COLLABORATIVE TIES AND PRODUCT STANDARDS ADHERENCE: A CASE OF SME MANUFACTURERS IN KAMPALA, UGANDA

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DECLARATION

I, **IGNATIUS TUMWEBAZE,** declare that this is my original work, is not plagiarised and has not been submitted to any other institution for any award.

Signed: …… Date: ……**03/Sept.,/2025**……..……

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S22M15/012

APPROVAL

I acknowledge that this dissertation, titled "Collaborative Ties and Product Standards Adherence: A Case of SME Manufacturers in Kampala, Uganda", has been under my supervision and is ready for submission.

5th September 2025

Signed: …… Date: ……..…….

Dan AYEBALE, Ph.D. – Supervisor

DEDICATION

I dedicate this dissertation to my family and fraternity.

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I am immensely grateful to my parents, siblings, and family for their unwavering support and encouragement during this challenging journey.

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ACRONYMS

BUBU:	Buy Ugandan Build Uganda
ISO:	International Standards Organization
IT:	Institutional Theory
RBT:	Resource-Based Theory
RBV:	Resource-Based View
SMEs:	Small and Medium Enterprises
SNT:	Social Network Theory
TCE:	Transaction Cost Economics
UBOS:	Uganda Bureau of Statistics
UNBS:	Uganda National Bureau of Standards

ABSTRACT

This research examined the influence of collaborative ties on adherence to product standards among Small and Medium Enterprises (SMEs) in Kampala, Uganda, emphasizing the effects of institutional, customer, and supplier collaborative ties. Empirical data from 95 SMEs that responded to the questionnaires indicated that 73% had formed institutional collaborative ties, 91% had established customer collaborative ties, and 81% had developed supplier collaborative ties. The research revealed that supplier collaborative ties exerted the most substantial influence on adherence to product standards, evidenced by a standardized coefficient (β) of 0.434, followed by customer collaborative ties ($\beta = 0.308$) and institutional collaborative ties ($\beta = 0.213$), all exhibiting positive and statistically significant correlations with $p < 0.01$. Enhancing these collaborative ties will ensure that SMEs consistently meet product standards. We can significantly increase adherence and quality in the marketplace by prioritizing this optimization. Recommendations for enhancing adherence to product standards include fortifying institutional support, promoting customer engagement, and strengthening supplier alliances.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter presents the study's background, problem statement, research purpose, objectives, research questions, scope, justification, significance, and conceptual framework.

1.1 Background to the Study

Product standards play a crucial role in various aspects of business and trade. They facilitate innovation and adoption of new technologies, support product and process development, and impact trade flows, especially for developing countries (Lorenz et al., 2017). Product standards also contribute to the development of sustainable products by influencing acceptance and management practices within firms (Castka, 2020). There is a need to follow product standards to ensure the quality, safety, and reliability of goods across various industries.

In developing countries, Small and Medium Enterprises (SMEs) face challenges in meeting product standards, mainly due to limited financial resources, technical expertise, and access to information. There are issues concerning awareness and adherence to product standards among SMEs, which impacts their market participation (Mbroh, 2021; Chauhan et al., 2014; Sommer, 2017). In Uganda, manufacturing SMEs experience similar difficulties in complying with product standards, which creates obstacles to entering the market.

Adherence to product standards can be achieved through collaborative ties tailored to the needs and capabilities of SMEs with various stakeholders. This is emphasized in the Quality Management Principles described in ISO 9000, including customer focus, leadership, engagement of people, process ties, improvement, evidence-based decision-making, and relationship

management. Collaborative ties with manufacturing SMEs, trade organizations, government agencies, and other stakeholders may provide manufacturing SMEs with essential resources and technical assistance to overcome compliance challenges. (Van De Kaa, 2023; Lamoureux et al., 2019; Mallett, 2019). Additionally, strong collaborative ties might enable SMEs to follow product standards by sharing resources, best practices, and engaging with customers, suppliers, and institutions (Vătămănescu et al., 2020; Antonelli et al., 2006).

Therefore, a comprehensive understanding of the requirements and priorities of SMEs in Uganda is crucial for collaborative ties that address adherence to product standards and strengthen their sustainable development and competitiveness (Asiimwe, 2017; Tukundane et al., 2020). Encouraging manufacturing SMEs to adhere to product standards could be vital for maximizing their potential and fostering inclusive growth as Uganda advances its economic development and regional/international integration. These might involve leveraging technology, promoting public-private collaborations, and providing tailored support and incentives. Collaborative ties could play a key role in cultivating competitive and strong SMEs that drive Uganda's economy by promoting a culture of product quality and innovation.

1.2 Statement of the Problem

Adherence to product standards is vital for ensuring quality, but remains a challenge for SMEs (Kristiningrum et al., 2021), especially in developing countries like Uganda. The level of product standard compliance is indicated by the number of certified products on the market, which remains very low (UNBS, 2023). Despite various institutional initiatives like Buy Ugandan Build Uganda (BUBU), the level of adherence to product standards among SMEs remains desirable (Fahma et al., 2018).

In Uganda, manufacturing SMEs struggle to adhere to product standards. Instances of product destruction highlight the severity of the issue. Data from the Uganda National Bureau of Standards (UNBS) revealed that SME products represented less than 25% of certified products in the marketplace, indicating a significant gap in standards adherence (UNBS Statistical Abstract FY2022/23). Moreover, research showed that only 27% of Uganda's SMEs had attempted to apply for product standards, emphasizing the urgent need for targeted interventions (Okumu & Buyinza, 2020).

In this context, establishing collaborative relationships with various stakeholders can help support small and medium-sized enterprises (SMEs) in Uganda to comply with necessary product standardization (Asiimwe, 2017). However, limited studies have assessed the role of these collaborative ties in ensuring SMEs adhere to product standards. Therefore, this study investigated the underlying factors contributing to SMEs' lack of adherence to product standards, focusing on how collaborative ties can address this issue.

1.3 Purpose of the Research

This study aimed to examine existing collaborative ties and identify key success factors and challenges related to adhering to product standards. Findings offer insights to inform policies and practices that could improve product standards compliance in the market for SMEs in Uganda. This would protect consumers, support the sustainability of SMEs in the global marketplace, and promote economic development.

1.4 Objectives

The primary objective of this study was to investigate how Ugandan manufacturing SMEs in Kampala can leverage collaborative ties to adhere to product standards.

The specific objectives are:

i. To evaluate the role of institutional collaborative ties in supporting manufacturing SMEs' adherence to product standards in Uganda.
ii. To evaluate how customer collaborative ties influence manufacturing SMEs' adoption and compliance with product standards.
iii. To evaluate the influence of supplier collaborative ties on the ability of manufacturing SMEs to meet product standards.

1.5 Scope of the Study

In terms of scope, the researcher focused on content, time, and geographical scope.

1.5.1 Geographical Scope

This study was carried out among manufacturing SMEs from the selected divisions in Kampala, Uganda. The rationale for focusing geographically on Kampala, Uganda, is due to the reality that SMEs are concentrated in the Central region (UBOS, 2016).

1.5.2 Content and Time Scope

This research focused on collaborative ties aimed at helping manufacturing SMEs in Uganda comply with product standards. Specifically, the study focused on the collaborative ties among SMEs, governmental bodies, industry associations, non-governmental organizations (NGOs), and other relevant stakeholders to ascertain the effectiveness of these collaborative ties in fostering adherence to product standards.

The research focused on small and medium-sized enterprises (SMEs) in the food processing sector involved in value addition within Kampala, Uganda. These SMEs were selected to provide a comprehensive understanding of how collaborative ties can help them adhere to product standards.

The study examined the adherence to product standards among manufacturing SMEs in Uganda, emphasizing the role of collaborative ties.

The time scope to conduct the research was 4 months i.e., September, October, November, and December 2024.

1.6 Justification

This study is justified because following product standards will not only enhance the competitiveness of Uganda's SMEs but also contribute to economic development. SMEs are pivotal contributors to Uganda's Industry by over 80% (MSME Policy Booklet, 2015; Asiimwe, 2017).

