

*Full Length Research Paper*

# **Supply chain management constraints in Tanzanian small and medium enterprises**

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**Supply chain management (SCM) has gained popularity around the globe due to its significance in relation to improving business performance. Although large enterprises have been able to successfully implement SCM, it is different in small and medium enterprises (SMEs) as they are faced with several constraints that hinder the effective implementation of SCM. Variables such as technological difficulties, poor coordination with the supplier's lack of government support, resources, funds, access to markets and top management support, issues in information sharing, inventory management, poor SCM knowledge and unskilled workforce all affect the SCM implementation in SMEs. These variables were measured in this study. A mixed method approach was used in this study where content analysis was employed through carrying out an extensive literature review to identify the SCM constraints. Descriptive statistics were then used to justify the relationship between SCM impediments and effective SCM implementation in Tanzanian SMEs. Frequency and percentages were computed to obtain the study results. The findings reveal that there is a significant relationship between effective SCM implementation in Tanzanian SMEs and constraints such as technological difficulties, poor coordination with suppliers, a lack of support from the top management and insufficient funds. This indicates that Tanzanian SMEs are mostly constrained by technological difficulties, poor coordination with their suppliers, a lack of support from top management and insufficient funds. The results also revealed that information sharing, inventory management, a lack of access to markets and poor SCM knowledge were insignificant constraints affecting SCM implementation in Tanzanian SMEs, thus indicating that there are no significant relationships between these constraints and SCM implementation in Tanzanian SMEs. The study recommends that support from the government in terms of financial assistance could help the SMEs to overcome the financial constraints and to invest more in recent technologies to help effectively implement SCM. Training from SME governing bodies such as the Small Industry Development Organisation (SIDO) in Tanzania could help to increase awareness of the importance of SCM. Furthermore, forming and maintaining long-term relationships with suppliers is critical for effective SCM implementation.**

**Key words:** Supply chain management, Small and medium enterprises, firm performance, Tanzania.

## **INTRODUCTION**

The small and medium enterprises (SME) sector in Tanzania has been recognized as an important sector that significantly contributes to economic development through creating employment opportunities, generating

income, fostering industrial development and alleviating poverty. In Tanzania, SMEs are defined based on the number of employees and capital required to start a business. A small firm in Tanzania is, therefore, any

business with employees totalling between five and nine with a minimum capital of Tanzanian Shillings (TZS) of 5 million and a maximum of 200 mils. A medium enterprise is any business with employees totalling between 10 and 99 with a minimum capital requirement of 200 million TZS and a maximum of 800 mil TZS. In Tanzania, it is estimated that 95% of businesses are SMEs and they contribute to 35% of Gross Domestic Product (GDP).

Although several measures have been undertaken by the government to promote the SME sector, SMEs in Tanzania are still inhibited by a number of constraints, especially in their supply chains. A number of previous studies have identified the SCM constraints facing businesses in Tanzania such as low SCM knowledge, poor inventory management, a lack of proper pricing strategies, technology-related issues, a lack of R and D, a lack of capital investments, managerial incapability, poor infrastructure, poor storage facilities, a lack of integration and a lack of transparency in sharing of information (Mollel, 2015; Ekblom 2016). However, despite multiple SCM impediments being identified, there is still a lack of reporting on what issues exactly impact SCM in SMEs. Furthermore, the diverse issues identified could be difficult to address given the scarcity of resources in Tanzania. This study, therefore, aims to assess SCM issues in Tanzanian SMEs and it intends to suggest ways of addressing these challenges.

## LITERATURE REVIEW

### Supply chain management (SCM)

Several authors have defined SCM in a number of ways. Christopher (2016) defines SCM as the management of both upstream and downstream member relationships, namely with suppliers and customers, to deliver customer value at a minimal cost. Others have defined SCM based on themes such as network and process. For example, Nguegan and Mafini (2017) defined SCM as the process of planning and managing all activities involved in the procurement of materials, converting these to final products and distributing them to the final consumers. Brandenburg et al. (2014) defined SCM as the management of network relationships within and outside of the organisation to ensure that materials and information flow smoothly across the supply chain in order to meet customer expectations. For the purpose of this paper, my understanding of SCM is based on the definition given by CSCMP. According to Cscmp.org (2019), "SCM involves the planning and management of all activities from sourcing raw materials through producing these and delivering them to the customers. It also includes coordination between the supply chain

partners such as suppliers, customers, intermediaries and third-party customers. Additionally, SCM integrates supply and demand across firms."

