to the relationship between supply chain actors.

7.5.2 Practical contribution

One problem with integrating SMEs into formal markets is the specific challenges policy makers are tackling in developing economies. In developed economies, it is evident that local procurement is a vehicle through which SMEs and marginalized suppliers formalize to become suppliers (Loader, 2013). However, SMEs in emerging economies struggle to remain relevant in procurement. One of the areas in which SMEs are believed to be performing poorly is value creation. For instance, public procurers marginalize SMEs for their perceived failure to create value for money. These study results demonstrate that practitioners can improve SMEs' relevance in local procurement if SME owner-managers shift focus towards developing value-driven supply chains. The current study has proposed an SCM capability that is critical for creating value-driven supply chains. This capability includes information integration, relational integration and integrating competencies. Earlier work by Leuschner et al. (2013) overlooked the importance of competencies integrating supply chains, and suggested a combination of technology, information integration and relational integration. However, since SMEs' advantages tend to be behavioural, the findings from this study suggest that developing competencies with an integrative role is critical in managing local SME supply chains. This finding is important to SME owner-managers and other practitioners involved in developing local supply chains: for example (and there are more) Traidlinks in Uganda's Albertine region.

7.6 Areas for future research

The study established a number of relationships that were positive but not statistically significant. One of these, for example, was the relationship between collaborative communication and SCVC in customer value. This finding could be attributed to multiple

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factors, particularly the heterogeneity of the different sectors surveyed in this study. Flynn, McKevitt and Davis (2013) demonstrate how SME procurement practices can be predicted to vary across industry sectors. Supply chain management strategies suitable for one sector may thus not be appropriate elsewhere. Since the issues affecting SMEs are sector-specific (Loader, 2013), future research needs to explore in detail the significance of the differences in correlation coefficients for various sectors, as this may explain the deviation in results.

In addition, the study found a negative relationship between goal congruence and SCVC. This contradicts earlier studies, which have found a positive and statistically significant relationship between goal congruence and SCVC. The negative relationship between goal congruence and SCVC was attributed to manifestation of moral hazard, increased information cost, operating inefficiency and failure to accept a common strategy (Bouillon et al., 2006). It is quite likely that short term perspectives on the part of local supply chain partners are responsible for the negative relationship found between goal congruence and SCVC. However, future research needs to explore how entrepreneurial orientations such as short-termism could influence the relationship between goal congruence and SCVC.

The study established that SMEs involved in local procurement do not typically collaborate. SME collaboration is contingent on the existence of relevant market opportunities. This indicates an urgent need for future research to identify ways through which SMEs can improve SCVC. For example, new innovative ways of business financing (e.g. invoice financing; bank guarantees to suppliers) could be explored as possibilities to understand how local SMEs can improve supply chain integration.

This study highlighted two key competence areas – opportunity competence and commitment competence – as important in creating supply chain value in local SME supply chains. These competencies may be grouped together to form what the study recognizes as Entrepreneurial Supply Chain Value Creating Competencies (ESCVC). The two were identified after prioritising and testing only four competencies, because of limitations in the study context. Thus, there remains scope to upgrade the list of ESCVC and future

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researchers should consider expanding this list to include the competencies important in managing SMEs supply chains.

The study established that information sharing had a significant positive relationship with supply chain value for SMEs involved in local procurement. However, the study does not give a detailed account of the types of information that are critical to creating supply chain value. The items utilized to measure the relationship between information sharing and supply chain value creation relate to the quality of information and the manner in which it is shared. A qualitative study could assist in specifying the types of information that should be shared between local supply chain partners.

The findings of the current study suggest that the institutional factors utilized in measuring supply chain trust do not influence SCVC. For example, the use of credit facilities, such as post-dated cheques and bank guarantees, are rarely utilized by local actors: Uganda's economy is mainly cash-based. A qualitative study is required to develop new scales that can appropriately measure the institutional factors influencing supply chain trust in both the Ugandan and other similar economies.

Future research could benefit from a longitudinal study to understand the impact of goodwill trust on supply chain value creation. As noted in chapter three, trust develops over a long period time. The survey design for which information was collected at a single point in time might have captured responses regarding initial trust (contractual and competence trust) and not goodwill trust which develops over a long period of time. The negligible indirect effects (moderation effect) of trust on the relationship between supply chain collaboration and supply chain value might be a result of initial trust. Goodwill trust might have significant indirect effects on the relationship between supply chain collaboration and supply chain value.

In other words, to manage successful supply chains, SME owner-managers need to collaborate with partners but also to develop competencies to cultivate and manage the breakthrough trust that is needed to uniquely combine the resources necessary for creating supply chain value. However, initial trust (contractual and competence trust) takes

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time to transform into a more pervasive goodwill, which develops over a long period of time through repeated exchange (Ireland & Webb, 2007). The capability to manage initial trust (contractual trust) – which transforms into goodwill or breakthrough trust – is a key capability which SME owner-managers need to develop to manage successful supply chains.

7.7 Limitation of the study

First, SMEs in the study context operated in a direct supply chain as opposed to an extended supply chain. (A direct supply chain includes a focal firm, its customers and its suppliers.) The researcher limited the study to direct supply chains because in Uganda SMEs lack the resources to manage extended supply chains. For this reason, the study collected information from single individuals representing the focal firms. This individual provided his/her opinion in regard to both customers and suppliers. The study did not capture independent opinions from other members of the supply chain. This focus on focal firm managers' opinions may limit the diversity and nuance that could have been gleaned from a broader sample of supply-chain actors.

Second, the research may have been hampered by the absence of a single legal or agreed definition of the term 'local'. However, some broad definitional parameters do exist (Porter & Kramer, 2011; Campbell & MacRae, 2013; CIPS, 2013), and these were employed as the foundation for the definition employed. In the context of this research, 'local' was defined in terms of district boundaries, to balance supply chain realities and consumer perceptions in a developing country context. However, lack of clarity on the term 'local' risks compromising the proper utilization of the study results.

7.7 Recommendations

The local content (BUBU) policy in Uganda was developed to expand the private sector (particularly SME) role in local procurement by empowering it with a ready market. Through the policy, the Government of Uganda has created the preference and reservation scheme, enacted laws to ensure compliance with standards, and is expected

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to enhance the capacity of SMEs in meeting supply chain requirement. The policy focus on expanding the local procurement market, and the promise to support companies to access the market, does not resolve the numerous supply-side constraints, particularly the inefficiencies at the different stages of the local supply chain. To resolve these supply related constraints, government should review current policy to increase the role of the private sector, specifically the role of SME owner-managers, in reducing supply chain inefficiencies. The study demonstrates that SME owner-managers need to develop supply chain management capabilities to build value-driven supply chains as a strategy to increase SME access to the local procurement market. These capabilities are a combination of information integration, relational integration and integration of entrepreneurial competencies.