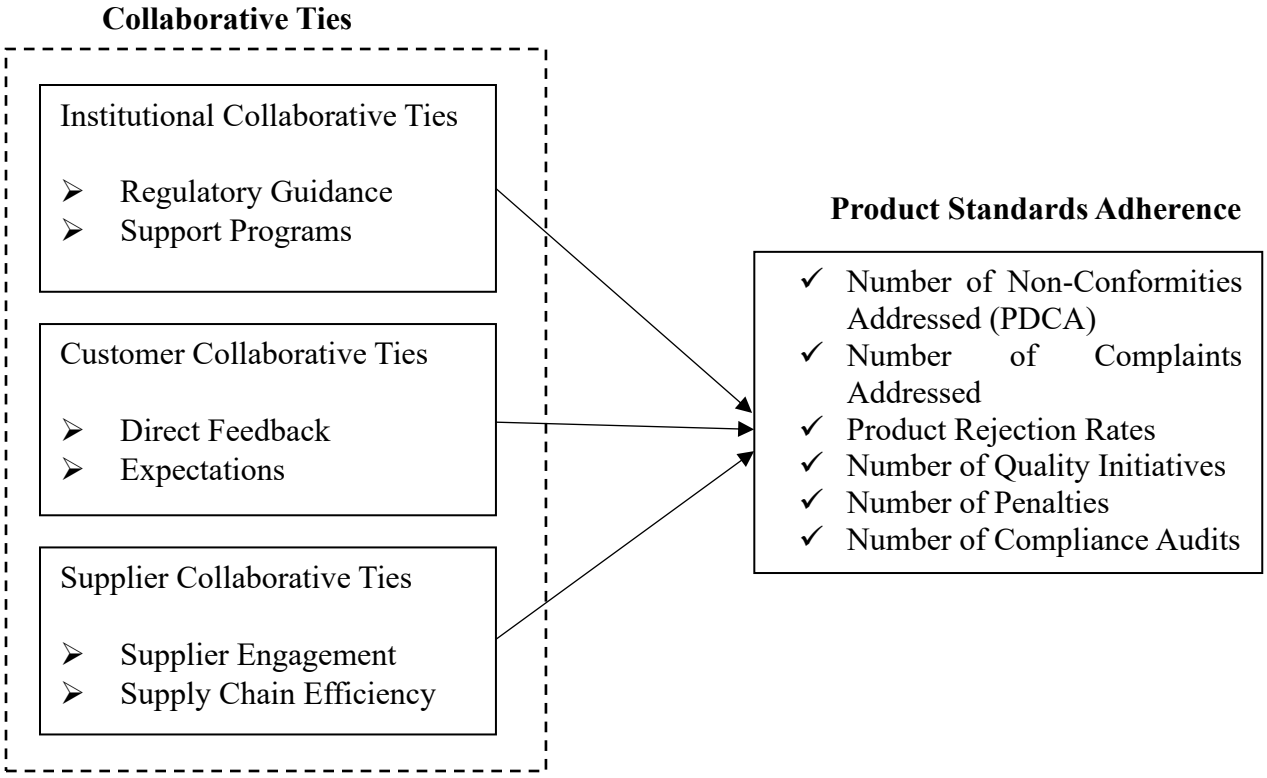
1.7 Significance

This study aimed to help manufacturing SMEs reduce the risks associated with substandard products, improve consumer safety, protect public health, and enhance the reputation of Ugandan products domestically and internationally. The findings will guide the development and implementation of effective strategies designed to improve the competitiveness of manufacturing SMEs, increase their market access, and promote overall economic prosperity.

Findings will guide the generation of evidence-based recommendations for policymakers, industry stakeholders, and development agencies. They will ultimately contribute to sustainable development outcomes by promoting product standards adherence, fostering SME growth, and strengthening Uganda's position in the global marketplace.

1.8 Conceptual Framework

Figure 1: Research Conceptual Framework



Adapted from Asiimwe (2017); Tukundane et al. (2020); and Van De Kaa (2023).

For this study, collaborative ties are conceptualized as collaboration ties from the different stakeholders specifically institutional collaboration which tackles the regulatory guidance and support programs; customer collaboration which addresses customer engagement by utilizing feedback and expectation mechanisms from the customers (Asiimwe, 2017; Tukundane et al., 2020); and supplier collaboration which tackles supplier engagement and supply chain efficiencies (Van De Kaa, 2023). However, there may be benefits like capacity-building of the manufacturing SME that come along with collaborative ties.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews existing literature on how collaborative ties influence product standards adherence among SMEs in Uganda. It examines the significance of adhering to product standards for SMEs, the initiatives that foster collaborative ties, and the challenges faced in achieving product standards compliance through these collaborations. Additionally, the chapter outlines the theories that guided the study.

2.1 Theoretical Framework

Nikiforou et al. (2020), showed that a network structure is vital to firm-level entrepreneurial behaviour. Their study highlighted the importance of considering network context when understanding how networks affect entrepreneurial outcomes. Social Network Theory (SNT) will help examine how the structures of relationships among individuals or organizations influence the behaviours of firms. Several scholars have contributed to the development of SNT by synthesizing different research traditions, emphasizing structural properties of networks, introducing key concepts like centrality, cohesion, and structural equivalence, and exploring the interplay between individual actions and structural constraints within networks (Liu et al., 2017; Kivisto & Sciortino, 2022).

In the context of adherence to product standards in SME manufacturers, SNT provides a framework for understanding how interactions within a network affect compliance with established norms and standards. In SNT, the nodes represent the stakeholders within the network. These nodes could include individuals, organizations, or institutions involved in the production and consumption of products. The nodes in the network are interlinked by connections which vary

in type and nature, depending on the context of the network being analysed. These connections between nodes, or edges, represent the relationships and interactions that facilitate the flow of information, resources, and influence (Granovetter, 1973; Liu et al., 2017). The relationships that exist between these various stakeholders can be formal (such as regulatory guidance) or informal (such as industry peer networks) (Liu et al., 2017).

The mechanisms influencing adherence to product standards within a social network are complex, involving regulatory influence, information flow, peer pressure, trust, reputation, and consumer influence. As central nodes, regulatory bodies enforce standards through inspections and sanctions, ensuring adherence to product standards by the SME manufacturers. The centrality of nodes, such as leading manufacturers and regulatory bodies, influences their power to enforce and disseminate standards, contributing to overall network adherence (Cordaillat-Simmons, 2020; Suleymanova & Wey, 2011). Effective communication channels within a network facilitate the dissemination of best practices and updates on standards, thereby enhancing understanding and implementation.

Peer pressure and industry norms play a significant role in adherence, as SME manufacturers are more likely to comply when they observe their peers doing the same. Professional networks and collaborative ties reinforce this effect. Trust and reputation are also crucial factors. Relationships built on trust promote quality and compliance within the supply chain, while a strong reputation serves as a social incentive for adherence. Additionally, consumer influence shaped by feedback and reviews creates a market-driven incentive for manufacturers to meet product standards, as they seek to satisfy customer expectations and avoid negative publicity.

2.2 Conceptual Literature Review

This conceptual literature review emphasizes the collaborative ties and adherence to product standards among SME manufacturers.

2.2.1 Product Standards Adherence for SME Manufacturers

Within the market landscape, adherence to product standards emerges as a pivotal factor in determining quality, safety, and consumer confidence across various industries, including Small and Medium Enterprises (SMEs). Product standardization involves establishing and implementing guidelines, codes of practice, and procedures to ensure uniform production, interchangeable components, and products with consistent, required quality (Pei & Kabir, 2022; Krechmer, 2014). However, product standards by SMEs are influenced by the lack of control over the source of raw materials, negative attitudes to standardization, low enforcement of standards, lack of awareness, costs, and information gaps (Ahimbisibwe, 2014).

Product standardization determines and promulgates criteria to which objects or actions are expected to conform. Product standardization for manufacturing may entail the creation of production standards, tolerances, and/or specifications. These can be expressed as formulas, drawings, measurements, or definitions (Pei & Kabir, 2022; Krechmer, 2014). Product standards define the limits within which products or parameters must fall to be suitable and interchangeable. Such products that do not adhere to such limits are "substandard" or, more commonly, "rejects." Virtually any aspect of a product or component can be standardized. Quality control and testing are used to measure the achievement of standards.

Product Standards include the characteristics of products or services, focusing on fundamentals like quality, safety, and suitability for the intended purpose (Maur & Shepherd, 2011). Adhering to product standards is crucial for ensuring the quality, safety, and dependability of products, especially for SMEs operating in diverse sectors, by mitigating information asymmetry (Ana et al., 2015; Xia et al., 2018; Disdier et al., 2018; Maur & Shepherd, 2011). SMEs play a crucial role in economic growth but often struggle to meet product standards, restricting their market participation and growth potential (Mbroh, 2021; Chauhan et al., 2014; Sommer, 2017).

The inadequacy of resources, technical expertise, and information accessibility aggravates these challenges, highlighting the necessity for tailored interventions to support SMEs in adhering to product standards requirements. SMEs can align their internal capabilities with evolving product standards, emphasizing the need to understand and adapt to these changing requirements.

2.2.2 Collaborative Ties

Pigola et al. (2022) explained collaborative ties through concepts like knowledge-sharing trajectories, multi-actor collaboration, and the development of collaborative capabilities to enhance such strategies in mitigating the challenges of product standards adherence. Scholars have additionally stressed that the interdependence of collaborative ties is characterized by technological and behavioral aspects (Pigola et al., 2022). Collaborative ties refer to the partnerships established between various stakeholders, including experts in design, manufacturing, quality control, marketing, and government bodies, to develop and implement standardized processes and specifications for products (Yang et al., 2022; Ghodous & Martinez, 2003). In social networks, "collaborative ties" refers to using social connections to enhance recommended systems, increasing their accuracy and resolving challenges with data sparsity (Zarei & Moosavi, 2019).

To understand the challenges of adhering to product standards, collaborative ties tailored to the requirements and capacities of SMEs have been suggested. These suggestions include collaboration among SMEs, trade bodies, governmental bodies, and other relevant stakeholders, providing crucial resources and technical assistance to address these challenges (Van De Kaa, 2023; Lamoureux et al., 2019; Mallett, 2019). Collaborative ties will empower SMEs to exchange best practices, share resources, and collectively engage with suppliers and regulators (Vătămănescu et al., 2020; Antonelli et al., 2006).

