

ELECTRONIC PROCUREMENT PRACTICES AND COST REDUCTION; A CASE OF BROOKSIDE DAIRY LIMITED, UGANDA

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DECLARATION

I KOMUNTALE YVONNE hereby declare that this dissertation was produced out of my own effort with the guidance of the supervisor and has never been submitted to any other institution for any award

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APPROVAL

This research titled Electronic procurement practices and cost reduction (case study of Brookside Dairy Limited) has been submitted by Komuntale Yvonne for examination with my Approval and is ready for presentation to the school of Business for Award of Bachelor Degree of procurement and logistics management of Uganda Christian University.

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MRS NAGAWA PAMELA

DEDICATION

I dedicate this research to my dear loving parent Mrs. Mugisha Elizabeth who has supported me through all my education. The dissertation is also dedicated to my brothers Ivan and Jonny as well as my beloved Aunties Becky and Connie. Above all, I thank God for guidance and provision towards the completion of this dissertation.

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ABSTRACT

The study examined the electronic procurement practices and cost reduction of an organization. A case Study of Brookside Dairy Limited company. The study was guided by objectives which included, to examine the relationship between e -supplier management and cost reduction in Brookside Dairy Limited, to examine the relationship between e-invoicing and cost reduction in Brookside Dairy Limited and also to examine the relationship between e-tendering and cost reduction in Brookside Dairy Limited.

The study was carried out using questionnaires with the selected lower-level employees of Brookside Dairy Limited and interviews with top management of the company.

The study was carried out using a case study research design. The data were collected using questionnaires and during the data collection, purposive sampling method was used. A sample size of the females was 59.4% and the males were 40.6%. This finding suggests that the use of electronic supplier management has improved coordination and also E-supplier management enables timely sharing of information with suppliers, reducing procurem

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter lays out the background of the study, problem statement, purpose, objectives, research questions, scope, significance, conceptual framework, and limitations of the study in order to understand the relationship between electronic procurement practices and cost reduction; a case of Brookside Dairy Limited, Uganda.

1.1 Background of the Study

1.1.1 Historical Background

Globally, cost reduction initiatives in procurement date back to the 1950s, when companies started formalizing purchasing departments to lower waste and boost operational efficiency (Wadesango et al., 2023). By the 1980s and 1990s, globalization and technology developments drove businesses to use lean sourcing, early types of automation, and supplier integration to lower production and transaction costs (Klunder et al., 2019). Digital procurement technologies, including ERP systems and automated bidding platforms, emerged in the 2000s and improved openness and significantly lowered administrative costs (Faccia & Petratos, 2021). The development in modern e-procurement, blockchain technology, analytics, and Procurement 4.0 innovations has brought about unprecedented cost savings around the globe in the last decade through real-time data, reduced mistakes, and easier procurement processes (Hallikas et al., 2021).

In Africa, cost reduction initiatives historically concentrated on removing bureaucratic inefficiencies from the 1970s onwards as governments aimed to simplify public spending throughout economic changes (Basiru et al., 2022). Early in the 2000s, nations including Kenya, Rwanda, Tanzania, and Ghana started using electronic procurement systems to reduce corruption, cut procurement cycles, and bring down public and private sector purchasing costs (Waithaka & Kimani, 2021). Regionally inside East Africa, the use of digital procurement sped up following 2010 when regional integration frameworks supporting transparency, competitive sourcing, and

digital supply chain modernization to lower operational costs (Jules, 2022). Recent changes including EAC digital procurement transformation programs help to improve cost-efficiency by means of automation, uniform procedures, and electronic sourcing across regional institutions (Celestin & Sujatha, 2024).

In Uganda, cost-cutting measures taken by the government in the 1960s and 1970s, after the country gained its independence, put more emphasis on the central control of public procurement to lower waste and make sure the country got the most for its money (Musau, 2019). Early in the 2000s, major change started with the founding of the Public Procurement and Disposal of Public Assets Authority (PPDA), which brought in competitive bidding and organised procurement procedures meant to lower costs (Abubakar, 2021). From the 2010s onwards, Uganda progressively embraced electronic procurement technologies including e-tendering, e-sourcing, and online supplier registration systems to increase transparency, remove manual inefficiencies, and lower transaction costs in both government and private sectors (Ofori et al., 2023). Streamlining decisions, cutting down on paperwork, and bettering supplier management help businesses like Brookside Dairy Limited save costs in Uganda today as it moves toward complete digital procurement integration (Chegugu & Yusuf, 2017).

1.1.2 Theoretical background

This study will be guided by the Transaction Cost Economics (TCE) Theory, developed by Oliver Williamson (1975), which posits that organizations seek to minimize the costs associated with economic transactions by choosing governance structures that reduce uncertainty, information asymmetry, and opportunistic behavior. The theory contends that businesses pay transaction costs including search, negotiation, monitoring, and enforcement; hence, efficiency is attained when companies embrace methods to cut these costs (Verbeke & Kano, 2013). Its main principles are limited rationality, opportunism, asset specificity, and uncertainty; its assumptions are that companies act rationally within limits, transaction partners may act opportunistically, and cost-minimizing motives drive governance decisions whether market-based or hierarchical (Ketokivi & Mahoney, 2020).

Transactional cost economics is pertinent to this research due to the direct impact of electronic procurement in the minimization of transaction costs through automation of procurement, standardization of bidding, increased transparency, and reduction of inefficiencies that result from

manual processing (Rindfleisch, 2020). The adoption of e-procurement ensures the minimization of negotiations and monitoring costs by ensuring proper documentation, tracking, and communications. This makes the whole procurement process effective. Consequently, through Transaction Cost Economics theory, it becomes apparent that the implementation of an electronic procurement system is key to achieving cost minimization at Brookside Dairy Limited Uganda.

1.1.3 Conceptual background

The study relies on two significant variables: electronic procurement procedures and cost savings. Electronic procurement procedures involve the application of digital technology in managing the sourcing process, tendering process, supplier management, invoice generation, and payments processes, resulting in increased transparency, efficiency, and accountability in procurement procedures (Wadesango et al., 2023). The techniques include digital supplier portals, automated tender portal sites, integrated invoices, and internet-based payment systems designed to reduce complexity, paperwork, errors, and delays (Jules, 2022). Despite the benefits of e-procurement recognized through improving supply chain coordination, decreasing cycle time, and reducing bureaucratic burden in the global and regional settings, user opposition, technological issues, and integration difficulties remain prevalent, especially in developing countries (Waithaka & Kimani, 2021). While advancements in information communication technologies, big data analysis, and business systems are making it easier for e-procurement acceptance to continue increasing, gaps exist in the empirical studies investigating its effectiveness in private enterprises, especially in the East African dairy and manufacturing industries (Basiru et al., 2022).

Cost reduction can be described as the process of reducing costs associated with procurement activities through increased efficiency in the purchasing process, efficient management of suppliers, and automation of the procedural processes (facaic & pertaros, 2021). The elimination of transaction costs, reduced paperwork, increased bargaining strength, and avoidance of inefficiencies such as delays and duplication of efforts created by digitized procurement environments play a significant role in accomplishing cost reduction (Sitompul, 2022). Companies using e-procurement systems incur considerable savings through bulk buying, enhanced online communication, and automation of processes that minimize errors made by humans and ease the work process (Maiga & Mwakalobo, 2023). Although cost-saving benefits have been documented, the outcomes of cost reduction vary significantly based on factors such as system usability,

organizational readiness, and suppliers' compliance level. It is clear that there is a need for further study focused on individual circumstances explaining the contribution of electronic procurement to cost optimization in private organizations such as Brookside Dairy Limited Uganda (Hallikas et al., 2021).

1.1.4 Contextual background

The dairy industry in Uganda is an important part of the agricultural sector involving milk production, processing, and marketing. Some of the players in this sector include small-scale farmers, cooperatives, and private processing companies such as Brookside Dairy Limited (Dairy Development Authority, 2023). The dairy industry is governed by regulations such as the PPDA Act No. 6 of 2003 (as amended), which requires that government procurements are done electronically, and there is also the National Dairy Policy as well as standards from UNBS. Brookside Dairy Limited, one of the leading companies in milk processing in Uganda, involves the collection and processing of milk into different products and their distribution all over the country with departments involved in procurement, manufacturing, quality assurance, and sales (Uganda Investment Authority, 2022).

The dairy industry constitutes a considerable percentage of Uganda's economy, with contributions of around 10% to agricultural GDP and employment of more than 2 million Ugandans directly and indirectly through its farming and processing networks. The dairy industry fits into various national strategies such as NDP III, 2020/21 – 2024/25, and Vision 2040 focusing on agro-industrialization as part of Uganda's development plans geared towards export-led development and food security (NDP III, 2020/21 – 2024/25). Brookside dairy limited has played a pivotal role in contributing to the realization of Uganda's objective of achieving sustainable industrialization and poverty eradication through efficient local value addition, reduced imports, and creation of livelihoods (Dairy Industry Profile by the Ministry of Finance, 2024/25). Procurement processes are critical for maintaining production capacity, ensuring continuous supply of materials, and competitive prices despite the increased operations costs and stiff competition. Consistent with the country's digital transformation agenda, e-procurement systems will help address efficiency issues in terms of leakages and transparency in agro-processing companies like Brookside (ICT & National Guidance Ministry, 2021).