The BUBU policy strategy aims to increase the role of SMEs in local procurement, but lacks a proper definition of enterprises. Specifically, the policy is not clear about the size of enterprises targeted. Based on the above issue, the study proposes that to improve SME access to the local procurement market; it is important to define the type of enterprises for targeting, and to define geographical boundaries to create a clear definition of local. This will help in managing stakeholder expectations, especially among suppliers and the wider community. The current definition utilizes ownership and place of incorporation to distinguish between foreign and local companies, but this definition does not embrace local SMEs.

The study revealed that Ugandan SMEs involved in local procurement have the potential to improve their SCVC through enriching their competencies. The key competencies requiring development are opportunity and commitment competence. Specifically, this will involve developing managers':

- skills in integrating new supply chain partners into local supply chains; (This is likely to have a widespread but gradual effect that significantly impacts on quality, flexibility and customer responsiveness.)
- capacity in identifying and developing new market opportunities and ways of integrating the local SME supply chain, such as the use of ICTs.

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- capacity in establishing and managing long term relationships with suppliers to improve SCVC.

Towards these ends, managers need to consider how to offer support to suppliers, share knowledge, and communicate openly and effectively using a variety of communication methods for contact maintenance. Digital communication platforms such as mobile phones and social media may provide efficient means of information exchange in Uganda.

The study illustrates that the customers of SMEs often do not share the level of commitment to small suppliers that the suppliers exercise towards them. This is because they consider SME suppliers unreliable. To remedy this, there is a need to strengthen information sharing between the focal firm and its customers, to promote the kind of mutual trust that motivates commitment. Understanding the factors that facilitate information sharing in local SME supply chains will improve the competitiveness of those supply chains. SME owner-managers can improve information sharing through:

- Employing information technology tools such as electronic funds transfer (Lim & Palvia, 2001) or the use of mobile money. This latter seems to be a more secure means of money transfer in local communities in Uganda. Locally available tools such as mobile phone infrastructure could be exploited in facilitating secure and efficient information flow between the different parties involved in local supply chains.
- Creating incentives to ensure that supply chain partners exchange accurate, complete and confidential information. One such incentive is a revenue sharing contract such as that proposed by Zhang and Chen (2013).
- Building good inter-organisation relationships to benefit from trust as it is built. Lack of mutual trust has been identified as a barrier to supply chain integration (Meehan & Muir, 2008) and information sharing, and thus it is important for SME owner-managers to build relationships based on optimal levels of trust to facilitate the smooth exchange of information.

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The study illustrates that procuring locally is less expensive because of the low transaction costs associated with local sourcing. Therefore, local governments should explore promoting local procurement as a means to reduce government expenditure on procurements. To this end, government should consider enacting laws and policies that promote the use of local procurement.

Since SMEs lack resources and may have to depend on co-operation with partners to invest in supply chain management activities, the participation of private sector apex and umbrella institutions such as the Uganda Private Sector Foundation may be required to foster these linkages and cooperation. In addition, business incubation centres and NGOs involved in developing local SME supply chains should integrate the findings of this study – particularly those relating to scarce but necessary competencies – into training programmes targeting entrepreneurs.

Because, as this study strongly demonstrates, SME owner-managers have to facilitate good communication with their supply chain partners in order to improve SCVC, collaborative communication can be improved through the promotion of strategic partnerships with independent entities such as NGOs. Similar strategic partnerships may be fruitful between a lead company and members of its supply chain. These may reduce uncertainty and increase the information flow in supply chains. The partnership approach (Cheng, 2011; Lu & Yan, 2007) to collaboration is widely used to facilitate local procurement elsewhere.

However, none of these positive relationships can be well understood without two underlying factors whose importance this research strongly underlined: the moderation role of supply chain trust in the relationship between entrepreneurial competence and SCVC; and the difference in managers' perspectives between their view of downstream and upstream clients, due to these managers' distance from their supply chain partners. This variation in perspective paints a clear picture of the nature of the relationship between the independent variables and dependent variables. Regarding the moderating role of

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supply chain trust, the study demonstrates that SME owner-managers' competencies are much valued where supply chain partners are geographically close to one another.

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APPENDICES

Appendix 1: Definition of items reported in the Analysis

	Entrepreneurial competences
Item	**Description of items**
a) Commitment competence	
CMC1	Even if we could, we would not drop our partners because we like being associated with them.
CMC2	We want to remain a member of our partners' network because we genuinely enjoy our relationship with them.
CMC3	Our positive feelings towards our partners are a major reason we continue working with them
CMC5	The renewal of our relationships with our partners is virtually automatic
b) Opportunity competence	
OP1	Searching for new way to integrate supply chain
OP3	Recognizing and developing new market opportunities
OP2	Involving new supply chain members
	Supply chain collaboration – suppliers
a)Goal Congruence	
SCGS1	We agree with suppliers on goals of the supply chain
SCGS2	We agree with suppliers on the importance of collaboration
SCGS3	We agree with suppliers on importance of improvements
b) Information sharing	
SCIS4	Exchange of complete information with suppliers
SCIS5	Exchange of confidential information with suppliers
SCIS3	Exchange of accurate information with suppliers
c) Collaborative communication	
SCCM1	We have frequent contacts on a regular basis with our suppliers
SCCM2	We use open and two way communication with our suppliers
SCCM2	
	Supply chain collaboration – customers
a) Goal congruence	
SCGC2	Our firm and customers have agreement on the importance of collaboration across the supply chain
SCGC1	Our firm and customers have agreement on the goals of the supply chain
SCGC3	Our firm and customers have agreements on the importance of improvements that benefit the supply chain as a whole
b) Information sharing	

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SCIS13	Our firm and customers exchange accurate information
SCIS15	Our firm and customer exchange confidential information
SCIS14	Our firm and customer exchange complete information
c) Collaborative communication	
SCCM12	Our firm and customer use open and two way communication
SCCM11	Our firm and customers have frequent contacts on a regular basis
SCCM13	Our firm and customers use informal communication

Supply Chain Trust (suppliers)	
a) Rational factors	
RWS2	We do not mind paying a higher price than the market price for a right product/service of our critical operations
RWS4	We develop relationship with few selected suppliers
PRS3	We maintain relationship with suppliers where we have clearly written terms and condition of delivery and payment
b) Characteristic factors	
PRS4	We develop relationship with suppliers who are fair to us
PRS2	We depend on suppliers who have operational flexibility
NRS1	We enter in business relationship with suppliers with suppliers having good market credibility
Supply Chain Trust (customers)	
a) Rational factors	
PRC1	We develop relationship with customers who pursue mutual economic interest
PRC2	We depend on customers who have the operational flexibility
PRC3	We maintain relationship with customers where we have clearly written terms and conditions of delivery and payment
b) Characteristic factors	
NRC3	We offer open credit facility for customers who are reliable
RWC1	We start relationship with new customers when they are transparent
Supply chain value	
a) Supplier value	
SV6	Quick response time for emergencies, problems, special requests
SV1	Suppliers' ability to meet due dates
SV2	Commitment to continuous improvement
b) **Customer value**	
CV1	Employing routine follow-up procedures
CV2	How the customers use products and services
CV4	Firm's ability to meet due dates set by the customer