2.3 Influence of collaboration ties on adherence to product standards

Collaborative ties, whether formal or informal, create a network through which knowledge, best practices, and innovations are disseminated, enhancing the capacity of manufacturing SMEs to adhere to product standards. Formal collaboration ties, such as partnerships, alliances, and consortia, are established through structured agreements and provide a framework for joint research, development, and compliance initiatives (Sochneva et al., 2020). For example, regulatory bodies working with industry associations and academic institutions can collaboratively develop robust standards and effective compliance mechanisms, ensuring that the standards are scientifically sound, technologically feasible, and widely accepted.

Informal collaboration ties, such as relationships formed through professional networks and industry conferences, also play a critical role in product standards adherence. These ties facilitate the exchange of information and experiences among peers, promoting a culture of continuous improvement and mutual support. Informal interactions enable organizations to share practical solutions to compliance challenges, embrace innovative practices, and stay updated on regulatory changes (Taifi et al., 2008). Through an informal network of collaborations, individuals reinforce and encourage each other to adhere to product standards, driven by peer pressure and shared

values. Consequently, both formal and informal collaboration ties enhance the overall effectiveness of the regulatory framework, improve the quality and safety of products, and build consumer trust in the marketplace.

2.3.1 Influence of Institutional Collaboration Ties on Adherence to Product Standards

Institutional collaborative ties significantly influence adherence to product standards by promoting cooperation and shared accountability among organizations. Institutional collaborative ties, such as partnerships, alliances, and joint ventures, provide a structured framework for collective efforts in standard development, compliance, and enforcement. Regulatory bodies, industry associations, and academic institutions often collaborate to develop scientifically sound and technologically feasible standards through these formal mechanisms. Such collaborative ties ensure that standards reflect the latest advancements and best practices (Leiponen, 2008). For instance, regulatory bodies may work closely with manufacturers to conduct joint research, develop new testing methods, and streamline compliance processes. This facilitates cohesion to product standards conformity, ensuring that all stakeholders are aligned and committed to maintaining high quality and safety standards.

Informal mechanisms also play a crucial role in promoting adherence to product standards. These institutional collaboration ties are formed through professional networks, industry conferences, and personal relationships, enabling the exchange of information, experiences, and best practices. Interactions among peers create an environment of mutual support and continuous improvement, where organizations can learn from each other's successes and challenges in meeting product standards (Schreurs et al., 2019; Leung et al., 2019). Such networks help disseminate innovations and practical solutions, making it easier for organizations to comply with regulatory requirements. Additionally, the influence of peer pressure and shared norms within these networks reinforces the

importance of maintaining high standards. As a result, institutional collaborative ties contribute to a robust framework for ensuring product standards adherence, enhancing the overall quality and safety of products in the market. Institutional collaborative ties affect adherence to product standards, particularly within the framework of smallholder agricultural producers. The collaboration among smallholder agricultural producers promotes their capability to fulfill diverse product specifications required by institutional markets, which progressively emphasize quality attributes such as safety and sustainability (Batt, 2015).

2.3.2 Influence of Customer Collaboration Ties on Adherence to Product Standards

Customer collaborative ties significantly influence adherence to product standards by driving manufacturers to prioritize quality and compliance to meet consumer expectations and demands. These collaborative ties are formed through direct interactions between customers and manufacturers, including feedback mechanisms, user reviews, and co-creation initiatives. When customers actively provide feedback and express their expectations to companies, they motivate businesses to meet established standards and consistently improve their products (Fang et al., 2008). For instance, customer reviews and ratings on platforms can directly impact a product's reputation and sales, prompting manufacturers to ensure their products consistently meet or exceed standards to maintain customer satisfaction and trust.

Moreover, collaborative ties between customers and companies can lead to the co-creation of products, where consumers are involved in the development process. By incorporating customer insights and preferences, companies can better align their products with market demands and regulatory requirements (Griffith & Lee, 2016; Gudda et al., 2013). Additionally, customer advocacy groups and forums often play a critical role in monitoring and promoting adherence to product standards. These groups can pressurize companies to comply with standards and work

with regulatory bodies to highlight areas where improvement is needed. Thus, strong collaborative ties with customers enhance adherence to product standards.

2.3.3 Influence of Supplier Collaboration Ties on Adherence to Product Standards

Supplier collaborative ties play a crucial role in ensuring adherence to product standards by fostering collaborative and integrated ties to quality and compliance throughout the supply chain. Collaborative ties between manufacturers and suppliers are built on trust, transparency, and mutual commitment to maintaining high standards. When suppliers and manufacturers closely collaborate, they can effectively share information regarding raw materials, production processes, and regulatory requirements. This partnership helps suppliers understand the necessary standards and allows manufacturers to monitor and ensure compliance throughout production (Delbufalo & Bastl, 2018). For example, conducting regular audits, launching collaborative quality control initiatives, and creating joint training programs help both parties maintain alignment with product standards and quickly resolve any compliance issues.

Additionally, collaborative ties with suppliers can drive innovation and continuous improvement in meeting product standards. When suppliers are viewed as partners rather than mere vendors, they are more likely to invest in quality improvements and innovative solutions that benefit the entire supply chain. Collaborative efforts, like joint research and development projects, result in higher-quality materials and more efficient manufacturing techniques. These improvements can enhance compliance with industry standards (Chen, 2016). Furthermore, open communication channels between suppliers and manufacturers facilitate rapid response to regulatory requirements and market demands, ensuring that both parties can adapt quickly and maintain adherence to the latest standards. Developing strong collaborations with suppliers ensures that current standards are adhered to and encourages proactive efforts to maintain and improve product quality over time.

2.4 Summary and Literature Gaps

This literature review highlights the essential role of collaborative ties between institutions, customers, and suppliers in supporting SMEs in Uganda to comply with product standards (Asiimwe, 2017). By merging current research and conceptual frameworks, the review highlights the significance of these collaborative ties in providing SMEs with the requisite resources, technical expertise, and platforms for knowledge exchange to improve their product standards adherence and competitiveness by exploiting SNT (Ahimbisibwe, 2014; Vătămănescu et al., 2020; Antonelli et al., 2006). Understanding how certain factors influence the effectiveness of institutional, customer, and supplier collaborative ties, and tailoring interventions to address the specific needs of SMEs, is imperative for propelling tangible and intangible advancements in product standards adherence and market competitiveness among SMEs in Uganda (Asiimwe, 2017; Tukundane et al., 2020).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter outlines the methods used to conduct the study. It includes a description of the research design, study population, sampling techniques, data collection processes, quality control measures, data analysis, study limitations, and ethical considerations.

3.1 Research Design

The study employed a mixed research approach, which was chosen to understand the collaborative ties to product standards adherence among SMEs in Uganda. The quantitative data provided statistical insights into the effectiveness of these relationships. By utilizing quantitative correlational tools alongside elements of descriptive and explanatory research design, the study was able to cross-validate its findings. This approach enhanced the coherence of the results and a comprehensive understanding of how collaborative ties influence product standard adherence among SMEs in Uganda.

3.2 Population and Sampling Techniques

3.2.1 Sample Frame

The sample frame for this study focused on the small and medium-sized enterprise (SME) sector in the Kampala District, which has the highest concentration of SMEs, with over 200,000 manufacturers (MTIC, 2018; Robert et al., 2023). The quantitative data collected pertains specifically to manufacturing SMEs, as they contribute approximately 22% of the products available in the market (Ssegawa et al., 2023).

Kampala District is divided into several areas: Lubaga, Kawempe, Central, Nakawa, and Makindye. The study examined 250 manufacturing SMEs in Kampala that applied for product certification from the Uganda National Bureau of Standards (UNBS), excluding those whose products do not require certification.

3.2.2 Sample Size

The sample size was calculated using Krejcie and Morgan's (1970) formula for sample determination (which is attached as an appendix). This formula appropriates the sample size needed for a given population to ensure reliable and representative results. For the population in Kampala, a sample size of approximately 77 was sufficient to achieve a 5% margin of error and 95% confidence, assuming a population standard deviation of 0.5.

3.2.3 Sampling Techniques

Purposive sampling was used to select the SME participants. Each selected respondent was given an equal chance to participate in the study. This sampling technique helped to avoid bias and provided relevant, accurate, and adequate data for the study.

3.3 Data Collection

Specifically, the study looked at the collaborative ties to product standards adherence by SMEs in Uganda. Quantitative data were obtained from SMEs using a structured questionnaire that was administered to the Managers or Quality Controllers of the SMEs. This helped to solicit an in-depth understanding of the subject under investigation from the respondents using a Google form.

3.4 Research Procedure

An introductory letter was obtained from the School of Research and Post-Graduate Studies at the university, permitting the study to be carried out. Afterward, we contacted the relevant stakeholders

and informed them about the research. During the briefing process, we obtained contact information and scheduled appointments with the selected participants for the study. An agreement was reached regarding when to engage and interact with them about the study. The study rolled out, and data were collected until a saturation point was reached.

3.5 Data Analysis

The quantitative data were analysed statistically using statistical methods and presented in tabular and statistical formats. This enabled the statistical computation and easy comparison of findings about the collaborative ties to product standards adherence by SMEs in Uganda. Data obtained from the SMEs using a questionnaire were entered and analysed using SPSS 23.0. Thereafter, the findings were correlated with existing literature.