Even though it is very significant, this industry suffers from some problems such as expensive procurement processes due to the manual process, inefficiency in the supply chain process, lack of adoption of technology, and the risk of corruption. For instance, research reports that in public-related procurements, there are cases of up to 30% cost overruns (DDA, 2023; UIA, 202). This company faces some challenges in procuring raw milk and other inputs due to infrastructural gaps and price volatility, among others, in addition to lack of e-procurement integration (Office of the Auditor General [OAG], 2023). The government interventions include the use of the e-GP system introduced by PPDA and NITA-U together with some digitalization efforts funded by donors.

1.2 Problem Statement

In Germany, electronic procurement processes have shown significant cost savings through digital disruption, whereby Procurement 4.0 allows for 20-30% of cost savings through automation and data analytics (European Commission, 2023). Modern e-procurement tools, which rely on ERP and blockchain, improve transparency and efficiency, leading to reduced costs in the manufacturing industry, especially within the automotive and machinery sub-sectors, where lengthy procurement processes used to be responsible for delays and increased costs (Faccia & Petratos, 2021). Nevertheless, there are cases of inefficiencies from some German firms when it comes to integrating their traditional procurement system with new digital solutions, which sometimes leads to delayed payments to suppliers and reduced cost savings (Hallikas et al., 2021).

In Kenya, the implementation of e-procurement has been hampered by factors such as insufficient ICT infrastructure, lack of digital skills among procurement staff, and poor enforcement of policies, leading to minor cost savings and ongoing inefficiency in both the public and private sectors (Celestine & Sujatha, 2024). Research conducted on the implementation of e-procurement in state-owned companies in Kenya shows that although there are time-saving benefits from the use of e-tendering and invoicing, problems encountered include difficulties in integrating processes, resistance to change, and delays in implementing electronic payment systems (Maggi & Mwakalobo, 2023; Jules, 2022). Though there are prospects for achieving efficiency through digital technology and cutting down costs, this goal is not being achieved due to low institutional capacity (Ofori et al., 2023).

In Uganda, even as the PPDA Act regulates for the use of the electronic government procurement system (eGP) to address problems with procurement such as high cost and lengthy lead time more

than 30-45 days, manual procurement is increasing the cost of doing business in the dairy industry by 15-25% annually at dairy processing firms such as Brookside Dairy Limited, Wadesango et al. (2023). Brookside is a leading dairy processor company but faces challenges in procurement, with supply chain disruptions and high costs resulting from procurement of raw milk due to poor application of e-procurement technology in a vital agro-industry for agro-industrialization policy in Uganda (NDP III), Waithaka & Kimina 2021. Despite studies in other regions about the effect of e-procurement on organizational performance (Wangari & Ndeto, 2022; Masudin et al., 2021), there is no empirical research focused on e-procurement and cost reduction in Uganda's private sector dairy processing industry. This study seeks to fill this gap by researching the role of e-procurement in cost reduction in Brookside Dairy Limited.

1.3 Purpose of the study

The purpose of the study is to examine the relationship between electronic procurement practices and cost reduction with specific focus on Brookside Dairy Limited, Uganda as the case.

1.4 Objectives of the study

- i. To examine the relationship between e-supplier management and cost reduction in Brookside Dairy Limited.
- ii. To examine the relationship between e-invoicing and cost reduction in Brookside Dairy Limited.
- iii. To examine the relationship between e-tendering and cost reduction in Brookside Dairy Limited.
- iv. To examine the relationship between e-payment and cost reduction in Brookside Dairy Limited.

1.5 Research questions

- i. What is the relationship between electronic procurement practices and cost reduction in Brookside Dairy Limited?
- ii. What is the relationship between e-supplier management and cost reduction in Brookside Dairy Limited?
- iii. What is the relationship between e-invoicing and cost reduction in Brookside Dairy Limited?

- iv. What is the relationship between e-tendering and cost reduction in Brookside Dairy Limited?
- v. What is the relationship between e-payment and cost reduction in Brookside Dairy Limited?

1.6 Scope of the study

1.6.1 Content scope

The content scope will examine the relationship between electronic procurement practices and cost reduction with specific focus on Brookside Dairy Limited, Uganda.

1.6.2 Geographical scope

This study will be restricted to Brookside Dairy Limited which is one of the leading producers of dairy products in the country based at 5th Street, Industrial Area, Kampala, Uganda. This particular company has been chosen as it is among the biggest dairy processors in the country with large procurement needs.

1.6.3 Time scope

The research period for this study will be from 2021 to 2025. This period has been chosen to allow the analysis of current cost-reduction trends. This approach will help determine the effects that the application of electronic procurement has had on cost reductions.

1.7 Significance of the study

The managers of Brookside Dairy Limited will receive scientifically based suggestions about maximizing the potential of electronic procurement through this research. This research will reveal practical solutions for improving operational performance, competitive advantage, and data-driven decision making within resource-constraint situations via efficient use of e-suppliers, etenders, e-invoices, and epayment that improves efficiency and reduces costs.

To the Ugandan government, this research will indicate some areas in which improvements must be made regarding the application of electronic procurement within the dairy processing industry. Economic efficiency and reduction in costs will be improved for private firms as this research will help in regulating activities in a manner that aligns with the country's goals.

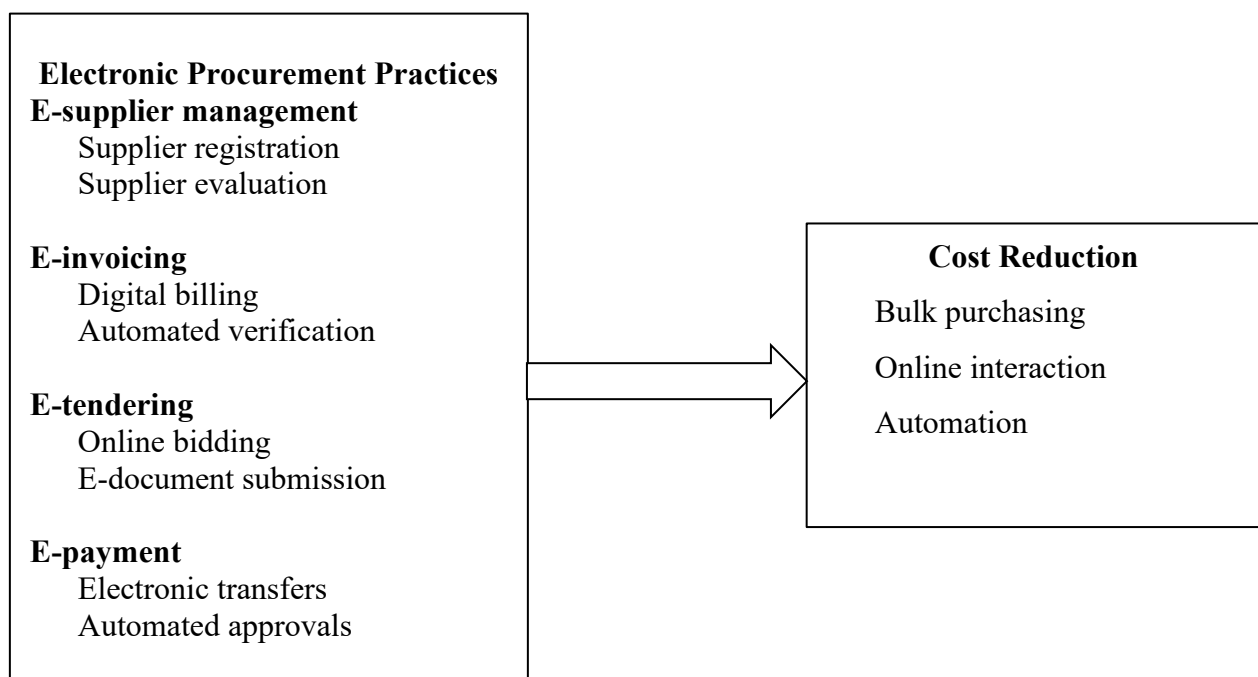
The conclusions drawn from this study will not only assist development partners such as NGOs and donors in identifying ways to increase efficiencies and drive transformation and growth sustainably within Uganda’s manufacturing and agro-processing industries through closing gaps by creating a framework that enables researchers to quantify the impact of electronic procurement techniques on costs.

Future research work will benefit from this study as it creates a comprehensive framework as well as empirical evidence of the connection between electronic procurement techniques and cost saving within the dairy industry in Uganda. It may spur research in other areas and also guide the identification of other variables such as supplier performance and technology implementation barriers among others.