SCM has increasingly gained popularity in firms due to its ability to increase the competitive advantage. Numerous studies have documented the benefits of SCM. Liu et al. (2016) noted that SCM improves delivery time and the management of inventories. Eckstein et al. (2014) suggests that SCM helps firms to adopt agility, which in return positively affects both costs as well as operational performance. Ali et al. (2019) found that SCM positively and significantly helps SMEs to obtain liquidity, working capital and to improve member relationships. Notwithstanding the benefits of SCM in organisations, various studies have documented the impediments that stand in the way of successful SCM implementation.

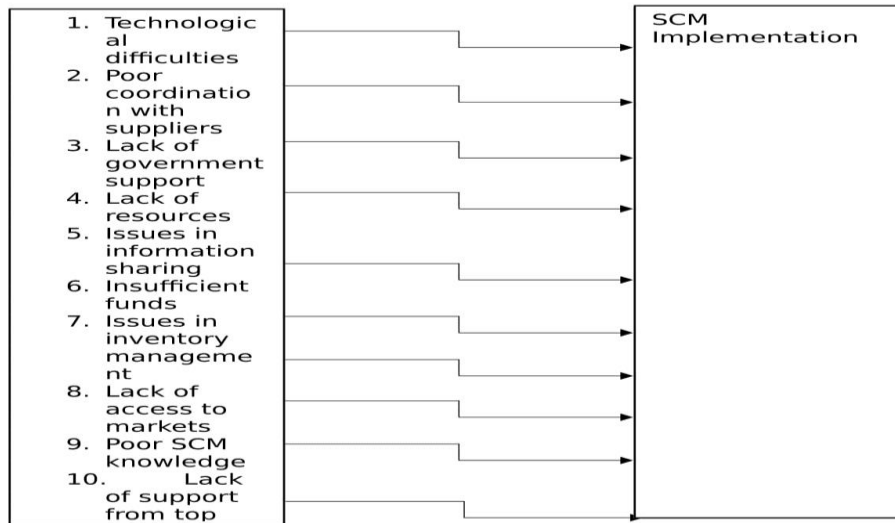
Therakorn (2014) reported that resistance to change from the employees, low employee SCM knowledge and a lack of skills, insufficient support from management, ineffective IT systems, deficiencies in implementing SCM strategies, the inability to manage relationships with their partners, poor collaboration and a lack of trust among the supply partners constitute the challenges of effective SCM implementation in SMEs in Thailand. Recently, Litke et al. (2019) found that firms still face issues in information sharing in their supply chain while using blockchains. Muchaendepi et al. (2019) study on the mining sector in Zimbabwe showed an absence of structural and organisational change needed to support sustainable SCM implementation. Furthermore, Bimha et al. (2019) revealed that firms in Zimbabwe face SCM constraints such as an unfriendly business environment, a restrictive tax regime, a poor regulatory system, a lack of stable government policy, financial constraints, poor procurement and inventory strategies and poor logistics and communication. Al-Esmael et al. (2019) found that a shortage of incentives, short-term objectives, a lack of cooperation, poor willingness among the supply chain partners and financial, managerial and technological constraints to be issued impeding SCM in SMEs in the Gulf countries. Manville et al., (2019) found that supplier issues affect better SCM in UK aerospace SMEs. Yang et al. (2019) reported financing constraints to be the major issue impacting the supply chain in SMEs. In Tanzania, Mollel (2015) found that information sharing and outsourcing negatively impacted SCM in food firms in Tanzania.

### Selected studies from around the globe addressing SCM issues

To find out the SCM constraints present in Tanzanian, 15

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**Figure 1.** Conceptual framework.  
Source: Literature review (2019).

studies were reviewed where the variables were extracted and measured. The studies reviewed have been presented in Table 1.