3.6 Data Validity and Reliability

The content validity index (CVI) was used to assess the validity of the questionnaire. In this case, those variables whose CVI score is 0.70 are considered acceptable. Pre-testing of the questionnaire was conducted with some selected SMEs to establish if there were any biases in the items to adjust. Validity tests were conducted to establish if the tools represent and capture the relationship between the study variables. Construct validity was ensured by checking with the supervisor to ensure that a proper construct was captured.

On the other hand, reliability measures the degree to which a research instrument yields consistent results or data after repeated trials (Kothari, 2004). Reliability is confirmed by consistently observing an outcome. To evaluate reliability, we used the test-retest method. This involved giving the same assessment to the same participant on two separate occasions, ensuring they were not included in the study sample. Besides, consultation from the supervisor was sought.

3.7 Data Presentation and Analysis

After collecting data, the field data was organized into various themes related to the topic under study. This made it easier to arrange the quantitative data. Secondary data was incorporated under different themes to back up the primary data. Verbal responses from the respondents were used as references for qualitative analysis.

3.8 Ethical Considerations

Throughout the research process, ethical considerations were of utmost importance. Informed consent was acquired from all participants, and their confidentiality and anonymity were safeguarded. Data collection procedures adhered to ethical guidelines and standards, encompassing respect for privacy, dignity, and cultural sensitivity.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.0 Introduction

This chapter presents the study's findings. It begins with the characteristics of the study participants and SMEs. Then, it presents the descriptive statistics of the measured variables and the correlation and regression analyses of the study variables.

4.1 Characteristics of Respondents

The characteristics of the respondents in the study are presented in Table 4.1 below.

Table 4.1: Characteristics of the Study Respondents

Characteristic	Category	Frequency	Percentage
Gender	Female	58	61.1
	Male	37	38.9
	Total	95	100.0
Age Category	18 - 25 Years	13	13.7
	26 - 35 Years	30	31.6
	36 - 45 Years	35	36.8
	46 - 55 Years	13	13.7
	55 Years and Above	4	4.2
	Total	95	100.0
Level of Education	Primary	1	1.1
	Secondary	11	11.6
	Certificate	11	11.6
	Diploma	21	22.1
	Degree	46	48.4
	Master	5	5.3
	Total	95	100.0

Source: Primary Data

As shown in Table 4.1, most respondents were females, constituting 61.1%. In addition, the majority of the respondents were in the age group between 26 and 45, with 68.4%, and Degree holders (48.4%) owned and managed most SMEs in the study. The findings in the table indicate that the research gathered information from key respondents who were well-informed about the daily operations of SMEs included in the study.

4.2 Characteristics of SMEs in the study

The characteristics of the SMEs included in the study are represented in Table 4.2 below.

Table 4.2: Characteristics of the SMEs

Characteristic	Category	Frequency	Percentage
Period of Operation	Less than 1 Year	18	18.9
	1 - 3 Years	49	51.6
	3 - 6 Years	22	23.2
	7- 10 Years	4	4.2
	above 10 Years	2	2.1
	Total	95	100.0
Legal Form of SME	Partnerships	10	10.5
	Sole Proprietorship	46	48.4
	Limited Company	26	27.4
	None	13	13.7
	Total	95	100.0
Collaboration Ties	Yes	69	72.6
	No	26	27.4
	Total	95	100.0

Source: Primary Data

As shown in Table 4.2, most SMEs in the study have been operational between 1 – 3 years, constituting 51.6%. Most small and medium-sized enterprises (SMEs) operate as sole

proprietorships, making up 48.4% of all SMEs in the study. Additionally, 72.6% of these SMEs actively engage in collaborative ties. The data indicate that most SMEs in the study are relatively new, primarily function as sole proprietorships, and engage in collaborative ties.

4.3 Descriptive statistics

4.3.1 Product Standards Adherence in SMEs

The Cronbach's Alpha value of 0.943 and the corrected item-total correlation of 0.7 for the levels of product standard adherence in this study suggest a high degree of internal consistency among the survey items, indicating the reliability of measuring product standard adherence among SME manufacturers in Kampala. Respondents (Managers) were asked to indicate the extent of product standards adherence in the SME's operations. The responses were rated using the Likert scale as follows: Strongly Disagree (SD) = 1, Disagree (D) = 2, Neutral (N) = 3, Agree (A) = 4, and Strongly Agree (SA) = 5. The observations are presented in Table 4.3.

Table 4.3: Product Standards Adherence of SMEs

No.	Item	SD	D	N	A	SA	Mean	SD	Decision Level
1	Our SME consistently meets the required product standards.	0	2	18	68	7	3.84	0.571	High
2	We regularly conduct compliance audits to ensure product standards are adhered to.	0	10	15	65	5	3.68	0.733	Moderate
3	Our product rejection rates have significantly decreased due to adherence to product standards.	0	4	16	61	14	3.89	0.691	High
4	We have implemented comprehensive quality control measures to meet product standards.	0	4	13	66	12	3.91	0.654	High

5	Our SME has received certifications that validate our adherence to product standards.	1	19	2	61	12	3.67	0.972	Moderate
6	Adherence to product standards has improved customer satisfaction.	0	4	6	72	13	3.99	0.610	High

Weighted Average Mean 3.83

Source: Primary Data

The findings in Table 4.3 show that the weighted average (overall) mean score for adhering to product standards was 3.83, indicating that SMEs in the study generally adhere to standards at a high level. This suggests that adherence to product standards is high for most SMEs included in the study. Regarding compliance audits, the mean score was 3.68, with a standard deviation of 0.733.

Respondents rated product rejection rates positively, with a mean score of 3.89 and a standard deviation of 0.69. The use of quality control measures was high among the SMEs in the study, with a mean score of 3.91.

Certification adherence, with a mean score of 3.67, indicates a moderate presence of certifications among SMEs in the study. Customer satisfaction, resulting from adherence to product standards, reported a high mean score of 3.99, with a standard deviation of 0.610.

The standard deviations provide additional insights into the variability of responses. Most items show moderate SDs (0.571–0.733), suggesting some differences in practice among SMEs but with a general level of consensus. However, the highest SD (0.972) is for certifications, implying that while some SMEs have successfully obtained certification, others have not. Conversely, the lowest

SD (0.571) on the statement that “our SME consistently meets required standards” shows strong agreement across SMEs on striving for compliance.

4.3.2 Institutional Collaborative Ties in SMEs

A Cronbach's Alpha value of 0.896 and a corrected item-total correlation greater than 0.4 collectively indicate that the scale measuring Institutional Collaborative Ties in SMEs is of high quality, reliable, and consistent, effectively capturing the complex dynamics of institutional collaborative ties. Respondents (Managers) were asked to indicate the extent of institutional and collaborative ties in the SME's operations. The responses were rated using the Likert scale as follows: Strongly Disagree (SD) = 1, Disagree (D) = 2, Neutral (N) = 3, Agree (A) = 4, and Strongly Agree (SA) = 5. The observations are presented in Table 4.4 below.

Table 4.4: Institutional Collaborative Ties of SMEs

No.	Item	SD	D	N	A	SA	Mean	SD	Decision Level
1	Our SME receives adequate regulatory guidance from government agencies like UNBS	2	16	15	54	8	3.53	0.944	Moderate
2	Our SME benefits from collaborative programs with universities and research institutions in terms of training, research, and development	3	18	15	51	8	3.45	0.998	Moderate
3	Partnerships with industry associations are part of our operations	3	10	14	61	7	3.62	0.889	Moderate
4	Our SME regularly participates in forums or workshops organized by institutional partners like UIA, and UMA.	3	12	13	61	6	3.58	0.906	Moderate

5	Networking with other association SMEs is part of our collaborative activities.	0	6	9	72	8	3.86	0.646	High
6	Our collaborative ties with institutional partners are sustainable and provide long-term benefits.	5	19	19	49	3	3.27	0.994	Moderate
	Weighted Average Mean is 3.55								

The findings in Table 4.4 show that SMEs in the study moderately engage in institutional collaborative ties, with an average mean score of 3.55. Similarly, regulatory guidance and support from government agencies, such as the Uganda National Bureau of Standards (UNBS), were perceived as moderate, with a mean score of 3.53 (SD = 0.944). Collaborative programs with universities and research institutions received a mean rating of 3.45 (SD = 0.998), indicating a moderate level of engagement.

Partnerships with industry associations were viewed moderately, receiving a mean score of 3.62 (SD = 0.889). Similarly, participation in forums and workshops organized by institutional partners such as the Uganda Investment Authority (UIA) and Uganda Manufacturers Association (UMA) had a mean score of 3.58 (SD = 0.906), indicating a moderate engagement in these collaborative activities.

Networking with other SMEs in association groups was relatively high, with a mean score of 3.86 (SD = 0.646). On the contrary, the sustainability and long-term benefits of collaborative ties with institutional partners received the lowest rating, with a mean of 3.27 (SD = 0.994).

The SD values reveal varying levels of consensus. The lowest SD (0.646) on networking with other SMEs indicates relatively consistent agreement that such ties are common and beneficial. In

contrast, the highest SD (0.994) for sustainable institutional collaborative ties reflects significant variability, suggesting polarized perceptions.