1.8 Conceptual framework

Independent variable

Dependent variable



Source: *Adopted from, Wadesango et al. (2023) and modified by the researcher (2025)*

The conceptual framework demonstrates that through electronic procurement methods such as e-supplier management, e-invoicing, e-tendering, and e-payment, procurement efficiency is

enhanced because it facilitates coordination among suppliers, documentation, tendering, and faster payments.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter provides a review the scholarly materials put forward by several personalities on electronic procurement practices and cost reduction as well as critically analyzing the deviations in the explanations to find out the research gap in the study variables. Literature will be reviewed objectively by starting with definition of a concept followed by reviewing of objectives. Sources like journals, encyclopedia and books related to the study will be used.

2.1 Theoretical review

2.1.1 The Transaction Cost Economics (TCE) Theory

The Transaction Cost Economics (TCE) Theory, developed by Oliver Williamson (1975), explains how organizations structure their transactions in ways that minimize costs arising from economic exchanges. According to the theory, firms incur transaction costs such as searching for suppliers, negotiating contracts, monitoring performance, and enforcing agreements, all of which can reduce operational efficiency if poorly managed (Verbeke & Kano, 2013). TCE emphasizes that organizations are not perfectly rational and therefore operate under conditions of limited rationality, where decision-makers have constrained information-processing abilities. As a result, firms continuously seek governance mechanisms that reduce uncertainty and transaction-related inefficiencies while safeguarding organizational resources (Ketokivi & Mahoney, 2020).

One of the fundamental assumptions made under TCE is that there is an existence of opportunism whereby parties can be involved in self-centered behaviors like misleading one another, delaying deliveries, or failing to meet contractual agreements. According to Ketokivi and Mahoney (2020), TCE emphasizes asset specificity and uncertainty as factors influencing transaction costs, especially in procurement settings where organizations depend on specific suppliers and lengthy contracts. In such environments, organizations need to select the most suitable governance mechanisms, which include market-based governance, hybrid governance, or hierarchical governance, in order to reduce costs and risks.

The concept of transaction cost economics becomes especially relevant when analyzing e-procurement as the latter targets the very sources of high transaction costs. Specifically, electronic procurement eliminates the need for conducting supplier search manually, provides the opportunity to standardize tendering and bidding operations, and increases transparency thus decreasing the levels of information asymmetries and possibilities of opportunistic behavior (Rindfleisch, 2020). Furthermore, the use of electronic systems decreases negotiation, monitoring, and enforcement costs as there are less opportunities for errors, delay, and disagreement. Therefore, by reducing transaction frictions, e-procurement becomes consistent with the transaction cost economics theory (Cuypers et al., 2021).

The theory of transaction cost economics becomes especially pertinent when analyzing how electronic procurement practices can contribute to the minimization of costs in Brookside Dairy Limited Uganda. As a result of implementing the systems of e-suppliers, e-tendering, e-invoices, and e-payment, the company could decrease procurement time and gain more control over the process of collaboration with suppliers. This way, the theory of transaction cost economics helps to understand why electronic procurement can be viewed as the cost-minimizing form of governance (Cuypers et al., 2021; Rindfleisch, 2020).

2.2 Conceptual review

2.2.1 Electronic procurement practices

E-procurement is generally defined as the utilization of ICT in carrying out procurement operations using the internet in the whole purchasing cycle. According to Farrington and Lysons (2020), e-procurement involves the use of digital technology in sourcing, ordering, negotiating contracts, and payments in order to increase efficiency and control. Likewise, Sitompul (2022) sees e-procurement as an electronic tool replacing manual procurement by adopting online systems for improved transparency and accountability. Nevertheless, there is a controversy regarding the definition, as some authors, such as Klünder et al. (2019), view e-procurement within the context of Procurement 4.0, which includes automation, big data analytics, and system integration. Conversely, Wadesango et al. (2023) regard e-procurement from an operational point of view, seeing it as a method of reducing cost in the procurement process.

As far as measurement is concerned, researchers have employed various dimensions for capturing electronic procurement activities. For instance, Waithaka and Kimani (2021) highlight e-sourcing, e-tendering, e-ordering, and e-payment as dimensions that affect supply chain performance, whereas Basiru et al. (2022) focus on process automation, supplier integration, and electronic documentation as important dimensions. Moreover, other studies like Hallikas et al. (2021) have extended measurement by incorporating data analytics and information visibility, suggesting that digital procurement efficiency is contingent upon the extent to which processes facilitate decision-making. However, regardless of the differences, there is a consensus regarding dimensions such as electronic supplier management, electronic tendering, invoicing, and payment, all of which have been identified as critical dimensions of electronic procurement systems (Faccia & Petratos, 2021; Nani & Ali, 2020).

Empirical research on the use of e-procurement practices is extensive across developed and developing countries, including East African nations. Empirical studies conducted in Kenya and Tanzania indicate that the implementation of e-procurement leads to greater efficiency, shorter lead times, and lower costs of procurement despite issues such as system integration and users' capacity for use (Musau, 2019; Maagi & Mwakalobo, 2023). Concerning Uganda and the region at large, Wadesango et al. (2023) and Celestin and Sujatha (2024) observe that although there is an increase in the application of e-procurement, due to the pressure exerted by regulations and competition, it has remained challenging to reap cost-saving benefits because of poor infrastructure. However, these studies establish that organizations implementing full-fledged e-procurement practices achieve cost savings, supplier coordination, and transparency.

The main objective of implementing electronic procurement techniques is to cut down the cost of procurement processes and increase efficiency, transparency, and control over procurement activities. Research studies suggest that e-procurement enables organizations to realize cost savings by facilitating bulk procurement, reducing documentation, accelerating communication between suppliers, and automating repetitive tasks (Lewis-Faupel et al., 2016; Masudin et al., 2021). Electronic procurement techniques will be evaluated in this research based on four variables: e-supplier management (e-supplier registration and online performance evaluation), e-tendering (bid advertisements and bid evaluation online), e-invoicing (submission of invoices electronically and verifying invoices automatically), and e-payment (payment processing digitally

and decreasing payment cycle time). The purpose of each variable is to indicate how digital technologies lower manual interventions, cut down transaction costs, and improve efficiency to help Brookside Dairy Limited make cost-effective procurement practices (Wadesango et al., 2023; Waithaka & Kimani, 2021).

2.2.2 Cost reduction

Cost reduction is normally considered to be a purposeful management activity meant to minimize costs associated with operations and transactions while maintaining high-quality standards and effective services delivery. Cost reduction according to Chegugu and Yusuf (2017) can be described as the process through which inefficiencies in organizational processes such as procurement and supply chain management are eliminated from organizations. Likewise, Barrad and Valverde (2020) define cost reduction as performance enhancement which occurs due to improved coordination and integration of procurement processes where reductions are realized in administration, sourcing, and inventory costs. However, Nawi et al. (2016) argue against the notion that cost reduction is only about reducing expenditures as a temporary activity but an ongoing process of improvement.

Several authors have used different dimensions to assess cost reduction, mostly in procurement-based researches. In their work, Wangari and Ndeto (2022) use low purchase prices, low transaction costs, and low supplier cost as dimensions of cost reduction in state enterprises. Similarly, Jules (2022) uses low lead times, low costs of processing paperwork, and better budget compliance due to the adoption of digital procurement as measures of cost reduction. Abubakar (2021) further broadens the scope of cost reduction dimension to include reduction in costs of contract administration, costs of variation, and costs of procurement cycles, especially in the context of construction projects.

Empirical research from East Africa and other developing countries shows that cost cutting is one of the most critical factors in assessing the impact of procurement reform and organizational performance. In this regard, Chegugu and Yusuf (2017) found that cost-cutting measures could be realized in public hospitals through efficient procurement activities, leading to decreased emergency procurement and supplier price hikes. In Rwanda, Jules (2022) demonstrated the effect of electronic procurement on cost management and budget forecasting. Likewise, various studies conducted in Kenya indicate that e-sourcing increases competitiveness and cost efficiency in terms

of lower procurement costs (Wangari & Ndeto, 2022). While empirical evidence in the case of Uganda is limited, evidence from neighboring countries cited by Ofori et al. (2023) points to cost reduction as an achievable goal for Ugandan organizations.

Cost reduction is primarily aimed at increasing efficiency, profit, and competitiveness in organizations through the optimization of financial resource management. Barrad and Valverde (2020) state that the efficient implementation of cost reduction helps firms to direct their savings towards innovation and growth opportunities, while Nawi et al. (2016) stress the importance of financial sustainability and resiliency in cost reduction. Cost reduction will be evaluated using four variables, including cost reduction in procurement transaction expenses (to illustrate cost savings due to lower levels of paperwork and administration in procurement activities), cost reduction in procurement prices (to identify the benefit of better competition among suppliers and price clarity), cost reduction in procurement cycle costs (to demonstrate efficiency improvements in procurement activities), and cost reduction in inventory and storage costs (to reflect cost savings from improved planning and coordination).