### Conceptual framework

Based on the literature review, several impediments affecting SCM implementation in Tanzanian SMEs have been identified. The main constraints in this study are as follows. The dependent variable for this research is SCM implementation and the independent variables for this research are technological difficulties, poor coordination with suppliers, a lack of government support, a lack of resources, issues in information sharing, insufficient funds, issues in inventory management, a lack of access to markets, poor SCM knowledge and a lack of support from the top management (Figure 1).

### Hypotheses

Based on the theoretical conceptual framework, the relationship between SCM constraints and SCM implementation can be hypothesised as follows:

H1 - There is a negative relationship between technological difficulties and SCM implementation in SMEs

H2- There is a negative relationship between poor coordination with the suppliers and SCM implementation in SMEs

H3- There is a negative relationship between a lack of government support and SCM implementation in SMEs

H4- There is a negative relationship between a lack of resources and SCM implementation in SMEs

H5- There is a negative relationship between issues in information sharing and SCM implementation in SMEs

H6 - There is a negative relationship between insufficient funds and SCM implementation in SMEs

H7- There is a negative relationship between issues in inventory management and SCM implementation in SMEs

H8- There is a negative relationship between a lack of access to markets and SCM implementation in SMEs

H9- There is a negative relationship between poor SCM knowledge and SCM implementation in SMEs

H10- There is a negative relationship between a lack of support from the top management and SCM implementation in SMEs

H11- There is a negative relationship between unskilled employees and SCM implementation in SMEs

### METHODOLOGY

In this study, a mixed method approach was adopted where content analysis as well as descriptive statistics was used. A thorough review of the SCM constraint implementation literature was carried out to identify the frequently cited constraints affecting SCM implementation which was thereafter followed by descriptive statistics. A mixed method approach was deemed to be appropriate as it allowed the researcher to investigate the phenomenon at hand adequately. As suggested by Almalki (2016), the use of mixed methods enables the researchers to significantly address the research problem by removing bias that can be obtained through the use of a single method. Therefore by employing this method, the researcher was able to gather information on the SCM implementation constraints through reviewing the literature and thereafter examining the descriptive statistics in the form of frequencies and percentages. This allowed the researcher to

**Table 1.** Selected SME studies from around the globe.

<b>Title</b>	<b>References</b>	<b>Major findings</b>
Coordination and responsiveness issues in SME supply chains: a review	Kumar and Kumar (2017)	Lack of resources, poor innovative capabilities and poor coordination with supply chain partners
Main difficulties hindering supply chain performance: an exploratory analysis of Uruguayan SMEs	Tanco et al. (2015)	Telecommunications infrastructure, government policies, political environment, workforce availability and productivity, supply-side problems, poor integration, a lack of commitment from the top management and a lack of flow of information and materials.
Logistics and Supply Chain Related Issues Faced by Malaysian SMEs: A Case Study	Abdullah et al. (2016)	Customer service and inventory management issues
Critical success factors for the implementation of supply chain management in Indian small and medium enterprises and their impact on performance	Kumar et al. (2015)	Lack of resources and direction
Challenges to the Adoption of E-commerce Technology for Supply Chain Management in a Developing Economy: A Focus on Nigerian SMEs	White et al. (2014)	Technological difficulties
Factors Affecting Collaboration in Supply Chain: A Literature Review	Hudnurkar et al. (2014)	Issues in information sharing
Supply Chain Management Practices in Thai SMEs: Antecedents and Outcomes	Therakom (2014)	Resistance to change from employees, the employees' lack of understanding, a lack of commitment from the top management, ineffective IT systems, unstable operational processes, the insufficient ability to manage their network partners and a lack of trust among supply chain partners
A multi-agent architecture for outsourcing SMEs manufacturing supply chain	Kumari et al. (2015)	Lack of resources, technical issues, relevant market information, insufficient funds and a lack of government support
The Causes of the Failure of New Small and Medium Enterprises in South Africa	Fatoki (2014)	Lack of management experience, high cost of distribution, poor logistics in the supply chain
Supply Chain Management Practices and Challenges: Case Studies of Four Supply Chains	Talavera (2015)	Lack of supply chain planning, information technology, increased lead times, supply and demand uncertainty and logistics capacity.
Examining the Most Severe Logistics and Supply Chain Issues Experienced by Malaysian SMEs	Abdullah et al. (2018)	Difficulties and inaccuracies in forecasting inventory, inability to fulfil orders due to inventory shortages and keeping the wrong mix of inventories.
Supply Chain Collaboration among SMEs in Kenya: A Review of Collaboration Barriers	Gumboh and Gichira, (2015)	Competition, inability to get a loan, inability to source skilled labour and a lack of government support as the major problems that SMEs face. Technology barriers, poor networking amongst the important players in the market, a lack of market access, inadequate finances and competition from established firms. Limited capacity for knowledge acquisition, technology management and limited access to capital, in addition to a lack of knowledge, credit and technology barriers.
Supply Chain Partnership, Collaboration, Integration and Relationship Commitment as Predictors of Supply Chain Performance in South African SMEs	Pfanelo (2017)	Collaboration issues
Socially responsible supply chain management in small and medium enterprises in the GCC	Al-Esmael et al. (2019)	Shortages of incentive, short-term objectives, a lack of cooperation and willingness among the supply chain partners and financial, managerial and technological constraints
Twenty-first century supply chain management: a multiple case study analysis within the UK aerospace industry	Manville et al.(2019)	Supplier issues
Alleviating Financing Constraints of SMEs through Supply Chain	Yang et al. (2019)	Financial constraints