4.3.3 Customer Collaborative Ties in SMEs

A Cronbach's Alpha value of 0.878 and a corrected item-total correlation greater than 0.52 collectively indicate that the scale measuring Customer Collaborative Ties is a reliable and valid tool for assessing the complex dynamics of customer collaboration. Respondents (Managers) were asked to indicate the extent of customer collaborative ties in the SME's operations. The responses were rated using the Likert scale as follows: Strongly Disagree (SD) = 1, Disagree (D) = 2, Neutral (N) = 3, Agree (A) = 4, and Strongly Agree (SA) = 5. The observations are presented in Table 4.5 below.

Table 4.5: Customer Collaborative Ties of SMEs

No.	Item	SD	D	N	A	SA	Mean	SD	Decision Level
1	Our department receives direct feedback from customers often	0	1	6	74	14	4.06	0.501	High
2	Meeting customer expectations is a key factor in our operations	1	0	4	67	23	4.17	0.595	High
3	Our department regularly involves customers in the product development processes occasionally through prototype testing	0	7	13	70	5	3.77	0.660	Moderate
4	Our department regularly involves customers in the product development processes occasionally through feedback sessions.	0	6	5	71	13	3.96	0.667	High
5	Customer reviews and ratings are considered in our operations.	0	0	4	76	15	4.12	0.434	High

6	Maintaining customer trust is a primary motivation (KPI) within the departments	1	0	4	68	22	4.16	0.589	High
7	We actively consider detailed feedback from customer advocacy groups	0	1	16	64	14	3.96	0.600	High
8	Regular engagement with customers is a part of the business process	0	2	6	67	20	4.11	0.592	High
9	Pressure from customers encourages us to continuously meet or exceed product standards	1	2	4	70	18	4.07	0.640	High
	Weighted Average Mean 4.04								

The findings in Table 4.5 show that the mean score for customer collaborative ties among SMEs in the study was 4.04, indicating their high engagement in customer collaborative ties. Respondents rated direct customer feedback highly, with a mean score of 4.06 (SD = 0.501). Meeting customer expectations was highly emphasized, achieving the highest mean score of 4.17 (SD = 0.595). Similarly, customer reviews and ratings were high, with a mean score of 4.12 (SD = 0.434). Maintaining customer trust, identified as a key performance indicator (KPI), also received high ratings, with a mean value of 4.16 (SD = 0.589).

Regular customer engagement was another highly rated practice, scoring a mean value of 4.11 (SD = 0.592). Additionally, customer pressure to meet or exceed product standards scored highly, with a mean value of 4.07 (SD = 0.640).

In contrast, involving customers in product development received relatively high ratings. Prototype testing had a mean score of 3.77 (SD = 0.660), while feedback sessions scored slightly higher at 3.96 (SD = 0.667). Engagement with customer advocacy groups was also rated highly, with a mean value of 3.96 (SD = 0.600).

The SD values indicate a generally strong consensus, as most fall between 0.434 and 0.667, which are relatively low on a 5-point scale. The lowest SD (0.434) was for customer reviews and ratings, suggesting near-universal agreement on their importance. By contrast, prototype testing had a higher SD (0.660), implying more variation.

4.3.4 Supplier Collaborative Ties in SMEs

A Cronbach's Alpha value of 0.961 and a corrected item-total correlation greater than 0.8 collectively indicate that the scale measuring Supplier Collaborative Ties is exceptionally reliable and valid. Respondents (Managers) were asked to indicate the extent of supplier collaborative ties in the SME's operations. The responses were rated using the Likert scale as follows: Strongly Disagree (SD) = 1, Disagree (D) = 2, Neutral (N) = 3, Agree (A) = 4, and Strongly Agree (SA) = 5. The observations are presented in Table 4.6.

Table 4.6: Descriptive Statistics for Supplier Collaborative Ties of SMEs

No.	Item	SD	D	N	A	SA	Mean	SD	Decision Level
1	Our suppliers provide us with timely updates about changes in the product standards supplied.	4	7	15	63	6	3.63	0.876	Moderate
2	We regularly conduct joint quality control initiatives with our suppliers.	3	10	17	62	3	3.55	0.848	Moderate
3	We have open and transparent communication channels with our suppliers through regular meetings.	3	4	13	71	4	3.73	0.750	Moderate
4	We have open and transparent communication channels with our suppliers through reports.	4	9	21	55	6	3.53	0.909	Moderate
5	We have open and transparent communication channels with our suppliers through shared platforms.	2	7	11	69	6	3.74	0.775	Moderate

6	Our suppliers are proactive in addressing any compliance issues that arise.	2	7	18	62	6	3.66	0.794	Moderate
7	Our SME carries out joint research and development projects with our suppliers have improved our adherence to product standards.	3	13	19	57	3	3.46	0.885	Moderate
8	Our suppliers offer training programs to help us meet product standards.	4	23	13	50	5	3.31	1.032	Moderate
9	The intensity of our collaboration with suppliers is high, involving detailed coordination and planning.	4	11	23	54	3	3.43	0.895	Moderate
10	The partnerships we have with our suppliers support our long-term strategic plans.	3	6	13	69	4	3.68	0.789	Moderate
11	We have established long-term collaborations with our suppliers that contribute to ongoing product quality improvements.	2	10	10	66	7	3.69	0.839	Moderate
	Weighted Average Mean 3.58								

The findings in Table 4.6 show that the mean score for supplier collaborative ties of SMEs was 3.58, indicating that SMEs in the study moderately engage in supplier collaborative ties. Updates on product standards received a moderate rating, with a mean score of 3.63 (SD = 0.876).

Communication through regular meetings was rated moderately, with a mean value of 3.73 (SD = 0.750). Similarly, the use of shared platforms for supplier communication was rated moderate, with a mean score of 3.74 (SD = 0.775). Supplier proactivity in addressing compliance issues was also rated moderately, with a mean score of 3.66 (SD = 0.794).

Joint quality control initiatives (Mean = 3.55, SD = 0.848) and sharing reports (Mean = 3.53, SD = 0.909) scored moderately. Similarly, joint research and development projects scored moderately low, with a mean value of 3.46 (SD = 0.885), as did supplier-led training programs (Mean = 3.31,

SD = 1.032). Intensive, detailed coordination with suppliers also scored moderately low, with a mean value of 3.43 (SD = 0.895).

The alignment of supplier partnerships with strategic plans scored moderately high, with a mean of 3.68 (SD = 0.789). Long-term collaborations aimed at quality improvement also received a high mean score of 3.69 (SD = 0.839).

The SD values again show notable insights. Supplier training programs recorded the highest SD (1.032), indicating wide differences in experiences. Similarly, joint research projects (SD = 0.885) and detailed coordination with suppliers (SD = 0.895) also displayed high variability, reflecting uneven adoption across SMEs. By contrast, communication through meetings (SD = 0.750) and shared platforms (SD = 0.775) showed lower variability.

4.4 Pearson's correlation analysis of the relationship between the variables

To determine the magnitude and direction of the correlation between collaborative ties and product standards adherence of Small and Medium Enterprises (SMEs), an analysis utilizing the Pearson correlation coefficient was conducted. The outcomes are displayed in Table 4.7.

Table 4.7 A Table Showing the Pearson Correlation Coefficients for the Different Variables

Variable	1	2	3	4
Institutional Collaborative Ties (1)	1			
Customer Collaborative Ties (2)	.433**	1		
Supplier Collaborative Ties (3)	.574**	.558**	1	
Product Standard Adherence (4)	.595**	.642**	.728**	1

**. Correlation is significant at the 0.01 level (2-tailed) with N = 95.

The analysis matrix indicates a positive correlation between adherence to product standards and Institutional Collaborative Ties, Customer Collaborative Ties, and Supplier Collaborative Ties. Institutional Collaborative Ties show a strong positive correlation with Product Standard Adherence ($r = 0.595$, $p < 0.01$), while Customer Collaborative Ties also show a significant positive correlation ($r = 0.642$, $p < 0.01$). It is important to note that Supplier Collaborative Ties show the most robust, significant positive association with Product Standard Adherence ($r = 0.728$, $p < 0.01$).

4.5 Linear Regression Analysis

Regression analysis, a powerful statistical technique, was used to examine the influence of Institutional Collaborative Ties, Customer Collaborative Ties, and Supplier Collaborative Ties on Product Standards Adherence among SMEs.

4.5.1 Linear Regression Analysis of Institutional Collaborative Ties and Product Standard Adherence

Table 4.8: Linear Regression Analysis between Institutional Collaborative Ties and Product Standard Adherence

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	36.928	3.002		12.299	0.000
	Institutional Collaborative Ties	0.717	0.100	0.595	7.144	0.000
	Model F-Statistics					
	R^2	0.354				
	F - Value	51.039				
	df	1				
	N	93				
	Sig	0.000				

Dependent Variable: Product Standards Adherence

The regression analysis results in Table 4.8 provide insights into the effect of Institutional Collaborative Ties on Product Standards Adherence among SMEs. The model's goodness-of-fit statistics indicate that the overall model explains 35.4% of the variance in Product Standards Adherence ($R^2 = 0.354$). The F-statistic, $F(1, 93) = 51.039$, with $p < 0.01$, confirms that the model is statistically significant and suggests that Institutional Collaborative Ties meaningfully contribute to explaining variations in Product Standards Adherence.

Examining the independent variable, Institutional Collaborative Ties exhibit a positive and statistically significant coefficient ($\beta = 0.595$, $t = 7.144$, $p < 0.01$), indicating that stronger institutional collaborations positively influence SMEs' adherence to product standards. This finding highlights the importance of institutional collaborative ties in enhancing adherence to product standards among SMEs.