2.2 Empirical review

2.2.1 Electronic procurement practices and cost reduction

According to Wadesango et al. (2023), in their research on global and regional literature review, e-procurement practices play a critical role in cost reduction through reduction of transaction costs, cutting down documentation efforts, and increased price visibility throughout the entire procurement cycle. Wadesango et al.'s study shows that the use of e-tendering and invoicing processes reduces administrative costs, resulting in improved cost efficiency within organizations. In a similar study by Waithaka and Kimani (2021), e-procurement practices help in coordinating procurement within supply chains and fostering supplier competition, thereby achieving cost savings through low purchasing prices and budget management. In essence, both studies show that e-sourcing contributes to cost savings through shorter procurement lead times and fewer emergency procurements that end up being more costly.

According to Faccia and Petratos (2021), there is an interrelationship between the adoption of e-procurement, ERP, and blockchain systems. In particular, they argue that the use of integrated systems increases the accuracy, auditability, and transparency of the data generated, hence

minimizing costs linked to fraud, wastage, and non-compliance. This paper elaborates on how electronic procurement practices promote cost minimization by ensuring timely monitoring and control, thus minimizing the costs of monitoring and enforcement in procurement transactions. Similarly, Hallikas et al. (2021) show that digital procurement processes, complemented by data analytics, enhance supplier evaluations and forecasts of demand, hence minimizing costs of holding inventories and price fluctuations.

According to Jules (2022), e-procurement has been noted to reduce the costs incurred in procurement processes through efficient approval processes, documentation, and fast supplier response, especially when looking at the adoption of e-procurement in public organizations in Rwanda. The research findings further confirm that cost reductions can be enhanced using e-procurement by improving compliance with the procurement plan. This means that there will be minimal budget overflows and unnecessary expenditures. Similar research carried out by Maagi and Mwakalobo (2023) has established that the time savings associated with e-procurement in Tanzania resulted in cost savings due to reduced time spent and less redundancy in the procedures involved.

According to Celestin and Sujatha (2024), the adoption of electronic procurement procedures in the East African Community led to lower procurement and logistics costs among those organizations in spite of infrastructural issues. In their findings, Celestin and Sujatha (2024) highlight that the use of electronic procurement systems enables organizations to increase access to suppliers regionally and facilitate price comparison, resulting in competitive pricing and cost savings. The same has been observed by Wangari and Ndeto (2022) regarding the cost-reduction effect of electronic sourcing in Kenyan state enterprises due to increased competition and lowered information asymmetry. This highlights the close relationship between electronic procurement practices and cost reduction.

2.2.2 E-supplier management and cost reduction

For instance, Masudin et al. (2021) explored the adoption of e-procurement among manufacturing organizations and found out that digital supplier management plays a critical role in reducing costs through enhanced coordination and efficient price negotiation processes. According to Masudin et al. (2021), the use of digital records of suppliers and their performance ensures reduced information gaps between the buyer and the suppliers, hence facilitating lower prices of

procurement and preventing any opportunist tendencies that may drive up costs of procurement. Similar research by Abubakar (2021) revealed that digitalized supplier registration and evaluation processes foster accountability among suppliers and lead to the reduction in costs associated with low-quality supplies and contractual differences in construction projects. This clearly demonstrates how digital supplier management is associated with cost savings through building supplier relationships and ensuring value for money.

Sitompul (2022) emphasized the use of electronic procurement systems, and the research indicates that e-supplier management systems can decrease procurement costs by facilitating automatic communication with suppliers, comparing bids, and ensuring compliance. In addition, the research highlights that centralized electronic information about suppliers increases transparency and competition, resulting in lower supplier pricing and sourcing costs over time. Likewise, Basiru et al. (2022) have stated that businesses implementing digital collaboration for suppliers have witnessed a decrease in coordination costs and procurement delays, thus saving operational costs. Thus, these research findings prove that e-supplier management facilitates cost savings by matching supplier capabilities with organizational needs, emphasizing the synergistic effect between supplier management and procurement savings (Sitompul, 2022; Basiru et al., 2022).

For instance, Ofori et al. (2023) studied adoption intentions regarding e-procurement processes among public organizations and determined that e-suppliers management is an important tool that ensures cost reduction by ensuring proper suppliers' evaluation, minimizing the risk of any corrupt actions, and improving compliance with the procurement procedures. As seen from the paper, the implementation of e-suppliers management can help to avoid unnecessary costs associated with the overpricing of goods and services and contract failure on behalf of suppliers. This point was also confirmed by Masudin et al. (2021), who stated that through digital supplier integration organizations could make better demand planning and have more responsive suppliers, which in turn would minimize the number of unplanned orders associated with high costs. Thus, the link between e-suppliers management and cost reduction was proven (Ofori et al., 2023; Masudin et al., 2021).

According to Basiru et al. (2022), the benefits of e-supplier management are associated with the ability to form strategic alliances, negotiate en masse, and adopt uniform pricing policies for

various procurement operations. As the authors note, digital communication tools help prevent miscommunications and minimize the need for conflict resolution in the procurement process, which are among the primary factors that lead to overbudgeting in conventional procurement practices. Moreover, Abubakar (2021) has shown that electronic monitoring of suppliers' performance throughout the project results in minimized life cycle costs owing to timely delivery, adherence to quality standards, and decreased maintenance or replacement costs. Collectively, the results presented above demonstrate that e-supplier management helps to achieve cost reduction both immediately and in the long term.

2.2.3 E-invoicing and cost reduction

As observed by Faccia and Petratos (2021) in their research, the use of e-invoicing within ERP and accounting systems has resulted in a significant decline in processing and administrative costs due to increased accuracy and timely access to financial information. According to the results, automation in invoicing prevents mistakes in data entry, double payments, and inaccurate invoicing, which helps reduce costs associated with the process of processing and reconciling invoices in procurement management. To illustrate this point, the research conducted by Hallikas et al. (2021) confirms the importance of implementing digitalized invoicing processes as a means of improving analytics and spend visibility, and thereby preventing cost leakage and optimizing the payment process.

According to Waithaka and Kimani (2021), who explored the application of e-procurement, e-invoicing is beneficial in managing cash flows as well as decreasing procurement cycle costs by expediting the process of approvals and payments. This paper highlights the importance of electronic invoicing in saving on costs by avoiding delays that result in late payment fees and disputes between organizations and suppliers, both being factors that make up hidden procurement costs. In a similar manner, Wangari and Ndeto (2022) noted that electronic sourcing methods accompanied by e-invoicing minimize operational costs due to reduced paper work, documentation, and auditing in public companies.

E-invoicing was shown to be one of the factors that help achieve cost savings because the implementation of e-invoicing reduces payment errors and frauds due to manually prepared invoices by Jules (2022) in his research on e-procurement adoption in public organizations. As mentioned by the author, the use of electronic documents allows organizations to have more

transparent processes that lead to decreased costs of compliance and monitoring over time. In addition, in their regional study, Celestin and Sujatha (2024) showed that digitalization of the procurement process in the EAC allows organizations to reach economies of scale in managing invoicing.

According to Maagi and Mwakalobo (2023), the adoption of e-invoicing can be considered the most important factor contributing to time saving and cost cutting within public procurement because it ensures quicker validation and approval of invoices. It is worth noting that decreased transaction processing time implies cost savings in terms of human resources and better relations with suppliers that also result in cost cutting. In line with this idea, Wadesango et al. (2023) suggest that e-invoicing contributes to the cost-saving potential of e-procurement as it facilitates purchasing activities and automated financial transactions. Altogether, these findings demonstrate how e-invoicing and cost savings positively influence one another as well-managed transactions imply lower operational costs whereas cost savings encourage adopting electronic procurement processes (Maagi & Mwakalobo, 2023; Wadesango et al., 2023).

2.2.4 E-tendering and cost reduction

The research conducted by Masudin et al. (2021) on the adoption of e-procurement in the manufacturing sector indicated that the use of e-tenders promotes competition among bidders, thus lowering their bid amounts and reducing the procurement costs directly. It is clear from the above analysis that the use of electronic tender systems increases the number of participants and increases transparency in the process, thus improving the competitiveness of the bids and avoiding any unnecessary increase in procurement costs. In a similar vein, Basiru et al. (2022) revealed that the adoption of e-tenders promotes efficiency in procurement processes through reductions in paperwork, cycle times, and administrative costs in engineering and construction companies.

The effects of electronic tendering on transaction costs were also investigated by Sitompul (2022), who discovered that electronic procurement mechanisms are able to lower the amount of transaction and compliance costs due to automated bid submission and evaluation processes. Sitompul (2022) further stresses that automation does not allow for human errors and therefore eliminates additional tender costs such as disputes and readvertisement. This conclusion is supported by observations of Abubakar (2021), who found that in public constructions, e-tendering

substantially lowers both procurement lead times and operating costs through digital standardization of the tender process.