Source: Literature Review (2019).

**Table 2.** Most extracted SCM impediments.

Article researcher(s)	TD 1	PCS 2	LGS 3	LR 4	IS 5	IF 6	IM 7	LAM 8	PSK 9	LSTM 10	UE 11
White et al. (2014)	X										
Hudnurkar et al. (2014)					X						
Therakorn (2014)	X	X							X	X	X
Fatoki (2014)										X	
Kumar et al. (2015)				X						X	
Kumari et al. (2015)	X		X	X		X		X			
Gumboh and Gichira (2015)	X	X	X			X		X	X		X
Tanco et al. (2015)	X	X	X		X					X	X
Abdullah et al. (2016)							X				
Kumar and Kumar Singh (2017)	X	X		X							
Pfanelo (2017)		X									
Abdullah et a. (2018)							X				
Al-Esmael et al. (2019)	X					X				X	
Manville et al. (2019)		X									
(Yang et al. (2019)						X					

Source: Literature Review (2019).

Key:TD=Technological Difficulties, PCS=Poor coordination with suppliers, LGS=Lack of government support, LR=Lack of resources, IS=Information sharing, IF=Insufficient funds, IM=Inventory Management, LAM=Lack of access to markets, PSK=Poor SCM Knowledge, LSTM=Lack of support from top management, UE=Unskilled employees.

**Table 3.** SCM impediments in Tanzanian SMEs.

Variable	Frequency	Percentage
Technological Difficulties	7	47
Poor coordination with suppliers	6	40
Lack of government support	3	20
Lack of resources	3	20
Information sharing	2	13
Insufficient funds	4	26
Inventory Management	2	13
Lack of access to markets	2	13
Poor SCM Knowledge	2	13
Lack of support from the top management	5	33
Unskilled employees	3	20

Source: Literature review (2019).

measure the relationship between constraints and overall SCM implementation in Tanzanian SMEs. The variables/constraints of the study were extracted from 15 works of literature addressing SME and SCM from various parts of the world. This was done as the researcher hardly found any literature addressing SME and SCM implementation in the Tanzanian context. The selection of the literature was based on the relevance to the topic and the researcher restricted the literature to within 5 years (2014 - 2019).

A sample size of 15 literature studies was viewed to be adequate in terms of providing the data for the statistical analysis. As noted by previous researchers (Mashenene and Rumanyika, 2014; Mohammed et al., 2013; Ali et al., 2019), a sample size of no less than 12 items of literature is sufficient to extract the variables for analysis.