4.5.2 Linear Regression Analysis of Customer Collaborative Ties and Product Standard Adherence

Table 4.9: Linear Regression Analysis between Customer Collaborative Ties and Product Standard Adherence

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	11.798	5.745		2.054	0.043
	Customer Collaborative Ties	1.268	0.157	0.642	8.07	0.000
	Model F-Statistics					
	R^2	0.412				
	F - Value	65.129				
	df	1				

N	93
Sig	0.000

Dependent Variable: Product Standards Adherence

The regression analysis results in Table 4.9 provide insights into the effect of Customer Collaborative Ties on Product Standards Adherence among SMEs. The model's goodness-of-fit statistics indicate that the overall model explains 41.2% of the variance in Product Standards Adherence ($R^2 = 0.412$). The F-statistic, $F(1, 93) = 65.129$, with $p < 0.01$, confirms that the model is statistically significant and suggests that Customer Collaborative Ties meaningfully contribute to explaining variations in Product Standards Adherence.

Examining the independent variable, Customer Collaborative Ties exhibit a positive and statistically significant coefficient ($\beta = 0.642$, $t = 8.07$, $p < 0.01$), indicating that stronger customer collaborations positively influence SMEs' adherence to product standards. This finding highlights the importance of customer collaborative ties in enhancing adherence to product standards among SMEs.

4.5.3 Linear Regression Analysis of Supplier Collaborative Ties and Product Standard Adherence

Table 4.10: Linear Regression Analysis between Supplier Collaborative Ties and Product Standard Adherence

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	31.057	2.677		11.600	0.000
	Supplier Collaborative Ties	0.682	0.067	0.728	10.234	0.000

Model F-Statistics

R^2	0.530
F - Value	104.725
df	1
N	93
Sig	0.000

Dependent Variable: Product Standards Adherence

The regression analysis results in Table 4.10 provide insights into the effect of Supplier Collaborative Ties on Product Standards Adherence among SMEs. The model's goodness-of-fit statistics indicate that the overall model explains 53% of the variance in Product Standards Adherence ($R^2 = 0.530$). The F-statistic, F (1, 93) = 104.725, with $p < 0.01$, confirms that the model is statistically significant and suggests that Supplier Collaborative Ties meaningfully contribute to explaining variations in Product Standards Adherence.

Examining the independent variable, Supplier Collaborative Ties exhibit a positive and statistically significant coefficient ($\beta = 0.728$, $t = 10.234$, $p < 0.01$), indicating that stronger supplier collaborations positively influence SMEs' adherence to product standards. This finding highlights the importance of supplier collaborative ties in enhancing adherence to product standards among SMEs.

4.6 Multiple (hierarchical) regression of the variables

The analysis from linear regression shows that collaborative ties with suppliers significantly impact adherence to product standards ($\beta = 0.728$, $t = 10.234$, $p < 0.01$). This highlights the essential role that supplier collaborative ties play in ensuring compliance. Customer collaborative ties also have considerable influence ($\beta = 0.642$, $t = 8.07$, $p < 0.01$), demonstrating how customer expectations affect quality and regulatory standards. While institutional collaborative ties may

have a relative impact ($\beta = 0.595$, $t = 7.144$, $p < 0.01$), they provide essential support structures, such as enforcing regulations, offering training, and promoting industry best practices.

Table 4.11: Multiple Regression Analysis

Coefficients

Model		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	Institutional Collaborative Ties	0.213	2.733	0.008	0.652	1.534
	Customer Collaborative Ties	0.308	4.005	0.000	0.670	1.492
	Supplier Collaborative Ties	0.434	5.129	0.000	0.553	1.809

Dependent Variable: Product Standards Adherence

The analysis in Table 4.11 meets the assumption of non-significant multicollinearity, given that the tolerance values range from 0.553 to 0.670 and the Value Inflation Factor (VIF) ranges from 1.492 to 1.809, indicating that multicollinearity is not a problem in the study. The results (Table 4.12) of the hierarchical regression show that the inclusion of institutional collaborative ties accounted for 35.4% variance in product standard adherence, $R^2 = 0.354$, $\Delta R^2 = 0.34$, F (1, 93) = 51.039, $P < 0.001$, and the analysis showed evidence of a significant effect on institutional collaborative ties on product standards adherence ($\beta = 0.595$, CI = 0.517,0.916, $P < 0.001$). The inclusion of customer collaborative ties showed an additional 18.2% variance in predicting adherence to product standards $\Delta R^2 = 0.182$, F (1, 92) = 35.998, $P < 0.001$, and it significantly predicted adherence to product standards ($\beta = 0.473$, CI = 0.625,1.243, $P < 0.001$). The inclusion of supplier collaborative ties showed an additional 10.4% variance in predicting adherence to product

standards $\Delta R^2 = 0.104$, F (1, 91) = 26.310, $P < 0.001$, and it significantly predicted adherence to product standards ($\beta = 0.434$, CI = 0.249,0.564, $P < 0.001$).

Table 4.12: Hierarchical Regression Analysis

	Product Standard Adherence					
Variable	Model 1	CI: 95%	Model 2	CI: 95%	Model 3	CI: 95%
Institutional Collaborative Ties	0.595***	0.517, 0.916	0.391***	0.282, 0.659	0.213***	0.070, 0.443
Customer Collaborative Ties			0.473***	0.625, 1.243	0.308***	0.306, 0.909
Supplier Collaborative Ties					0.434***	0.249, 0.564
Model Fit Statistics						
F-Value	51.039***		35.998***		26.31***	
R^2	0.354		0.536		0.640	
ΔR^2	0.354		0.182		0.104	

Note: *** P < 0.001

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter provides an in-depth discussion of the study findings concerning the effect of collaborative ties in enhancing adherence to product standards among SME manufacturers in Kampala, Uganda. The discussion integrates key insights from the literature review and theoretical perspectives to interpret the study results and provide a broader understanding of their implications.

5.1 Product Standards Adherence Among SMEs

Findings showed that adherence to product standards among SMEs in Kampala is generally high, with a weighted mean score of 3.83. The study found that the SMEs involved implemented quality control measures and performed compliance audits, leading to reduced product rejection rates and increased customer satisfaction. However, the level of adherence to certification standards remains moderate. This indicates that, although the SMEs in the study were working to meet these standards, they still faced challenges to adherence to product standards.

5.2 Influence of Institutional Collaborative Ties on Product Standards Adherence

Institutional collaborative ties were found to have a moderate effect on adherence to product standards, with a mean score of 3.55. Government agencies, such as the Uganda National Bureau of Standards (UNBS), play a crucial role in providing regulatory guidance; however, small and medium-sized enterprises (SMEs) still encounter significant challenges in accessing adequate support. Engagement with industry associations and participation in forums were rated moderate, highlighting an opportunity to strengthen institutional partnerships.

Regression analysis revealed that institutional collaborative ties significantly predicted product standards adherence ($\beta = 0.595$, $t = 7.144$, $p < 0.01$). This result highlights the effect of institutions in creating an enabling environment for SMEs to meet regulatory requirements. While the R^2 value (0.354) suggests that institutional collaborative ties explain 35.4% of the variation in adherence, it highlights that other factors contribute to compliance, necessitating a holistic approach to SME support.

These findings align with prior research, such as Leiponen (2008), which highlights the importance of institutional collaboration ties in driving compliance with quality standards. Furthermore, Schreurs et al. (2019) highlighted that institutional collaborative ties between government agencies and small and medium-sized enterprises (SMEs) improve compliance with regulations through organized training and support programs.

5.3 Influence of Customer Collaborative Ties on Product Standards Adherence

Customer collaborative ties significantly influenced adherence to product standards, with a mean score of 4.04. SMEs actively engaged in customer feedback, prototype testing, and review analysis to meet market demands. The study further revealed that customer expectations significantly influence adherence to standards, as businesses strive to maintain trust and competitiveness.

Regression analysis showed that customer collaborative ties significantly improved adherence ($\beta = 0.642$, $t = 8.07$, $p < 0.01$), accounting for 41.2% of the variation in compliance ($R^2 = 0.412$). This result supports previous research indicating that businesses focus on customer expectations and feedback to maintain quality (Fang et al., 2008). The importance of customer collaborative ties suggests that SMEs should use direct engagement strategies to promote better compliance with product standards.

Additionally, studies by Griffith & Lee (2016) supported these findings by demonstrating that customer engagement plays a role in enforcing quality adherence. Gudda et al. (2013) further reinforce that active customer involvement in product development leads to more effective compliance with industry standards.

5.4 Influence of Supplier Collaborative Ties on Product Standards Adherence

Supplier collaborative ties emerged as the most significant factor influencing product standards adherence (mean score = 3.58). Regression analysis confirmed that supplier collaborative ties had the highest impact on compliance ($\beta = 0.728$, $t = 10.234$, $p < 0.01$), explaining 53% of the variation in adherence ($R^2 = 0.530$). This result highlights that SMEs benefit from timely updates on product standards, joint quality control initiatives, and supplier training programs.

The high correlation between supplier collaborative ties and adherence to product standards suggests that SMEs with supplier partnerships are better positioned to meet industry regulations and quality requirements. These findings align with Chen (2016), who highlighted that supplier-collaborative ties foster long-term strategic quality improvements. However, supplier training programs and research partnerships were found to be moderately low, suggesting the need for more structured supplier engagement initiatives.