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Appendix 2: Validity and reliability test statistics

a) Validity and reliability test for Entrepreneurship factors

Factor 1: Commitment competence

Eigen value = 1.536 **% of variance = 19.200**				**Cronbach's alpha =0.730** **AVE=0.762**
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
CMC1	Even if we could, we would not drop our partners because we like being associated with them.	**0.877**	0.535	-
CMC2	We want to remain a member of our partners' network because we genuinely enjoy our relationship with them.	**0.869**	0.535	-

Factor 2: Opportunity competence

Eigen value = 1.485 **% of variance = 21.219**				**Cronbach' alpha =.516** **AVE = 0.506**
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
OP1	Searching for new way to integrate supply chain	**0.721**	0.326	0.423
OP3	Recognizing and developing new market opportunities	**0.716**	0.328	0.421
OP2	Involving new supply chain members	**0.696**	0.341	0.401

Factor 3: Relationship competence

Eigen value 1.242 **% of variance 15.528**				**Cronbach's alpha =.697** **AVE=0.708**
	Item	**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
CMC3	We expect our relationship with our partners to continue for a long time	**0.857**	0.535	-
CMC5	It is likely that our business will be doing business with our partners in future	**0.826**	0.535	-

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b) Validity and reliability test for Supply chain collaboration- upstream clients

Factor 1- goal congruence

Eigen value = 2.845 **% of variance = 28.450**			**Cronbach's alpha =0.858** **AVE=0.708**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCGS1	We agree with suppliers on goals of the supply chain	**0.885**	0.765	0.772
SCGS2	We agree with suppliers on the importance of collaboration	**0.905**	0.803	0.730
SCGS3	We agree with suppliers on importance of improvements	**0.837**	0.662	0.872

Factor 2 – Information sharing

Eigen value = 1.709 **% of variance = 17.091**			**Cronbach's alpha =.694** **AVE=.613**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCIS4	Exchange of complete information with suppliers	**0.805**	0.583	0.515
SCIS5	Exchange of confidential information with suppliers	**0.768**	0.434	0.730
SCIS3	Exchange of accurate information with suppliers	**0.775**	0.541	0.573

Factor 3: Information quality

Eigen value = 1.401 **% of variance = 14.015**			**Cronbach's alpha = 0.622** **AVE=.722**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCIS1	Exchange relevant information with suppliers	**0.869**	0.524	-
SCIS2	Exchange of timely information with suppliers	**0.830**	0.524	-

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Factor 4: Collaborative communication

Eigen value = 1.087 **% of variance = 10.875**				**Cronbach's alpha = 0.353** **AVE=0.593.**
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCCM1	We have frequent contacts on a regular basis with our suppliers	**0.811**	0.215	-
SCCM2	We use open and two way communication with our suppliers	**0.727**	0.215	-

c) Supply chain collaboration with customers

Factor 1: Goal congruence

Eigen value = 3.001 **% of variance = 27.286**				**Cronbach's alpha =.821** **AVE=.726**
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCGC2	Our firm and customers have agreement on the importance of collaboration across the supply chain	**0.908**	0.772	0.651
SCGC1	Our firm and customers have agreement on the goals of the supply chain	**0.894**	0.744	0.688
SCGC3	Our firm and customers have agreements on the importance of improvements that benefit the supply chain as a whole	**0.744**	0.553	0.869

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Factor 2: Information sharing

Eigen value = 1.885 **% of variance = 17.133**				**Cronbach's alpha =0.719** **AVE=0.626**
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCIS13	Our firm and customers exchange accurate information	**0.830**	0.602	0.563
SCIS15	Our firm and customer exchange confidential information	**0.792**	0.480	0.734
SCIS14	Our firm and customer exchange complete information	**0.749**	0.566	0.608

Factor 3: Information quality

Eigen value = 1.621 **% of variance =14.735**				**Cronbach's alpha =.747** **AVE =0.728**
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCIS11	Our firm and customer exchange relevant information	**.865**	.604	-
SCIS12	Our firm and customer exchange timely information	**.841**	.604	-

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Factor 4: Collaborative communication

Eigen value = 1.154 **% of variance = 10.489**			**Cronbach's alpha =0.771** **AVE=0.531**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SCCM12	Our firm and customer use open and two way communication	**0.810**	0.503	0.338
SCCM11	Our firm and customers have frequent contacts on a regular basis	**0.711**	0.397	0.509
SCCM13	Our firm and customers use informal communication	**0.657**	0.325	0.604

d) Validity and reliability test for Supply chain trust in relation to suppliers

Factor 1- Individual characteristics

Eigen value = 2.118 **% of variance = 35.293**			**Cronbach's alpha =0.837** **AVE=0.631**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
PRS4	We develop relationship with suppliers who are fair to us	**0.809**	0.556	0.593
PRS2	We depend on suppliers who have operational flexibility	**0.789**	0.531	0.623
NRS1	We enter in business relationship with suppliers having good market credibility	**0.784**	0.507	0.643

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Factor 2 - Rational factors

Eigen value = 1.532 **% of variance = 25.537**			**Cronbach's alpha =.678** **AVE=0.573**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
RWS2	We do not mind paying a higher price than the market price for a right product/service of our critical operations	**0.793**	0.427	0.321
RWS4	We develop relationship with few selected suppliers	**0.747**	0.396	0.374
PRS3	We maintain relationship with suppliers where we have clearly written terms and condition of delivery and payment	**0.729**	0.250	0.596

e) Validity and reliability test for Supply chain trust in relation to customers

Rational factors

Eigen value = 2.034 **% of variance = 40.679**			**Cronbach's alpha =0.641** **AVE= 0.582**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
PRC1	We develop relationship with customers who pursue mutual economic interest	**0.762**	0.443	0.555
PRC2	We depend on customers who have the operational flexibility	**0.832**	0.549	0.418
PRC3	We maintain relationship with customers where we have clearly written terms and conditions of delivery and payment	**0.687**	0.383	0.663

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Characteristic factors

Eigen value = 1.130 **% of variance = 22.598**			**Cronbach's alpha =.539** **AVE=0.676**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
NRC3	We offer open credit facility for customers who are reliable	**0.848**	0.377	-
RWC1	We start relationship with new customers when they are transparent	**0.796**	0.377	-

f) Validity and reliability tests for SCVC

Supplier value

Eigen value = 1.940 **% of variance =38.808**			**Cronbach's alpha =.593** **AVE=0.541**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
SV6	Quick response time for emergencies, problems, special requests	0.739	0.442	0.433
SV1	Supplier's ability to meet due dates	0.692	0.389	0.513
CV4	Firm's ability to meet due dates set by the customer	0.774	0.395	0.519

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Customer value

Eigen value = 1.092 **% of variance = 21.837**			**Cronbach's alpha =.504** **AVE=0.649**	
Item		**Factor loading**	**Item-Total Correlation**	**Cronbach's Alpha after Deletion**
CV1	Employing routine follow-up procedures	.849	.341	-
CV2	How the customers use products and services	.760	.341	-

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Appendix 3: Harmon one factor-test results, standard regression weight and model fit indices.