## RESULTS

Based on the literature, the most common extracted SCM impediments have been presented in Table 2. The sign X shows that the variables are critical constraints in the selected articles (Table 3).

## DISCUSSION

The results presented in Table 3 reveal that the critical constraints affecting SCM implementation in Tanzanian

SMEs are due to technology denoted by 47%. This means that H1, which states that there is a negative relationship between technological difficulties and SCM implementation in SMEs, has been accepted. Therefore, this can be used to explain that technical difficulties are the most common impediment to successful SCM implementation in SMEs. Additionally, poor coordination with suppliers, a lack of support from the top management and insufficient funds have the second, third and fourth highest percentages respectively. This can be explained by poor coordination with partners and a lack of support from the government resulting in poor SCM implementation. Unskilled employees, lack of resources, and lack of support from the government were found to be marginally significant constraints affecting SCM implementation in SMEs. However, information sharing, inventory management, a lack of access to markets and poor SCM knowledge were all found to be insignificant constraints in terms of affecting SCM implementation in Tanzanian SMEs. The implications of these results are that technological difficulties, poor coordination with suppliers, a lack of support from the top management and insufficient funds are the critical constraints affecting the effective implementation of SCM in Tanzanian SMEs. The findings of this study are in harmony with those of Therakorn (2014) who found top management and IT to be the key factors involved in enabling successful SCM and that issues in these areas negatively affect SCM performance. Furthermore, the findings of this study are in line with those of Gumboh and Gichira (2015), who identified collaboration issues to be standing in the way of effective SCM implementation in the supply chains. In the same way, these findings are evidenced by those of Abdullah et al. (2016), who found inventory management and supplier relationships to be the critical factors impacting the way in which SMEs provide services to their customers. Moreover these findings are in congruence with those of Mollel (2015), who reported that supplier issues such as a lack of trust among the supply chain members stands in the way of effective SCM implementation.

## CONCLUSION AND RECOMMENDATION

The purpose of this paper was to identify the challenges impacting effective SCM implementation in SMEs. This paper concludes that technological difficulties, collaboration issues, a lack of support from top management and insufficient funds are the critical factors impacting effective SCM implementation in Tanzanian SMEs. The implications of these findings are that measures need to be taken by the government and SCM practitioners to address SCM-related issues. Such measures include financial support to help SMEs avail the latest technologies and to improve their SCM implementation. Surowiec (2015) found that SMEs fear SCM implementation because they view SCM to be

costly. SME-supporting agencies in Tanzania such as SIDO should provide adequate SCM training to the top management as well as to the SME employees to increase their awareness of SCM benefits and how to effectively implement them. Mollel (2015) suggested that SCM implementation training is vital as most SMEs lack SCM knowledge, which affects its implementation. Furthermore, SMEs should improve their relationship with various partners through fostering transparency and building trust so then the information throughout the supply chain is effectively passed on to avoid the bullwhip effect. Therakorn (2014) reported that SCM partners are crucial for effective SCM implementation. Without such partners, information and materials cannot be successfully passed on through the entire chain and as a consequence, customer needs cannot be met. Through creating a friendly environment with partners in the supply chain, long term relationships can be maintained and the cost can be reduced throughout the supply chain which leads to meeting the customer demands on time.

For future academics, more research using primary data should be carried out to evaluate the effect of technological difficulties, collaboration issues, a lack of support from the top management and insufficient funds on effective SCM implementation. This proposition is due to the fact that through the intensive review, technological difficulties, collaboration issues, a lack of support from the top management and insufficient funds were found to be the critical constraints affecting SCM implementation in SMEs. Future academics should focus on SME and SCM-related issues in various industries in Tanzania such as the manufacturing sector and service sector, as the literature is scarce in these areas on SCM and SMEs in Tanzania. Researchers can also focus on building frameworks on how to help SMEs to improve SCM and perform better. Furthermore, a comparative study of the constraints affecting SCM implementation in Tanzania should be carried out between large enterprises (Les) and SMEs in order to evaluate how the constraints impact SCM implementation.

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## CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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