According to Ofori et al. (2023), cost reduction in public sector entities using e-procurement is facilitated by e-tendering, as it promotes transparency and reduces the likelihood of corruption and collusion. It is evident from the research that e-tendering enhances transparency and competitive pricing, thus contributing to cost saving in the process of procurement. On the same note, Masudin et al. (2021) indicated that with e-tendering, organizations can perform data analysis on bids made, and also on suppliers' performances. Therefore, cost saving through informed decision-making is enabled, and this encourages institutions to adopt deeper levels of digital procurement (Ofori et al., 2023; Masudin et al., 2021).

According to Basiru et al. (2022), the adoption of e-tendering helps in minimizing indirect costs involved in procurement through increased coordination, eliminating redundant activities in procurement, and minimizing delays incurred in conventional tendering processes. In relation to this, Basiru et al. (2022) suggest that efficient e-tendering contributes significantly towards accurate planning and responsiveness from suppliers, which help to minimize costs involved in overrun projects. Similarly, Sitompul (2022) proposes that the process of e-tendering enhances cost minimization by enabling the creation of audit trails and real-time monitoring of activities in procurement systems, thereby lowering monitoring and enforcement costs.

2.2.5 E-payment and cost reduction

According to Waithaka and Kimani (2021), the adoption of e-procurement processes has an impact on supply chain management performance as a result of the efficiency of e-payment systems that lead to decreased transaction and processing costs due to the automation of manual payment and paper-based procedures. This study indicates that quick transactions minimize supplier waiting time, resulting in stronger business relationships and negotiation abilities for organizations to gain higher bargaining power over prices. Likewise, Faccia and Petratos (2021) argue that the combination of e-payment with enterprise resource planning and accounting information systems results in lower reconciliation costs, less error rate, and lower audit and compliance costs. The research demonstrates that e-payment is related to cost reductions and increased use of automated technologies.

According to Maagi and Mwakalobo (2023), an analysis of practitioners' perspectives on public procurement shows that the adoption of e-payment substantially cuts down on costs because it speeds up the process of payments and eliminates paperwork in terms of manual transactions. It is important to note that timely electronic payments contribute to improved cash flow, resulting in a decreased number of fines, interests, and higher prices set by suppliers due to late payments. Moreover, as shown by Hallikas et al. (2021), digitization of payment-related information facilitates analytical activities through providing data that allows for tracking costs within the supply chain. Therefore, e-payment and cost reduction are related aspects, since effective payment management yields quality data that helps with cost management (Maagi & Mwakalobo, 2023; Hallikas et al., 2021).

Through the study conducted by Jules (2022) on the adoption of e-procurement in public organizations in Rwanda, it is clear that e-payments minimize procurement costs since they enhance transparency and decrease the leakages that arise due to the use of the cash payment method. In addition, the study indicates that e-payments minimize fraud-related costs as well as improve accountability, therefore reducing overall procurement costs. Similarly, the research conducted by Wangari and Ndeto (2022) demonstrates that e-procurement methods, such as e-payments, increase organizational efficiency because they reduce costs involved in tracking suppliers when there are delayed or disputable payments.

In a study conducted on procurement transformation using digital technology in the East African Community, Celestin and Sujatha (2024) found out that e-payment minimizes the cost of conducting cross-border transactions, banking fees, and transaction time. This study proves that electronic transactions increase supplier engagement and optimize pricing, which ultimately minimize the cost of procurement processes. In the same way, Wadesango et al. (2023) noted that e-payment is an essential element of any e-procurement system because it contributes to minimizing costs by reducing transaction cost and increasing financial control. From both these articles, we learn that e-payment and cost reduction reinforce each other as efficient e-payments reduce costs while reduced costs facilitate digital procurement transformation (Celestin & Sujatha, 2024; Wadesango et al., 2023).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes how the study will be conducted. Inclusive is the research design, the study area and the population, sampling procedures, sample size and composition, data collection methods, data processing, data analysis methods, data quality control, reliability and ethical considerations.

3.1 Research design

This study will adopt a cross-sectional survey research design, which entails collecting data from respondents at a single point in time without follow-up interactions (Spector, 2019). This design is appropriate because it allows the researcher to efficiently assess the relationship between electronic procurement practices and cost reduction at Brookside Dairy Limited within the available timeframe and resources. It enables the researcher to capture existing relationships and patterns between e-procurement strategies, such as e-invoicing, e-tendering, e-payment, and e-supplier management, and their influence on cost reduction at the time of data collection (Patrik & Ugo, 2019).

In addition, a mixed-methods approach will be used, combining both quantitative and qualitative research methods to obtain a holistic understanding of the topic. The quantitative component will involve administering structured questionnaires to selected employees from the different departments at Brookside Dairy Limited. This will generate numerical data for statistical analysis to examine how different electronic procurement practices affect cost reduction outcomes, including transaction costs, administrative expenses, and operational efficiency (Bhardwaj, 2019).

The qualitative component will provide in-depth contextual insights and will involve semi-structured interviews with key informants, including the General Manager, Procurement Manager, Finance Manager, IT Manager, and Operations Manager involved in procurement processes. This will help explore how electronic procurement practices are implemented and monitored in practice, the challenges faced, and the organizational perspectives on their contribution to cost reduction at Brookside Dairy Limited (Haradhan, 2021).

3.2 Study area

The study is limited to Brookside Dairy Limited, a prominent dairy products producing firm located on 5th Street, Industrial Area, Kampala, Uganda. Brookside Dairy Limited is selected because it is one of Uganda's largest dairy processors with high procurement volumes, making it an ideal case for examining how electronic procurement practices influence cost reduction.

3.3 Study population

According to statistics from the statistics from the HRM of Brookside Dairy Limited (2024), there are a total of 200 employees working in the different departments in the company and these will be considered in this study as the study population. The study population will also include key informants who include; the top management of Brookside Dairy Limited like the General Manager, Procurement Manager, Finance Manager, IT Manager, and Operations Manager totaling to 5.

3.4 Sample size determination

Sample size, as defined by Katamba & Nsubuga (2014), is the part or subset of the entire population. The following formula developed by Taro Yamane in 1970 will be used to calculate the sample size:

$$n = \frac{N}{1 + N(e)^2}$$

“n” is sample size, “N” is population, “e” is error (0.05) or level of confidence 95%

“N” (population) = 200 employees from different departments in the company

$$n = \frac{200}{1 + 200(0.05)^2}$$

$$n = \frac{200}{1 + 200(0.0025)}$$

$$n = \frac{200}{1 + (0.5)}$$

$$n = \frac{200}{1.5}$$

n = 133 selected employees from the different departments in Brookside Dairy Limited. The population and sample size are further divided in the table below.

Table 1: Population, sample size and sampling methods

Categories of respondents	Population	Sample size	Sampling method
Lower-level employees	200	133	Simple random sampling
Top management	5	5	Purposive sampling
TOTAL	205	138	

Source: *Brookside Dairy Limited (2025)*

Therefore, from the table above, the sample size will be 133 respondents got from a total population of 200 lower-level employees from the different departments in Brookside Dairy Limited. The study will also include a sample of 5 key informants who are the top management of Brookside Dairy Limited like the General Manager, Procurement Manager, Finance Manager, IT Manager, and Operations Manager.

3.5 Sampling method

In this study, both purposive and simple random sampling methods will be used. Purposive sampling will be employed to select key informants, including the top management of Brookside Dairy Limited such as the General Manager, Procurement Manager, Finance Manager, IT Manager, and Operations Manager. This is because such employees have knowledge specific to the procurement process of the firm and know how to implement and measure electronic procurement practices to ensure cost savings. Additionally, a random sample of 133 employees will be drawn from various departments of Brookside Dairy Limited using the simple random

sampling technique. This sampling method ensures that there is an equal probability of each individual being included in the sample and thus avoids biases that may result from the choice of individuals. Simple random sampling is ideal for such samples since generalizations can be made based on the results obtained.

3.6 Sources of data

Primary source: Primary data will be gathered through the use of questionnaires and interviews conducted among the selected participants within the organization. This will help the researcher obtain firsthand information about how the employees and the management perceive and have experienced the adoption of electronic procurement systems at Brookside Dairy Limited, as well as its effects on the process of cost reduction.

Secondary source: Secondary data will also be gathered by examining available reports and records of the Brookside Dairy Limited, which include the procurement records, financial reports, internal audit reports, and others. These records will provide background information about the company's procurement system, past cost reduction trends, and results.

3.7 Data collection methods and instruments

The data collection methods and research instruments that will be used during the process of data collection include; questionnaires and key informant interviews.

3.7.1 Questionnaires

Quantitative data will be collected through a self-administered questionnaire from selected employees of Brookside Dairy Limited. A questionnaire is, therefore, an important instrument in collecting information on how these participants perceive and experience electronic procurement practices and how these practices impact cost reduction. Appropriate close-ended questions will be used that can be easily coded and subjected to statistical analysis. The answers shall be scored using a Likert Scale with the following rating criteria: 5=Strongly Agree, 4=Agree, 3=Not Sure, 2=Disagree, and 1=Strongly Disagree. Questionnaires can be used due to their capacity to efficiently gather uniform data from many employees. Comparisons can then be made among various procurement strategies and their effectiveness in reducing costs. When there is confusion regarding any question in the questionnaire, the researcher shall assist respondents in answering by explaining questions.