Table a) Results of Harmon one-factor test and Common latent Factor (CLF)

Measurement Model	**Harmon one-factor test**		**Common Latent factor (CLF) test**			
	% of Variance		CMIN/DF	CFI	GFI	RMSEA
Supply chain collaboration-suppliers	30.31%	No CLF	1.211 P=0,268	0.989	0.989	0.027
		CLF	1.987 p= 0.003	0.968	0.967	0.058
Supply chain collaboration- customers	29.53%	No CLF	0.922 p=0.572	1.000	0.984	0.000
		CLF	0.704 p=0.783	1.000	0.992	0.000
Entrepreneurial competencies	25.96%	No CLF	1.211 p=0.268	0.986	0.989	0.027
		CLF	0.315 p=0.904	1.000	0.998	0.000
Supply chain trust -suppliers	35.29%	No CLF	0.798 p=0.604	1.000	0.993	0.000
		CLF	1.168 p=0.320	0.998	0.996	0.024
Supply chain trust -customers	40.67%	No CLF	0.515 p=0.725	1.000	0.997	0.000
		CLF	0.688 p=0.407	1.000	0.999	0.000

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Appendix 4: Establishment of Discriminant validity

a) Entrepreneurial competencies

Convergent-Discriminant Validity Matrix			
	OC	RC	CMC
Opportunity competence (OC)	**0.264**		
Relationship competence (RC)	0.235	**0.514**	
Commitment competence (CMC)	0.045	0.235	**0.538**

2b Supply chain collaboration -suppliers

Convergent-Discriminant Validity Matrix			
	Collaborative communication	**Information sharing**	**Goal congruence**
Collaborative communication	**0.192**		
Information sharing	0.259	**0.473**	
Goal congruence	0.248	0.258	**0.684**

2c Supply chain collaboration-customers

Convergent-Discriminant Validity Matrix			
	Collaborative communication	**Information sharing**	**Goal congruence**
Collaborative communication	**0.382**		
Information sharing	0.293	**0.493**	
Goal congruence	0.233	0.129	**0.633**

2d Supply chain trust -customers

Convergent-Discriminant Validity Matrix		
	ChF	**RF**
Characteristic Factors (ChF)	**0.421**	
Rational Factors (RF)	0.386	**0.419**

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Supply chain trust –suppliers

Convergent-Discriminant Validity Matrix		
	ChF	**RF**
Characteristic Factors (ChF)	**0.456**	
Rational Factor (RF)	0.236	**0.373**

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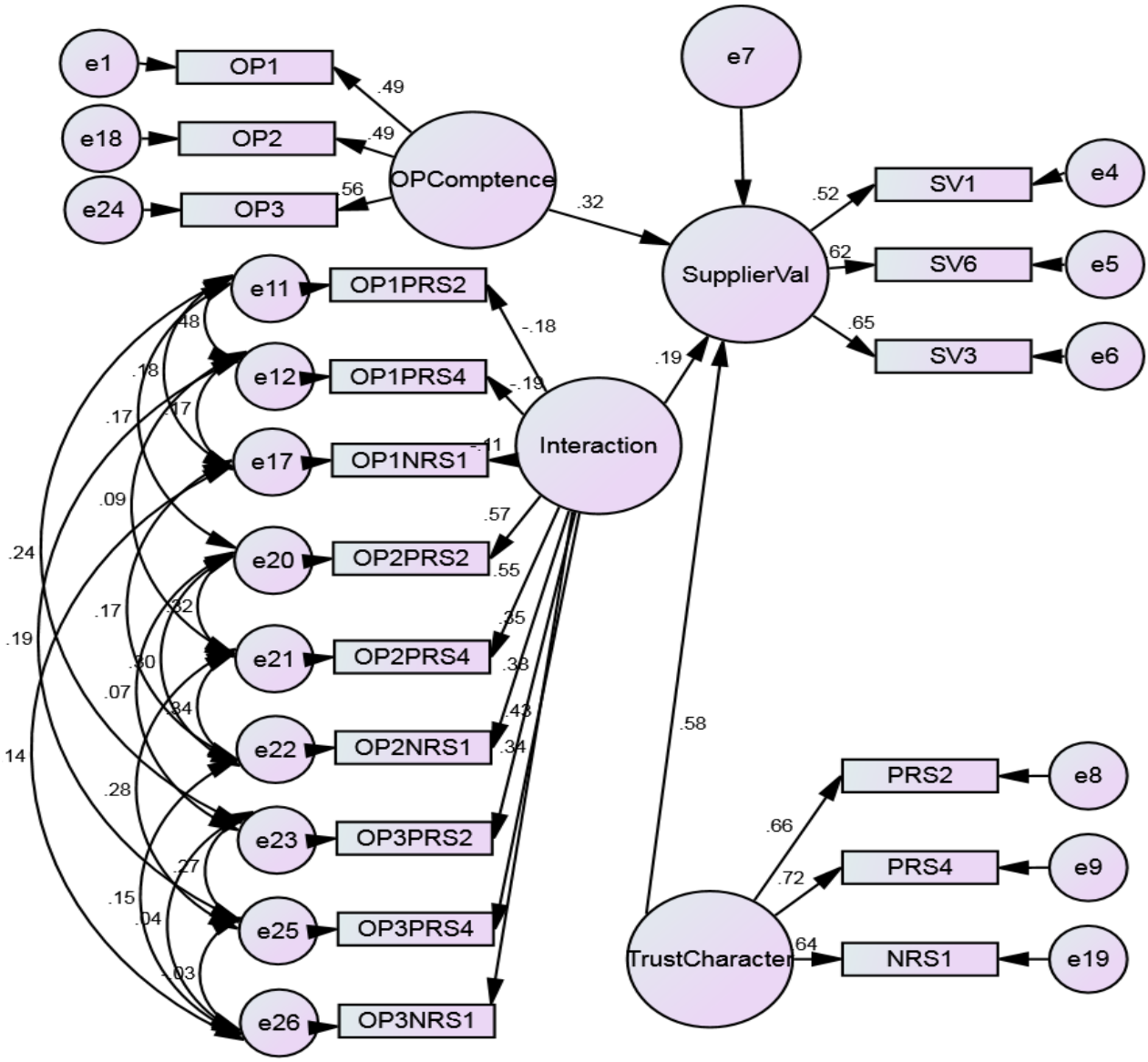
Appendix 5: Structural and measurement model for moderation

a) Structural model for the interaction between characteristic factors and opportunity competence on supplier value