Research by Delbufalo & Bastl (2018) supports these findings by highlighting that supplier involvement in quality assurance enhances SMEs' capacity to meet regulatory standards. Furthermore, studies by Sochneva et al. (2020) indicated that joint quality control initiatives between SMEs and suppliers lead to improved compliance and product consistency.

5.5 Interpretation of the Standard Deviations

In the descriptive statistics tables (Tables 4.3–4.6), the mean values indicate the general direction of SME responses, while standard deviations (SDs) provide important insights into the level of consensus among respondents. For instance, in Table 4.4, the item on *"sustainable institutional ties providing long-term benefits"* had a relatively high SD of 0.994. This suggests that while some SMEs strongly agreed with the statement, others strongly disagreed, indicating polarized perceptions about the sustainability of institutional collaborations. Such variation may reflect differences in the quality or consistency of institutional support across SMEs; for example, some may benefit from continuous engagement with agencies like UNBS or UMA. Some others may experience weak or irregular support.

Similarly, in Table 4.6 (Supplier Collaborative Ties), the item on *"supplier training programs to meet product standards"* had an SD of 1.032, the highest in the table. This wide variability implies that while some SMEs received substantial training support, many others had limited or no access. The implication is that supplier collaboration is not uniformly experienced and that interventions need to be targeted and standardized to ensure broader and more equitable benefits across SMEs.

In contrast, items with low SDs (e.g., customer trust and feedback in Table 4.5 with SDs between 0.434–0.640) show greater consensus, suggesting that customer collaboration is a relatively common and consistently experienced driver of standards adherence across SMEs. This implies that SMEs generally view customer pressure and engagement as reliable motivators for maintaining quality standards.

Overall, the interpretation of SDs indicates that while SMEs broadly acknowledge the importance of collaborative ties, the extent of benefit varies, with institutional and supplier ties showing the

highest variability. This variability indicates inconsistent access and effectiveness of collaborative ties, which may clarify the differences in compliance levels among SMEs.

5.6 Multiple Regression Analysis

The multiple regression analysis showed the combined effects of institutional, customer, and supplier collaborative ties on adherence to product standards. The model demonstrated a significant predictive relationship, explaining 64% of the variance in product standards adherence ($R^2 = 0.640$, $p < 0.01$). Among the three collaborative ties, supplier collaborative ties remained the highest predictor ($\beta = 0.434$, $p < 0.01$), followed by customer collaborative ties ($\beta = 0.308$, $p < 0.01$) and institutional collaborative ties ($\beta = 0.213$, $p < 0.01$).

The results confirm that a multi-stakeholder approach to collaboration significantly enhances product standards adherence, reinforcing the importance of integrating supplier, customer, and institutional engagements. Previous studies (Sochneva et al., 2020; Delbufalo & Bastl, 2018) indicate that collaborative ties enhance compliance and improve product quality.

The hypothesis testing results reveal that the null hypothesis (H_0), which states that institutional, customer, and supplier collaborative ties do not significantly improve adherence to product standards among manufacturing SMEs in Uganda, is rejected. The alternative hypothesis (H_1) suggests that institutional, customer, and supplier collaborative ties significantly enhance adherence to product standards. The regression results support the alternative hypothesis, providing strong empirical evidence that collaborative ties with institutions, customers, and suppliers are essential for improving adherence to product standards.

The inferential analyses (Tables 4.7 to 4.12) demonstrated that institutional, customer, and supplier collaborative ties significantly predict adherence to product standards. The regression models explained between 35.4% and 64% of the variance in adherence, which is substantial but also indicates that 36% to 65% of the variance remains unexplained.

This unexplained variance may be attributed to other factors not captured in the current study, such as internal SME capabilities (managerial competence, financial resources, technological readiness), regulatory enforcement intensity, organizational culture and leadership commitment, and access to information and training.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter summarizes the study's conclusions, recommendations, and future research suggestions. The recommendations focus on the study's key findings regarding institutional, customer, and supplier collaborative ties and their influence on product standards adherence among SMEs in Kampala, Uganda. The chapter offers strategic recommendations to enhance SMEs' compliance with product standards and promote sustainable business practices.

6.1 Conclusion

This study sought to examine the effectiveness of collaborative ties in aiding SMEs in Kampala in adhering to product standards. It focused on institutional, customer, and supplier collaborative ties to determine their impact on compliance with established product standards.

Findings revealed that institutional collaborative ties had a significant yet moderate impact on product standards adherence. Regulatory bodies, industry associations, and government institutions have a role in providing SMEs with guidance, training, and compliance support. However, limited engagement with these institutions constrains SMEs' ability to leverage available resources.

Customer collaborative ties emerged as a strong driver of product standards adherence. SMEs that actively engaged customers through feedback mechanisms, product testing, and transparency initiatives demonstrated higher compliance with product standards. Customer pressure and market demands serve as motivating factors for SMEs to maintain high-quality standards.

Supplier collaborative ties were the most influential factor in ensuring adherence to product standards. Relationships between SMEs and their suppliers enhance knowledge sharing, improve access to quality raw materials, and facilitate compliance with regulatory requirements. However, gaps in supplier training programs and collaboration initiatives present challenges to achieving full compliance.

Overall, the study highlighted the necessity of a multi-stakeholder approach in strengthening SMEs' adherence to product standards. Businesses must strategically leverage institutional, customer, and supplier ties to improve compliance and enhance competitiveness in both local and international markets.

6.2 Recommendations

The limited institutional collaborative ties should be strengthened through expanded training programs and simplified compliance processes by regulatory agencies such as UNBS. SMEs need more engagement opportunities with policymakers and industry associations to access certification support and voice compliance challenges. Public-private partnerships should also be reinforced to bridge gaps between policy implementation and SME needs, ensuring compliance support mechanisms are SMART.

Customer-driven collaboration is essential in enforcing product standards adherence. SMEs should implement structured customer feedback mechanisms and digital engagement platforms to ensure continuous product improvement. Customer advocacy groups should work alongside regulatory agencies and businesses to enhance transparency and monitor compliance. Additionally, leveraging digital tools such as AI-driven sentiment analysis can help SMEs track customer expectations and refine product quality in response to market demands.

Supplier collaborative relationships must be strengthened to ensure compliance with product standards. Small and medium-sized enterprises should establish long-term partnerships with suppliers that focus on compliance and provide reliable access to high-quality raw materials. Suppliers should implement structured training programs to give SMEs the necessary knowledge and skills to meet regulatory requirements. Joint quality control initiatives between SMEs and suppliers should be encouraged, including shared compliance audits and exchanges of best practices. Regulatory bodies should enforce supply chain transparency frameworks, ensuring that all stakeholders contribute to maintaining high product standards.

6.3 Future Research Areas

While this study has provided valuable insights into the role of collaborative ties in adhering to product standards, further research is needed to expand the understanding and inform policy development. Future studies should explore the impact of digital transformation on collaborative ties and its effect on SMEs' ability to meet product standards. Comparative research should also be conducted to assess how collaborative ties influence compliance in different SME sectors beyond manufacturing. Additionally, longitudinal studies should be performed to examine the long-term impact of collaborative ties on the sustainability, competitiveness, and adherence to product standards of SMEs over time.

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APPENDICES

Appendix 1: Introductory letter

To:

The Management,

……..Incubation Center,

P.O. Box ……..,

Kampala.

Dear Sir/Madam,

RE: REQUEST TO CARRY OUT A STUDY

I am pursuing a Master of Business Administration at Uganda Christian University. I am conducting a study titled "Collaborative Ties and Product Standards Adherence: A Case Study of SME Manufacturers in Kampala, Uganda." I am collecting information through interviews and questionnaires to understand the influence of collaborative ties (institutional, customer, and supplier) on adherence to product standards within Small and Medium Enterprises (SMEs). This study will provide valuable insights for entrepreneurs, policymakers, government agencies, and non-state actors. All data will be treated as confidential and used solely for research purposes. Your cooperation is highly appreciated.

Sincerely,

Ignatius TUMWEBAZE

MBA Candidate – Uganda Christian University

Appendix 2: Informed Consent

I am IGNATIUS TUMWEBAZE, a student at Uganda Christian University, currently pursuing a Master's degree in Business Administration. I am conducting a study titled "Collaborative Ties and Product Standards Adherence: A Case Study of SME Manufacturers in Kampala, Uganda." The findings from this study will provide valuable insights and recommendations on the role of collaborative ties in improving product standards adherence within Small and Medium Enterprises (SMEs) in Uganda. Your participation in the study is voluntary, and you have the right to withdraw from the interview at any time. All information you provide will be kept confidential and used exclusively for research. The interview will take about 30 minutes.