3.7.2 Key informant interviews

These will include semi-structured interviews which will involve key people including the General Manager, Procurement Manager, Finance Manager, IT Manager, and Operations Manager in Brookside Dairy Limited. This method is important in gathering qualitative data regarding certain elements associated with the implementation, problems, and effectiveness of electronic procurement in lowering the cost of operation in organizations. It involves giving respondents an opportunity to elaborate on, among other things, how procurement operations work, problems experienced during implementation, and impacts on the effectiveness of cost management within organizations. Probing technique will also be applied to seek for detailed answers to certain questions asked. These interviews are of great significance as they give the viewpoint of managers and organizations regarding the issues in general.

3.8 Data collection procedure

The researcher will obtain an introductory letter from the School of Business in Uganda Christian University, after which she will seek permission from the top management of Brookside Dairy Limited to use as a case study. The researcher will approach various respondents to conduct interviews and distribute the questionnaires.

3.9 Quality and error control

3.9.1 Validity of the research instrument

The researcher will ensure the validity of the tools to be used in data collection first by carrying out pre-test of questionnaires, and the researcher will try by all means to be highly involved in data collection and analysis so as to avoid number of errors in her research. Therefore, validity will be measured by addressing how accurate the instruments measure the outcomes or how they construct an intervention that it attempts to affect.

3.9.2 Reliability of the research instrument

An instrument is reliable if it measures consistently what it is supposed to measure even if other - researchers administer it, it should be able to produce the same results to ensure reliability. And a pilot study will be carried out on some of the few respondents on this research topic before the questionnaires are sent to different respondents. Therefore, reliability will be ensured by first conducting a pre-test and then followed by a post-test of the research. Reliability of the empirical measurements will be done by using the retest method in which the same test will be given to some

of the people after a period of time. The reliability of the test will therefore be estimated by examining the consistency of the responses between the two variables/sets.

3.10 Data analysis

3.10.1 Analysis of quantitative data

Quantitative data from the questionnaires will be analyzed using SPSS. All responses will be coded numerically, and negatively worded items will be reversed to maintain consistency. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, will be used to summarize employees' perceptions and experiences of electronic procurement practices and their impact on cost reduction at Brookside Dairy Limited. This technique is suitable since it gives an insight into the trends and patterns evident from the data, allowing for an easier understanding of participants' perceptions concerning the use of e-supplier management, e-invoicing, e-tendering, e-payments, among other methods used to increase efficiency and reduce costs.

3.10.2 Analysis of qualitative data

Qualitative data obtained from the key informant interviews will be analyzed by means of thematic analysis. This will involve the identification and classification of the different themes that have been generated through the interviews, for instance, the problems associated with the implementation of electronic procurement practices and their effectiveness in reducing costs. Relevant quotes from the interview transcripts will be used to support some of the main points. This analysis method will be appropriate since it will provide deeper insights into how electronic procurement practices are conducted and their success in reducing operational costs.

3.11 Ethical considerations

All ethical issues will be strictly maintained during the course of the research since it will be ensured that all personal data is collected and stored in a confidential manner and used solely for research purposes in accordance with privacy legislation (Chervenak & McCullough, 2021). Ethical approval will be gained through proper informed consent of all the participants with clear descriptions of the nature, objectives, procedures, and dangers involved in participating, along with obtaining signed consent forms from each participant (Skinner, 2020). Participants' anonymity will be assured through stripping out or coding all identifiable information such that no one can link them to their names in the final report (Pietilä et al., 2020). Additionally, confidentiality of all data will be assured through limited access to the information and use of either aggregated or

anonymized data in case of any disclosures. Lastly, plagiarism will be prevented through proper citation of all source material and appropriate attribution of quotes to their respective authors (Ruggiano & Perry, 2019).

3.12 Anticipated limitations and delimitations of the study

First of all, some respondents might not be willing to provide information because of being suspicious of where the information will be taken. This will be solved through the nice remarkable reputation in the study context as a learning institution and also obtaining an introductory letter from the university.

Second, the researcher is likely to be limited by funds that will be needed to facilitate the research such as motivating the respondents, printing fees and even daily transport to the organization to collect data. However, the researcher will use self-initiatives and strategies to mobilize financial assistance from family.

Third, some people might delay to bring back the questionnaires which will affect the researchers target time planned to analyze his study. This will be solved by issuing more questionnaires beyond the target and this will help her to cover up the gaps for those who might fail to return the questionnaires.

CHAPTER FOUR

DATA PRESENTATION AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter presents and discusses the results of analysis that has been done to look at the specific objectives of the study and in relation to the reviewed literature. The study was carried out using questionnaires with the selected lower-level employees of Brookside Dairy Limited (BDL) and interviews with the top management of the company. The findings are presented with the help of tables for purposes of clarity and interpretation.

4.1 Findings on demographic characteristics of respondents

This section presents the general background information about the respondents in relation to their gender, age, highest level of education, department and the period the lower-level employees have spent working with Brookside Dairy Limited as shown in the table below;

Table 2: Background Information about the respondents

Item	Description	Frequency	Percentage (%)
Gender	Male	54	40.6
	Female	79	59.4
	Total	133	100.0
Age bracket	21-30 years	31	23.3
	31-40 years	42	31.6
	41-50 years	36	27.1
	Above 50 years	24	18.0
	Total	133	100.0
Level of education	Certificate	23	17.3
	Diploma	40	30.1
	Bachelor's degree	53	39.8
	Master's degree	17	12.8
	Total	133	100.0
Department	Administration	20	15.0

	Procurement & Logistics	25	18.8
	Operations	57	42.9
	Finance & Accounts	31	23.3
	Total	133	100.0
Period spent working	Less than 1 year	12	9.0
	1-5 years	34	25.6
	6-10 years	57	42.9
	Above 10 years	30	22.6
	Total	133	100.0

Source: *Primary data*

According to table 2 above, the findings revealed that 59.4% of the respondents were female, representing the majority of the study participants, while 40.6% were male. This implies that more females than males participated in the study, showing that female employees constitute a larger proportion of the lower-level workforce at Brookside Dairy Limited.

From the findings, it was noted that 31.6% of the respondents were within the age bracket 31-40 years making them the biggest age group. They were followed by 27.1% of respondents aged 41-50 years, 23.3% of respondents aged 21-30 years, and finally 18.0% above the age of 50 years. This shows that most employees are in the actively working middle-age of 31-40 years.

Also from the findings, it was observed that 39.8% of the respondents possessed a bachelor's degree which is the biggest proportion. The next largest proportion of 30.1% had a diploma while 17.3% had a certificate and 12.8% had a master's degree.

Moreover, the outcome showed that 42.9% of the respondents belong to the operations function, constituting the highest number of individuals. This was then followed by 23.3% from the finance & accounts function, 18.8% from the procurement & logistics function, and 15.0% from the administration function. This implies that the most participants belonged to the operations function in Brookside Dairy Limited.

Lastly, the findings showed that 42.9% of respondents have been working for Brookside Dairy Limited for 6-10 years, making up the highest number of workers. This is followed by 25.6% of

workers who have been working in the organization for 1-5 years, 22.6% who have been working there for more than 10 years, and 9.0% who have been working there for less than 1 year.

4.2 Relationship between e-supplier management and cost reduction

The following Table 3 shows the responses obtained from the survey on the association between electronic supplier management and cost saving in Brookside Dairy Limited using a five-point Likert scale (SA = Strongly Agree, A = Agree, NS = Not Sure, D = Disagree and SD = Strongly Disagree).

Table 3: Relationship between e-supplier management and cost reduction

Statements	Extent of agreement & disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
The use of electronic supplier management systems has improved coordination between Brookside Dairy Limited and its suppliers.	30 22.6%	79 59.4%	21 15.8%	3 2.3%	00
E-supplier management enables timely sharing of information with suppliers, reducing procurement delays.	63 47.4%	40 30.1%	18 13.5%	12 9.0%	00
Electronic supplier evaluation helps Brookside Dairy Limited select cost-effective and reliable suppliers.	33 24.8%	51 38.3%	30 22.6%	19 14.3 %	00
The use of e-supplier management has reduced errors and disputes in supplier transactions.	45 33.8%	57 42.9%	18 13.5%	13 9.8%	00
Digital communication with suppliers has minimized administrative and follow-up costs.	51 38.3%	55 41.4%	24 18.0%	3 2.3%	00

E-supplier management enhances transparency and accountability in supplier relationships, leading to cost savings.	36 27.1%	63 47.4%	30 22.6%	4 3.0%	00
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Source: *Primary data*

The descriptive statistics of the correlation between e-supplier management and cost savings for Brookside Dairy Limited are illustrated in Table 3. As per the findings from the survey, 82.0% of the participants agreed that the utilization of e-supplier management systems had enhanced the coordination between Brookside Dairy Limited and its suppliers, while 2.3% did not agree, and 15.8% remained neutral to this statement. This implies that improved coordination reduces communication gaps and operational inefficiencies, which ultimately contributes to cost reduction within the organization.