Key: TrustCharacter (Characteristic Factors), SupplierVal (Supplier value), Interaction (interaction term), Opcompetence (opportunity competence)

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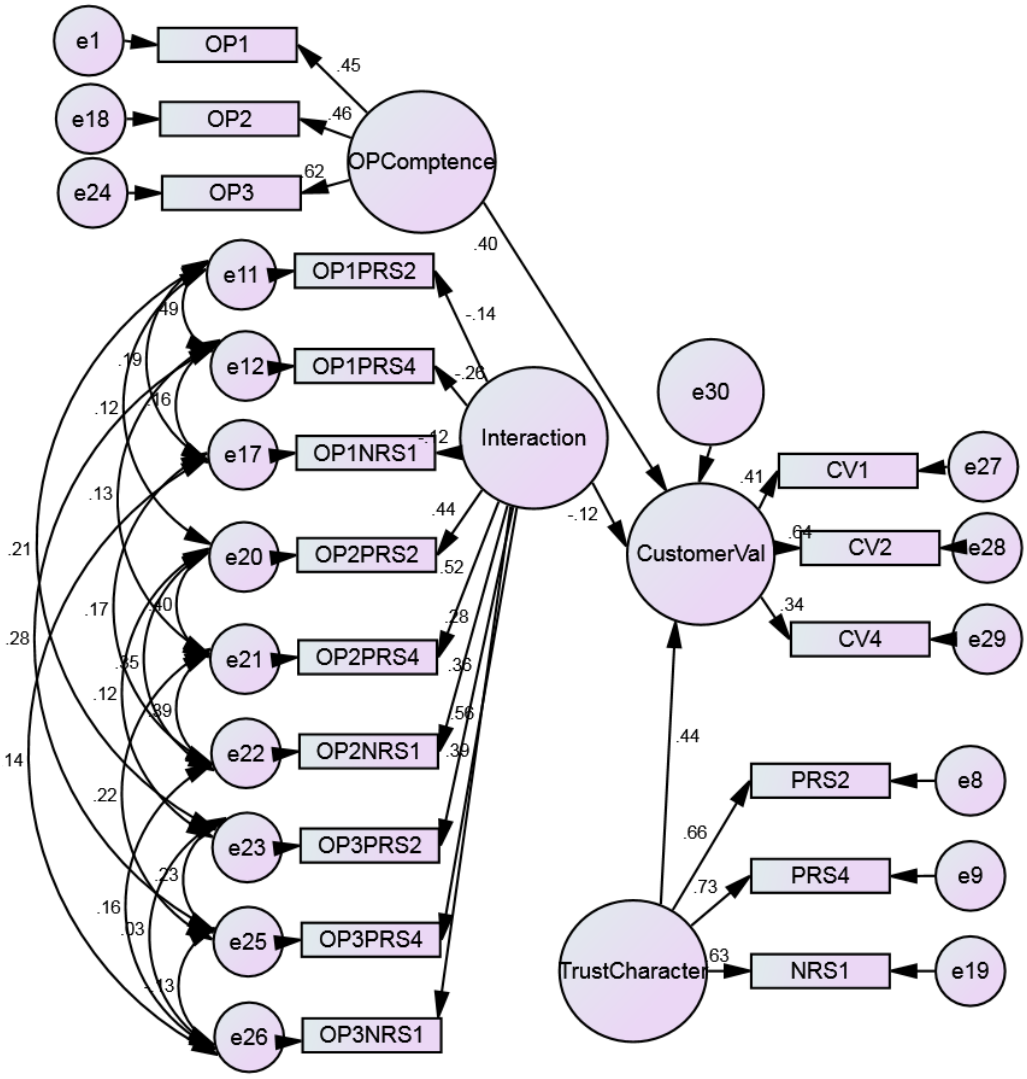
b) Structural model for the interaction between characteristic factors and opportunity competence on supplier value



Key: TrustCharacter (Characteristic Factors), CustomerVal (Customer value), Interaction (interaction term), Opcompetence (opportunity competence)

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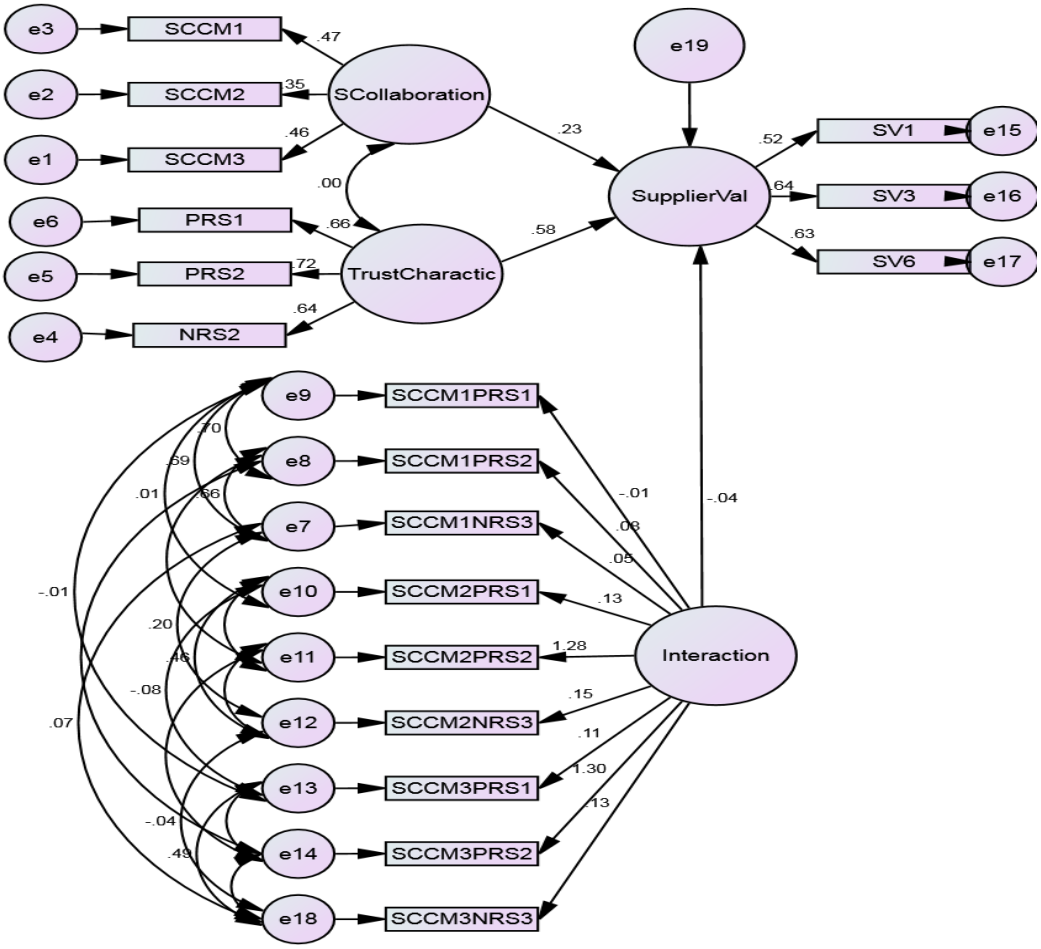
c) Structural model for the interaction between characteristic factors and collaborative communication on supplier value