Signature…….. Date……...……

Thank you for your assistance

Appendix 3: Ethical Approval

UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

16/09/2024

To: Ignatius Tumwebaze

Uganda Christian University, Mukono
0772384259

Type: Initial Review

Re: UCUREC-2024-1007: COLLABORATIVE TIES AND PRODUCT STANDARDS ADHERENCE: A CASE STUDY OF SME MANUFACTURERS IN KAMPALA, UGANDA

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on 10/09/2024 approved the above referenced study.
Approval of the research is for the period of 16/09/2024 to 16/09/2025.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval prior to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC eight weeks prior to the expiration date of 16/09/2025 in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Uganda Christian University REC:

No.	Document Title	Language	Version Number	Version Date
1	Informed Consent forms	English	1	2024-08-13
2	Data collection tools	English	1	2024-08-13
3	Protocol	English	1	2024-08-13

Yours Sincerely

Prof. Peter Waiswa
For: Uganda Christian University REC

Appendix 4: Survey Questionnaire

Questionnaire on Collaborative Ties and Product Standards Adherence among SME Manufacturers in Kampala, Uganda

Dear Respondent,

Kindly receive and fill out the questionnaire. This is an academic study seeking to establish how collaborative ties can be utilized the enhance product standards adherence among SMEs in Kampala, Uganda. The information provided will be treated with utmost confidentiality and will be used solely for academic purposes only.

In case you need any further information or to get a copy of the study findings, please reach me at **i_chrystal@yahoo.com**

Section A: Demographic Information

1. What is the age of the owner?

   ☐ 18 – 25 ☐ 26 – 35 ☐ 36 – 45 ☐ 46 – 55 ☐ 55 and above

2. What is the gender of the owner?

   ☐ Male ☐ Female

3. What is the highest level of education of the owner?

   ☐ Primary ☐ Secondary ☐ Diploma ☐ Degree

   ☐ Masters Others Specify…….

4. How long has your SME been in operation?

   ☐ Less than 1 year ☐ 1 – 3 Years ☐ 4 – 6 Years

   ☐ 7 -10 Years ☐ Above 10 Years

5. What is the legal form of the business?

   ☐ Partnership ☐ Sole Proprietorship ☐ Company – LLC

   Others Specify……..

Section B: Institutional Collaborative Ties

Do you have any form of Institutional Collaborative Ties with government agencies and their development partners, universities, forums, or association bodies?

☐ Yes ☐ No

If Yes, Specify the nature of institutional collaboration ties.

……

If No, Explain why.

……

Read each statement and answer by ticking in the suitable category that best fits your opinion.

1 = Strongly Dis-agree, 2 = Dis-agree, 3= Neutral, 4 = Agree, 5 = Strongly-Agree

No.	Question	SD	D	N	A	SA
1	Our SME receives adequate regulatory guidance from government agencies like UNBS	1	2	3	4	5
2	Our SME benefits from collaborative programs with universities and research institutions in terms of training, research, and development	1	2	3	4	5
3	Partnerships with industry associations are part of our operations	1	2	3	4	5
4	Our SME regularly participates in forums or workshops organized by institutional partners like UIA, and UMA.	1	2	3	4	5
5	Networking with other association SMEs is part of our collaborative activities.	1	2	3	4	5
6	Our SME has access to technical expertise through collaborations with institutional partners like UNIDO and USAID.	1	2	3	4	5
7	We use digital platforms for collaboration with our institutional partners	1	2	3	4	5
8	We frequently engage in collaborative activities with our institutional partners.	1	2	3	4	5

9	Our SME receives financial support from government agencies as part of our collaborative ties	1	2	3	4	5
10	Our collaborative ties with institutional partners are sustainable and provide long-term benefits.	1	2	3	4	5

Section C: Customer Collaborative Ties

Do you have any form of Customer Collaborative Ties?

☐ Yes ☐ No

If Yes, Specify the nature of customer collaboration ties.

……

If No, Explain why.

……

Read each statement and answer by ticking in the suitable category that best fits your opinion.

1 = Strongly Dis-agree, 2 = Dis-agree, 3= Neutral, 4 = Agree, 5 = Strongly-Agree

No.	Question	SD	D	N	A	SA
1	Our department receives direct feedback from customers often	1	2	3	4	5
2	Meeting customer expectations is a key factor in our operations	1	2	3	4	5
3	Our department regularly involves customers in the product development processes occasionally through prototype testing	1	2	3	4	5
4	Our department regularly involves customers in the product development processes occasionally through feedback sessions.	1	2	3	4	5
5	Customer reviews and ratings are considered in our operations.	1	2	3	4	5
6	Maintaining customer trust is a primary motivation (KPI) within the departments	1	2	3	4	5

7	We actively consider detailed feedback from customer advocacy groups	1	2	3	4	5
8	Regular engagement with customers is a part of the business process	1	2	3	4	5
9	Pressure from customers encourages us to continuously meet or exceed product standards	1	2	3	4	5
10	Our SME utilizes digital tools for regular communication and coordination with customers.	1	2	3	4	5

Section D: Supplier Collaborative Ties

Do you have any form of Supplier Collaborative Ties?

☐ Yes ☐ No

If Yes, Specify the nature of supplier collaboration ties.

……

If No, Explain why.

……

Read each statement and answer by ticking in the suitable category that best fits your opinion.

1 = Strongly Dis-agree, 2 = Dis-agree, 3= Neutral, 4 = Agree, 5 = Strongly-Agree

No.	Question	SD	D	N	A	SA
1	Our suppliers provide us with timely updates about changes in product standards supplied.	1	2	3	4	5
2	We regularly conduct joint quality control initiatives with our suppliers.	1	2	3	4	5
3	We have open and transparent communication channels with our suppliers through regular meetings.	1	2	3	4	5
4	We have open and transparent communication channels with our suppliers through reports.	1	2	3	4	5

5	We have open and transparent communication channels with our suppliers through shared platforms.	1	2	3	4	5
6	Our suppliers are proactive in addressing any compliance issues that arise.	1	2	3	4	5
7	Our SME carries out joint research and development projects with our suppliers have improved our adherence to product standards.	1	2	3	4	5
8	Our suppliers offer training programs to help us meet product standards.	1	2	3	4	5
9	The intensity of our collaboration with suppliers is high, involving detailed coordination and planning.	1	2	3	4	5
10	The partnerships we have with our suppliers support our long-term strategic plans.	1	2	3	4	5
11	We have established long-term collaborations with our suppliers that contribute to ongoing product quality improvements.	1	2	3	4	5

Section E: Product Standards Adherence

Read each statement and answer by ticking in the suitable category that best fits your opinion.

1 = Strongly Dis-agree, 2 = Dis-agree, 3= Neutral, 4 = Agree, 5 = Strongly-Agree

No.	Question	SD	D	N	A	SA
1	Our SME consistently meets the required product standards.	1	2	3	4	5
2	We regularly conduct compliance audits to ensure product standards adherence.	1	2	3	4	5
3	Our product rejection rates have significantly decreased due to adherence to product standards.	1	2	3	4	5
4	We have implemented comprehensive quality control measures to meet product standards.	1	2	3	4	5

5	Our SME has received certifications that validate our adherence to product standards.	1	2	3	4	5
6	We have a dedicated team responsible for monitoring and maintaining product standards.	1	2	3	4	5
7	Adherence to product standards has improved customer satisfaction.	1	2	3	4	5
8	We receive positive feedback from customers regarding our product quality.	1	2	3	4	5
9	Our SME frequently updates its processes to align with evolving product standards.	1	2	3	4	5
10	We collaborate with external experts to ensure our products meet industry standards.	1	2	3	4	5
11	Product standards adherence has resulted in increased market competitiveness for our SME.	1	2	3	4	5
12	Our employees are well-trained in understanding and applying product standards.	1	2	3	4	5
13	We have invested in technology to enhance our ability to meet product standards.	1	2	3	4	5
14	Our suppliers provide us with materials that comply with product standards.	1	2	3	4	5
15	Continuous improvement initiatives are in place to maintain high product standards.	1	2	3	4	5

Appendix 5: Krejcie & Morgan's (1970) Formula

$$s = X^2NP(1-P) + d^2(N-1) + X^2P(1-P)$$

Where;

s = required sample

X^2 = the table value of the chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = population size

P = the population proportion

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DISSERTATION CORRECTION COMPLIANCE REPORT BY THE CANDIDATE (POST VIVA FORM)

Date: ……29/09/2025…….

Name of Candidate: …IGNATIUS TUMWEBAZE…….. **Reg. No:** ……S22M15/012…….

Title of Dissertation ……COLLABORATIVE TIES AND PRODUCT STANDARDS ADHERENCE: A CASE OF SME MANUFACTURERS IN KAMPALA, UGANDA ……

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	The introduction is too shallow, and the purpose of the study is too long	Reviewed and amended	Chapter 1
1	Research gaps identified but not empirically backed	Research gaps have been empirically backed	Chapter 2 (Page 15)
2	Validity and Reliability Scores are missing	They have been incorporated	Chapter 4
3	Data collection is vaguely explained	They have been elaborated further	Chapter 3 (Page 17)

SN	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	It's a mixed methods approach	Edited the methodology to indicate a mixed methods design as guided	Chapter 3 (Page 16)
2	Interpretation of standard deviation and inferential statistics	Included in the write-up as guided	Chapters 4 & 5

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	The Collaborative ties should be looked at	They are defined and outlined in the literature review	Chapter 2(Page 10)
2	Inclusion and exclusion criteria should be indicated in the methodology	The exclusion criteria have been included	Chapter 3(Page 17)

……IGNATIUS TUMWEBAZE…… **…….** **……Dr. DAN AYEBALE (Ph.D)……** **…….**

Candidate's Name Signature Supervisor's Name Signature