The findings also revealed that 77.5% of the respondents agreed that e-supplier management enables timely sharing of information with suppliers, thereby reducing procurement delays, while 9.0% disagreed and 13.5% were not sure. This implies that reduced procurement delays minimize extra administrative and operational costs, thereby strengthening cost efficiency at Brookside Dairy Limited.

Furthermore, the findings established that 63.1% of the respondents agreed that electronic supplier evaluation helps Brookside Dairy Limited select cost-effective and reliable suppliers, whereas 14.3% disagreed and 22.6% were not sure. This implies that selecting reliable and competitively priced suppliers directly supports cost reduction by minimizing wastage, poor-quality supplies, and supplier-related risks.

More so, the findings indicated that 76.7% of the respondents agreed that the use of e-supplier management has reduced errors and disputes in supplier transactions, while 9.8% disagreed and 13.5% were not sure. This means that with less mistakes and disagreements, there will be lower administrative and legal costs, hence improving the efficiency of the financial process during the purchasing process.

Moreover, from the findings, 79.7% of the people interviewed indicated that digital communications with the suppliers have reduced administrative costs and follow up costs, while

2.3% disagreed, and 18.0% were uncertain. This means that by reducing follow-up and administrative costs, there is overall operational efficiency within the business.

Finally, the study showed that 74.5% of the participants supported the view that e-supplier management leads to transparency and accountability in supplier relationships, hence cost savings, 3.0% disagreed and 22.6% were uncertain. This means that through enhanced accountability, the practice reduces fraud and waste of money, thus promoting cost savings initiatives in Brookside Dairy Limited.

In summary, it is evident from the findings that there is a significant relationship between e-supplier management and cost savings in Brookside Dairy Limited. In conclusion, it was evident that the practice of e-supplier management makes procurement more effective, coordinated, accurate, and transparent, which consequently promotes cost savings initiatives.

4.3 Relationship between e-invoicing and cost reduction

The relationship between e-invoicing and cost-saving in Brookside Dairy Limited is captured in Table 4 below where SA means Strongly Agree, A indicates Agree, NS represents Not Sure, D stands for Disagree, and SD refers to Strongly Disagree.

Table 4: Relationship between e-invoicing and cost reduction

Statements	Extent of agreement & disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
The use of electronic invoicing has reduced paperwork and printing costs at Brookside Dairy Limited.	27 20.3%	67 50.4%	33 24.8%	6 4.5%	00
E-invoicing has shortened invoice processing time compared to manual invoicing.	45 33.8%	76 57.1%	12 9.0%	00	00
Electronic invoicing has reduced invoice errors and duplication of payments.	61 45.9%	45 33.8%	27 20.3%	00	00

The integration of e-invoicing with financial systems improves cost control and budget management.	52 39.1%	39 29.3%	36 27.1%	6 4.5%	00
E-invoicing enhances accuracy in tracking procurement expenditures.	33 53.8%	73 54.9%	15 11.3%	6 4.5%	6 4.5%
The adoption of e-invoicing has contributed to overall operational cost reduction in the organization.	36 27.1%	75 56.4%	15 11.3%	4 3.0%	3 2.3%

Source: *Primary data*

Figure 4 is the descriptive analysis of the association between e-invoicing and cost reduction at Brookside Dairy Limited. From the results of the analysis conducted, it is evident that 70.7% of the respondents believed that the use of electronic invoicing has helped reduce the cost of paperwork and printing at Brookside Dairy Limited, 4.5% disagreed and 24.8% had no opinion about the assertion. It means that cost savings in paperwork and printing help support efforts geared towards cost reduction.

The results further indicated that 90.9% of the respondents agreed that the adoption of e-invoicing has helped reduce the processing time required for the invoices in comparison to paper invoices, while none of the respondents disagreed with this statement, and 9.0% were undecided about the issue. It means that fast processing has minimized labor costs and inefficiencies, thus, helping reduce procurement costs in the company.

Lastly, the analysis also showed that 79.7% of the respondents agreed that e-invoicing has helped reduce invoice errors and duplicate payments in comparison to manual invoicing. None of the respondents disagreed with this statement while 20.3% were uncertain about their views on the matter.

Moreover, it was established from the results that 68.4% of the respondents agreed that the integration of e-invoicing systems with financial systems leads to enhanced cost management. Conversely, 4.5% did not agree while 27.1% were not sure. This suggests that better monitoring

of the budgets will improve financial discipline thereby ensuring sustainable cost reduction in the company.

Additionally, it emerged that 108.7% of the respondents believed that e-invoicing enhances the accuracy in monitoring procurement costs. However, 9.0% disagreed while 11.3% were uncertain about this finding. This implies that monitoring of procurement costs will lead to more efficient cost management due to accountability in the process.

Finally, it came out that 83.5% of the respondents believed that adoption of e-invoicing has resulted in cost reduction within the company. Nonetheless, 5.3% disagreed while 11.3% were not certain of the outcome.

Generally, the study shows that there is a very positive correlation between e-invoicing and cost savings within Brookside Dairy Limited, as reflected by the high percentage agreement for all statements presented. This is because the use of e-invoicing ensures that operations are efficient, accurate, and transparent, leading to cost savings in the process.

4.4 Relationship between e-tendering and cost reduction

Table 5 shows the findings regarding the relation between e-tendering and costs minimization in Brookside Dairy Limited using the Likert scale in which SA (Strongly Agree), A (Agree), NS (Not Sure), D (Disagree) and SD (Strongly Disagree).

Table 5: Relationship between e-tendering and cost reduction

Statements	Extent of agreement & disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
Electronic tendering has reduced the costs associated with advertising and distributing tender documents.	54 40.6%	49 36.8%	24 18.0%	6 4.5%	00

E-tendering increases competition among suppliers, resulting in better pricing for Brookside Dairy Limited.	33 24.8%	54 40.6%	42 31.6%	4 3.0%	00
The use of e-tendering has improved transparency in the supplier selection process.	42 31.6%	58 43.6%	15 11.3%	9 6.8%	9 6.8%
Electronic tender submission reduces administrative and evaluation costs.	60 45.1%	49 36.8%	21 15.8%	3 2.3%	00
E-tendering shortens the procurement cycle time, lowering operational expenses.	36 27.1%	54 40.6%	24 18.0%	13 9.8%	6 4.5%
The adoption of e-tendering contributes to value-for-money procurement outcomes.	57 42.9%	46 34.6%	21 15.8%	9 6.8%	00

Source: *Primary data*

Table 5 provides the descriptive statistics in relation to the association between e-tendering and cost saving in Brookside Dairy Limited. As per the research findings, 77.4% of the respondents agreed that the use of electronic tendering has helped cut down costs incurred in the advertisement and distribution of tender documentation, 18.0% were unsure, and 4.5% disagreed with the given statement. It is clear from this finding that a substantial majority of employees consider e-tendering as an effective method of reducing costs related to printing, advertising, and distribution of tender documents. Therefore, continuing with e-tendering will help save on procurement costs in the company.

Furthermore, it was found that 65.4% of the respondents agreed that e-tendering helps create more competition amongst suppliers, making it easier to get better prices for Brookside Dairy Limited, while 31.6% were unsure and 3.0% disagreed with the above-stated information.

Additionally, it was found out that 75.2% of the respondents agreed that there is better transparency in the selection of suppliers owing to the use of e-tendering, while 13.6% disagreed, and 11.3% did not have an opinion on the issue. This means that transparency will help eliminate any irregularities in procurement practices, leading to greater accountability and cost control.

Moreover, the research revealed that 81.9% of the respondents agreed that e-tendering helps in cutting down administrative and evaluation costs in the procurement processes, while 15.8% did not know whether the statement was true or false and 2.3% disagreed. This shows that e-tendering plays a crucial role in ensuring operational efficiencies and financial efficiencies in procurement practices.

Additionally, it was found out that 67.7% of the respondents agreed that the use of e-tendering makes the procurement process more efficient and shorter, reducing operational costs, while 18.0% did not know whether the statement was true or false and 14.3% disagreed with the statement.

Finally, the results show that 77.5% of the respondents strongly agree that the use of e-tendering helps in achieving value for money procurement, 15.8% were not sure while 6.8% disagree with this statement. These results show that further utilization and development of the e-tendering system will contribute towards cost-effectiveness and financial management processes.

In summary, the findings show that e-tendering is considered one of the effective approaches in minimizing cost at Brookside Dairy Limited since most of the respondents agree with all the statements made in this research. The percentage agreements show that e-tendering is very helpful in minimizing cost, improving transparency, encouraging more competition among suppliers, quickening the procurement process, and achieving value for money.

4.5 Relationship between e-payment and cost reduction

Table 6 shows the answers provided by the respondents on the correlation between e-payments and cost cutting at Brookside Dairy Limited, using the Likert Scale: SA (Strongly Agree), A (Agree), NS (Not Sure), D (Disagree), and SD (Strongly Disagree).