Key: TrustCharacteric (Characteristic Factors), SupplierVal (Supplier value), Interaction (interaction term), Scollaboration (collaborative communication)

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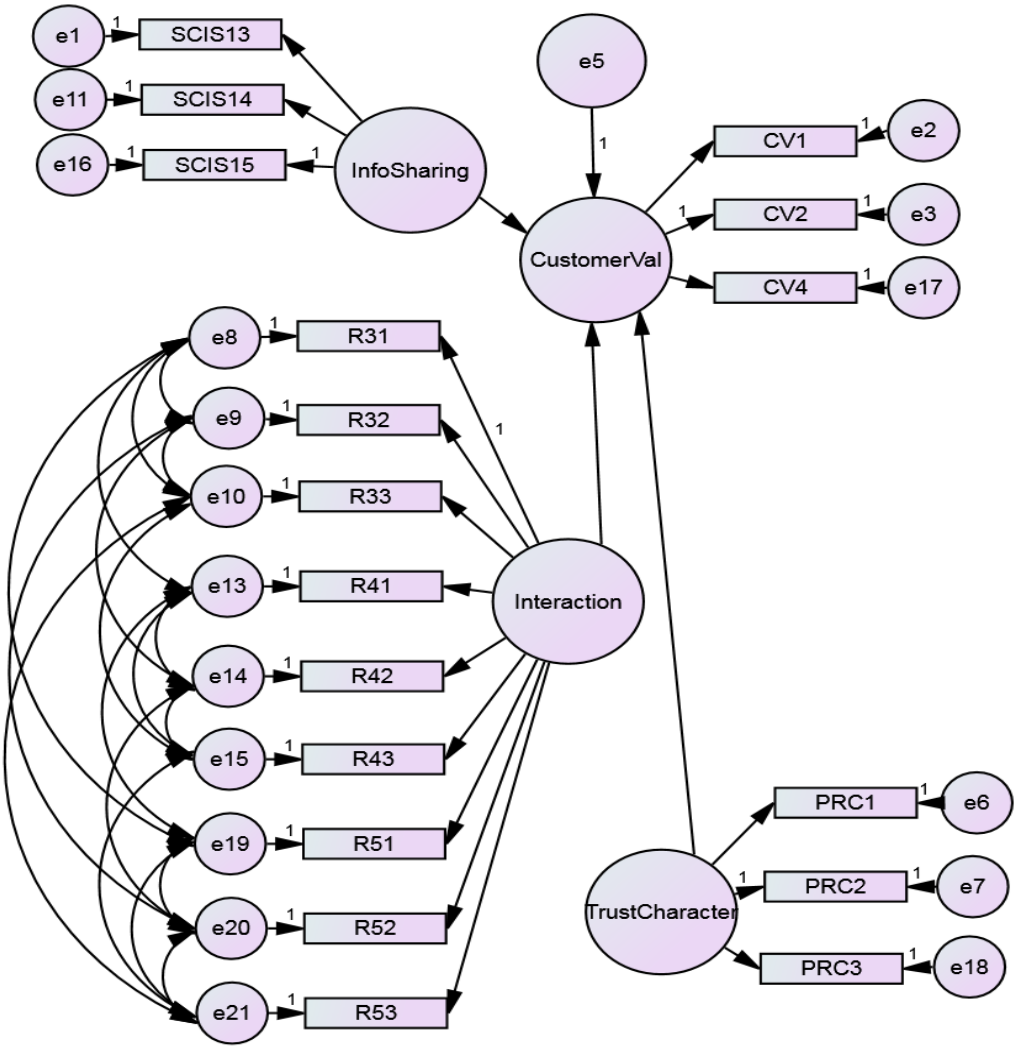
d) Structural model for the interaction between characteristic factors and information sharing on customer value



Key: TrustCharacteric (Characteristic Factors), CustomerVal (Customer value), Interaction (interaction term), InfoSharing (Information sharing)

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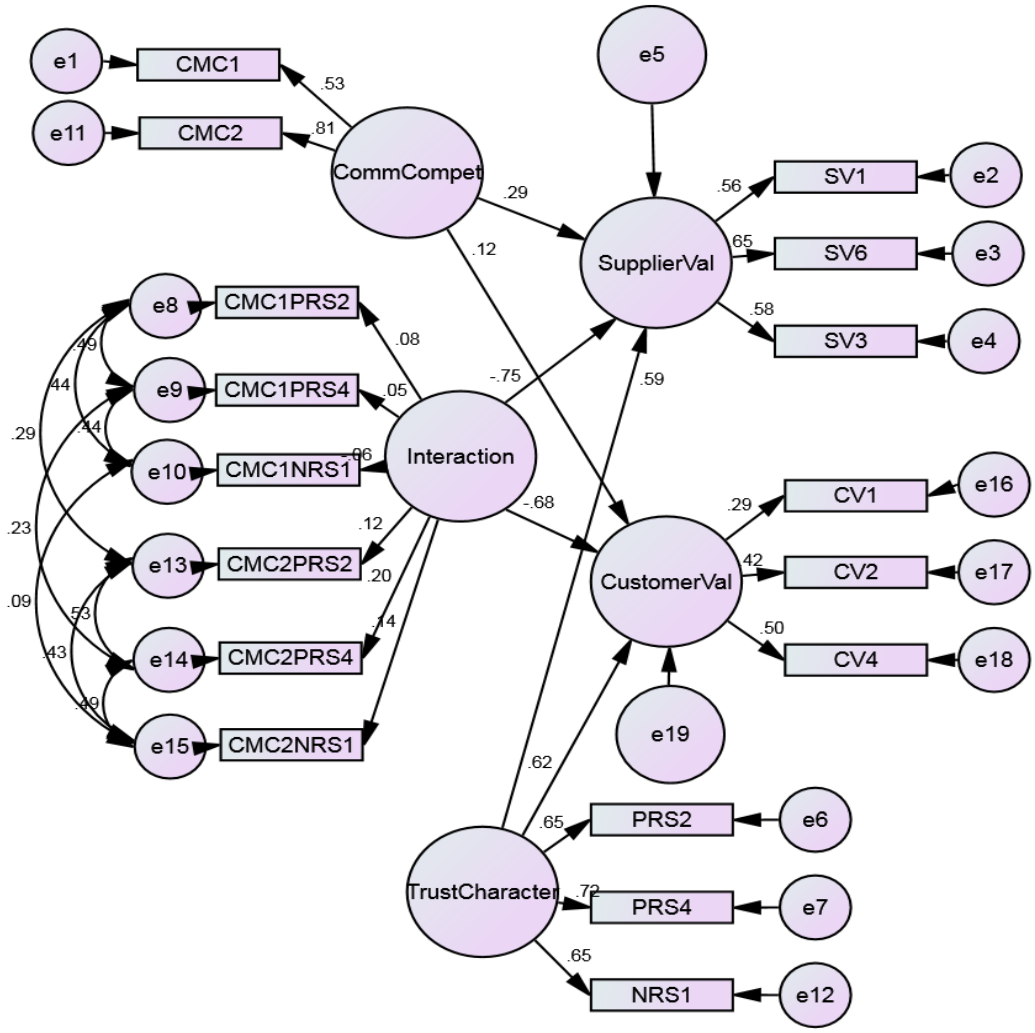
e) Structural model for the interaction between characteristic factors and information sharing on customer value



cmin=119.217; df=104; p-value=.146; gfi=.955; cfi=.985; rmsea=.022

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Appendix 6: Informed consent form

Gordon Institute of Business Science
University of Pretoria

Informed consent for participation in an academic research study

Gordon Institute of Business Science

Antecedents and enablers of supply chain value creation and its effect on performance: a perspective of SMEs participation in local procurement in Uganda

Research Conducted by
Yusuf Kiwala (14192269)

Cell: 0775656700
ykiwala@bams.mak.ac.ug

Dear Respondent

You are invited to participate in an academic research study conducted by Yusuf Kiwala, Doctoral student from the Gordon Institute of Business Science at the University of Pretoria.

The purpose of this study is to investigate the role of trust in collaborations and entrepreneurial competencies in management of supply chains for SMEs that are involved in local procurement.

Please note the following:

a. This study involves an anonymous interview. Your name will not appear on the questionnaire and the answers you give will be treated as strictly confidential. You cannot be identified in person based on the answers that you give. [Kindly note that consent cannot be withdrawn once the questionnaire is submitted as there is no way to trace the particular questionnaire that has been filled in].
b. Your participation in this study is very important to us. You may, however choose not to participate and you may also stop participating at any time without any negative consequence.
c. Please answer the questions in the attached questionnaire as completely and honestly as possible. This should not take you more than ……minutes of your time.
d. The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our results on request.
e. Please contact my study leader **(Prof. Johan L. Olivier, +27-83-452-5539, fisheagle@imaginet.co.za)** if you have any question or comments regarding the study.

Please sign the form to indicate that:

- You have read and understand the information provided above.
- You give your consent to participate in the study on voluntary basis.

_____ _____

Respondent's signature Date

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Appendix 7: Questionnaire

QNR NO:	

SUPPLY CHAIN MANAGEMEI
FOR SME OWNER-M

Gordon Institute of Business Science
University of Pretoria

PART A: INFORMATION ABOUT THE BUSINESS

BI1	Specific good or services your company offers							
BI2	Sector of business : *(tick the appropriate option)*	Agriculture		Mining/quarrying		Construction		
		Furniture		Food processing		Hotel business		
BI3	Year of incorporation							
BI4	Number of employees							
BI5	Location of Business							
BI6	Designation of respondent							
BI7	Gender of respondent *(tick the appropriate option)*	Male	Female					

PART B: ENTREPRENEURIAL COMPETENCIES

What level of importance do you give to the following statement? Please tick one box for each question. (**Very low importance =1; very high importance =7**)

i) Opportunity competence		**Score**						
OP1	Searching for new ways to integrate the supply chain	1	2	3	4	5	6	7
OP2	Involving new supply chain members in the firm's activities	1	2	3	4	5	6	7
OP3	Recognizing and developing market opportunities	1	2	3	4	5	6	7
OP4	Creating new products and services	1	2	3	4	5	6	7
OP5	Making timely decisions	1	2	3	4	5	6	7
ii) Commitment competence								
CMC1	We want to remain a member of our partners' network because we genuinely enjoy our relationship with them.	1	2	3	4	5	6	7
CMC2	Our positive feelings towards our partners are a major reason we continue working with them	1	2	3	4	5	6	7
CMC3	We expect our relationships with our partners to continue for a long time.	1	2	3	4	5	6	7
CMC4	The renewal of our relationships with our partners is virtually automatic	1	2	3	4	5	6	7
CMC5	It is likely that our firm will still be doing business with our current partners in future	1	2	3	4	5	6	7
CMC6	If our partner requested it, we would be willing to make further investment in the relationship	1	2	3	4	5	6	7

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iii) Analytical competence								
AC1	We understand what others mean by their words and actions	1	2	3	4	5	6	7
AC2	We apply ideas, issues and observations to alternative context	1	2	3	4	5	6	7
AC3	We Integrate ideas, issues and observations into more general context	1	2	3	4	5	6	7
AC4	We monitor progress towards objectives in risky actions	1	2	3	4	5	6	7
iv) Innovative competence								
IC1	We look at old problems in new ways	1	2	3	4	5	6	7
IC2	We Explore new ideas	1	2	3	4	5	6	7
IC3	We treat new problems as opportunities	1	2	3	4	5	6	7

PART C: SUPPLIERS

i) COLLABORATION WITH SUPPLIERS

What level of importance do you give to the following statement? Please tick one box for each question. (**Very low importance =1; Very high importance=7**)

i) Collaborative communication		*Score*						
SCCM1	We have frequent contacts on a regular basis with our suppliers	1	2	3	4	5	6	7
SCCM2	We use open and two-way communication with our suppliers	1	2	3	4	5	6	7
SCCM3	We use informal communication channels with our suppliers	1	2	3	4	5	6	7
SCCM4	Our firm and suppliers have many different channels to communicate	1	2	3	4	5	6	7
SCCM5	Our firm and suppliers influence each other's decisions through discussion	1	2	3	4	5	6	7
ii) Goal congruence								
SCGC1	Our firm and suppliers have agreement on the goals of the supply chain	1	2	3	4	5	6	7
SCGC2	Our firm and suppliers have agreement on the importance of collaboration across the supply chain	1	2	3	4	5	6	7
SCGC3	We have agreement with suppliers on the importance of improvements that benefit the supply chain as a whole	1	2	3	4	5	6	7
SCGC4	Our firm and suppliers agree that our own goals can be achieved through working towards the goals of the supply chain	1	2	3	4	5	6	7
iii) Information sharing								
SCIS1	Our firm and suppliers exchange relevant information	1	2	3	4	5	6	7
SCIS2	Our firm and suppliers exchange timely information	1	2	3	4	5	6	7
SCIS3	Our firm and suppliers exchange accurate information	1	2	3	4	5	6	7
SCIS4	Our firm and suppliers exchange complete information	1	2	3	4	5	6	7
SCIS5	Our firm and suppliers exchange confidential information	1	2	3	4	5	6	7

I) TRUST FOR SUPPLIERS

Please indicate the extent to which you agree with the following statements in relation to suppliers. Please tick one box for each question. (1-not at all; 7-a very great extent)

Perspective of risk	Score

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PRS1	We develop relationship with suppliers who pursue mutual economic interests	1	2	3	4	5	6	7	8	9	10
PRS2	We depend on suppliers who have operational flexibility	1	2	3	4	5	6	7	8	9	10
PRS3	We maintain relationship with suppliers where we have clearly written terms and conditions of delivery and payment	1	2	3	4	5	6	7	8	9	10
PRS4	We develop relationship with suppliers who is fair to us	1	2	3	4	5	6	7	8	9	10
PRS5	We depend on more than one supplier even where one can meet our demand	1	2	3	4	5	6	7	8	9	10
Perspective of no risk											
NRS1	We enter in business relationships with suppliers having good market credibility	1	2	3	4	5	6	7	8	9	10
NRS2	We build relationship with suppliers who have capability to re organize the assets and resources as per our requirements	1	2	3	4	5	6	7	8	9	10
NRS3	We develop relationships with suppliers who meet our quality requirements	1	2	3	4	5	6	7	8	9	10
NRS4	We develop relationship with our suppliers only after visiting their facility and assessing their capacity and capabilities	1	2	3	4	5	6	7	8	9	10
Perspective of risk worthiness											
RWS1	We start relationship with a new supplier when they are transparent	1	2	3	4	5	6	7	8	9	10
RWS2	We do not mind paying a higher price than the market price for a right product/service of our critical operations	1	2	3	4	5	6	7	8	9	10
RWS3	We adopt our supplier's new technology only when the price task, and utility fit together matching with our customer's requirement	1	2	3	4	5	6	7	8	9	10
RWS4	We develop relationship with few selected suppliers	1	2	3	4	5	6	7	8	9	10

III) SUPPLIER VALUE

How often does the company consider the following issues in selecting or evaluating suppliers? Please tick one box for each question. (**Very often=5, Often=4; Sometimes=3, Rarely =2; Never = 1)**

		Score				
SV1	Supplier's ability to meet due dates	1	2	3	4	5
SV2	Emphasis on quality in supplier selection	1	2	3	4	5
SV3	Commitment to continuous improvement	1	2	3	4	5
SV4	Correct quantity provided	1	2	3	4	5
SV5	Overall service level provided	1	2	3	4	5
SV6	Quick response time for emergencies, problems, special requests	1	2	3	4	5
SV7	Ability to transfer knowledge	1	2	3	4	5
SV8	Access to new buyers associated with a supplier	1	2	3	4	5

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PART D: CUSTOMERS

I) COLLABORATION WITH CUSTOMERS

What level of importance do you give to the following statement? Please tick one box for each question. (**Very low importance =1; Very high importance=7**)

i) Collaborative communication		**Score**						
SCCM1	Our firm and customers have frequent contacts on a regular basis	1	2	3	4	5	6	7
SCCM2	Our firm and customers use open and two-way communication	1	2	3	4	5	6	7
SCCM3	Our firm and customers use informal communication	1	2	3	4	5	6	7
SCCM4	Our firm and customers have many different channels to communicate	1	2	3	4	5	6	7
SCCM5	Our firm and customers influence each other's decisions through discussion	1	2	3	4	5	6	7
***ii*) Goal congruence**								
SCGC1	Our firm and customers have agreement on the goals of the supply chain	1	2	3	4	5	6	7
SCGC2	Our firm and customers have agreement on the importance of collaboration across the supply chain	1	2	3	4	5	6	7
SCGC3	Our firm and customers have agreement on the importance of improvements that benefit the supply chain as a whole	1	2	3	4	5	6	7
SCGC4	Our firm and customer agree that our own goals can be achieved through working towards the goals of the supply chain	1	2	3	4	5	6	7
iii) Information sharing								
SCIS1	Our firm and customers exchange relevant information	1	2	3	4	5	6	7
SCIS2	Our firm and customers exchange timely information	1	2	3	4	5	6	7
SCIS3	Our firm and customers exchange accurate information	1	2	3	4	5	6	7
SCIS4	Our firm and customers exchange complete information	1	2	3	4	5	6	7
SCIS5	Our firm and customers exchange confidential information	1	2	3	4	5	6	7

II) TRUST FOR CUSTOMERS

Please indicate the extent to which you agree with the following statements. Please tick one box for each question. (1-not at all; 7-a very great extent)

Perspective of risk		Score									
PRC1	We develop relationship with customers who pursue mutual economic interest	1	2	3	4	5	6	7	8	9	10
PRC2	We depend on customers who have the operational flexibility	1	2	3	4	5	6	7	8	9	10
PRC3	We maintain relationship with customers where we have clearly written terms and conditions of delivery and payment	1	2	3	4	5	6	7	8	9	10
PRC4	We develop relationship with a customer who is fair to us	1	2	3	4	5	6	7	8	9	10
Perspective of no risk											
NRC1	We enter in business relationships with customers who have good market credibility	1	2	3	4	5	6	7	8	9	10

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NRC2	We develop relationships with customers who meet our quality requirements	1	2	3	4	5	6	7	8	9	10
NRC3	We offer open credit facility for customers who are reliable	1	2	3	4	5	6	7	8	9	10
NRC4	We develop relationship with customers only after visiting their facility and assessing their capacity	1	2	3	4	5	6	7	8	9	10
	Perspective of risk worthiness										
RWC1	We start relationship with new customers when they are transparent	1	2	3	4	5	6	7	8	9	10
RWC2	When the economic or political situation in the country gets in turbulence we re-negotiate our agreements with customers, though there is a long term relationship with them	1	2	3	4	5	6	7	8	9	10
RWC3	We develop relationship with few selected customers	1	2	3	4	5	6	7	8	9	10

III) CUSTOMER VALUE

How often do you consider the following issues with regard to customers? Please tick one box for each question. **(Very often=5; often=4; sometimes=3; rarely =2; never = 1)**

		Score				
CV1	Employing routine follow-up procedures	1	2	3	4	5
CV2	How the customer use products and services	1	2	3	4	5
CV3	Factors for improving customer satisfaction	1	2	3	4	5
CV4	Firm's ability to meet due dates set by the customer	1	2	3	4	5
CV5	Determination of customer future expectations	1	2	3	4	5
CV6	Resolution of customer complaints	1	2	3	4	5
CV7	Easier for the customer to seek assistance	1	2	3	4	5
CV8	Growth in the number of items currently being procured	1	2	3	4	5

IV) INTERNAL PROCESS VALUE

How often do you consider the following as part of your internal process? Please tick one box for each question. **(Never = 1; rarely =2; sometimes=3; often=4; Very often=5)**

		Score				
IPV1	Reducing supplier base	1	2	3	4	5
IPV2	Increasing delivery frequencies	1	2	3	4	5
IPV3	Reducing inventory to free up investment	1	2	3	4	5
IPV4	Developing capacity of employees	1	2	3	4	5

THANK YOU!

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