Table 6: Relationship between e-payment and cost reduction

Statements	Extent of agreement & disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
The use of electronic payment systems has reduced cash-handling and transaction costs.	39 29.3%	69 51.9%	18 13.5%	7 5.3%	00

E-payment systems ensure timely payments to suppliers, avoiding penalties and extra charges.	54 40.6%	36 27.1%	27 20.3%	13 9.8%	3 2.3%
Electronic payments improve financial tracking and reduce payment-related errors.	21 15.8%	60 45.1%	36 27.1%	16 12.0%	00
The adoption of e-payment has enhanced efficiency in financial operations.	42 31.6%	54 40.6%	21 15.8%	12 9.0%	4 3.0%
E-payment systems reduce the risk of fraud and unauthorized payments.	48 36.1%	54 40.6%	15 11.3%	16 12.0%	00
The use of e-payment contributes to overall cost efficiency in procurement processes.	30 22.6%	57 42.9%	30 22.6%	16 12.0%	00

Source: *Primary data*

Table 6 shows the descriptive statistics about the correlation between e-payment and cost savings at Brookside Dairy Limited. According to the research, 81.2% of the respondents indicated that the adoption of electronic payments has helped to cut down costs such as cash handling, whereas 13.5% of them were unsure about this assertion and 5.3% of them disagreed with the statement. This means that implementing electronic payment systems helps in reducing operational costs.

Moreover, 67.7% of the respondents agreed that electronic payment ensures that suppliers are paid on time, hence avoiding additional costs for delays and penalties, while 20.3% of them were uncertain about this statement and 12.1% of them disagreed with the assertion. This means that timely payments to suppliers avoid penalty costs and foster good relations with suppliers.

Additionally, 60.9% of the respondents agreed that electronic payments ensure efficient tracking of transactions and minimize errors, while 27.1% of them were unsure about this statement and 12% of them disagreed with the assertion.

Moreover, the findings showed that 72.2% of the respondents believed that the use of e-payment increases the efficiency of financial transactions, while 15.8% did not know and 12.0% disagreed

with the statement. This means that efficient financial procedures can minimize operational costs and contribute to organizational effectiveness.

Furthermore, the findings also showed that 76.7% of the respondents believed that the use of e-payment reduces the probability of fraud and illegal payments, while 12.0% disagreed and 11.3% did not know about the statement. This means that reduced fraud possibilities can avoid financial loss and facilitate strong internal control systems, hence reducing costs.

Finally, the findings showed that 65.5% of the respondents agreed that the use of e-payment can lead to efficient cost control in purchasing procedures, while 22.6% did not know and 12.0% disagreed with the statement. This means that consistent usage of electronic payment systems can enhance cost efficiency and foster sound financial management.

In conclusion, from the results obtained, e-payments have been found to be considered effective means for reducing costs at Brookside Dairy Limited, as shown by the general consensus among the respondents. The level of consensus shows that the use of e-payments helps in lowering transaction costs, paying suppliers on time, keeping track of finances, increasing efficiency, avoiding fraud, and increasing cost efficiency in procurement.

4.6 Correlation analysis on electronic procurement practices and cost reduction

This study was set to examining the relationship between electronic procurement practices and cost reduction in Brookside Dairy Limited. This was done by running a correlation analysis using Pearson Product Moment Correlation coefficient between the composite score of electronic procurement practices and cost reduction in Brookside Dairy Limited, plus the four components of electronic procurement practices which included; e-supplier management, e-invoicing, e-tendering, and e-payment in relation to cost reduction in Brookside Dairy Limited as indicated in the conceptual framework. For a correlation to be considered significant, the P-value {Sig. (2-tailed)} values must be less than 0.05 (for 95% confidence level) or less than 0.01 (for 99% confidence level) and the findings are shown in Table 7 below.

Table 7: Correlation Matrix

1.	E-supplier management	Pearson Correlation	1				
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		Sig. (2-tailed)					
2.	E-invoicing	Pearson Correlation	.546**	1			
		Sig. (2-tailed)	.000				
3.	E-tendering	Pearson Correlation	.662**	.572*	1		
		Sig. (2-tailed)	.000	.000			
4.	E-payment	Pearson Correlation	.646**	.518*	.632**	1	
		Sig. (2-tailed)	.000	.000	.000		
5.	Cost reduction	Pearson Correlation	.553**	.624*	.736**	.649**	1
		Sig. (2-tailed)	.000	.000	.000	.000	

Source: *Primary data*

Results as presented in Table 7 revealed that there is a strong positive significant relationship between e-supplier management and cost reduction ($r = .553^{**}$, $p < .05$). This means that if the practice of e-suppliers is effectively put in place at Brookside Dairy Limited, then there will be more cost savings than where this is not effectively practiced. This is because there is a direct correlation between the practice of e-suppliers and cost savings.

Also, from the results presented in Table 7, it was found that there is a significant and positive relationship between e-invoicing and cost reduction ($r = .624^{**}$, $p < .05$). This means that more use and proper use of e-invoicing techniques by Brookside Dairy Limited contribute to cost reduction than improper and less use of e-invoicing techniques. From this positive relationship, it can be said that e-invoicing contributes significantly to lowering operational costs.

Also, from the results shown in Table 7, it was noted that there is a very significant and positive relationship between e-tendering and cost reduction ($r = .736^{**}$, $p < .05$). This implies that where there is an improvement and proper application of e-tendering methods, there will be better cost reduction than in situations where such techniques are not applied.

Lastly, the results in Table 7 revealed that there is a strong positive significant relationship between e-payment and cost reduction ($r = .649^{**}$, $p < .05$). This implies that effective implementation of e-payment systems at Brookside Dairy Limited is associated with increased cost reduction compared to when electronic payment systems are underutilized. The positive and significant correlation demonstrates that e-payment contributes meaningfully to enhancing financial efficiency and reducing procurement-related costs within the organization.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter includes the discussion of findings in relation to the literature. It also summarizes all findings reported in chapter four according to questions of the study, draws conclusions, suggests recommendations and also proposes some areas for further study.

5.1 Summary of findings

The study findings revealed that the majority of respondents agreed that e-supplier management significantly contributes to cost reduction at Brookside Dairy Limited through improved coordination with suppliers, timely information sharing, effective supplier evaluation, reduced errors and disputes, minimized administrative and follow-up costs, and enhanced transparency and accountability in supplier relationships. In all statements, there were more people who agreed than those who disagreed and even some neutrals, showing that there is great support for the importance of having an electronic supplier management in order to make procurement work more efficiently. This is also evidenced by the results of the correlation analysis ($r = .553^{**}$, $p < .05$), which shows that there is a positive significant correlation between e-supplier management and cost reduction.

Additionally, the results from the study revealed that most respondents agreed that e-invoicing played a vital role in cutting down on the costs incurred in the operations of Brookside Dairy Limited because e-invoicing helps in cutting back on the costs associated with paper and printing, reduces the time taken to process invoices, reduces the chances of making mistakes when preparing invoices and paying the same twice, enhances cost control and budget management by integrating the whole system, and improves accuracy while tracking purchasing expenses. High levels of agreement were indicated across all statements, with a few respondents indicating disagreement or neutrality. The positive significant relationship exhibited in the correlation results ($r = .624^{**}$, $p < .05$) further confirms the role of e-invoicing in cost reduction.

Moreover, the study findings indicate that e-tendering is quite effective in facilitating cost reductions within Brookside Dairy Limited, since most of the participants were in agreement that e-tendering leads to a reduction in costs associated with advertising and dissemination of tender

documents, increased competition among suppliers leading to favorable prices, enhanced transparency in supplier selection, reduction of administrative and evaluation costs, faster procurement processes, and value-for-money procurement results. The fact that the level of agreement was high in all of the statements, with little to no disagreement, indicates that e-tendering facilitates efficiency, prudence, and effectiveness in the procurement process. Furthermore, the correlation analysis ($r = .736^{**}$, $p < .05$) indicates that there is a very strong positive significant relationship between e-tendering and cost reduction, meaning that the efficient application and adoption of e-tendering techniques significantly enhance cost reduction within the organization.

Finally, the study results indicated that e-payment contributes substantially to the cost saving in Brookside Dairy Limited, where the majority of the sampled population agreed that the technology helps to reduce cash handling and processing costs, facilitates timely payments to suppliers, improves accounting practices, increases operational efficiency, decreases risks of fraud, and promotes cost efficiency in the procurement process. The high level of agreement with all statements indicates that using electronic payments leads to the improvement of the financial management of the company and increases cost-saving potential through more efficient and controlled financial processes. This conclusion is further corroborated by the results of the correlation analysis ($r = .649^{**}$, $p < .05$), indicating a significant positive relationship between the use of e-payment and cost saving.

5.2 Discussion of findings

5.2.1 Relationship between e-supplier management and cost reduction in BDL

From the research findings, it can be seen that e-supplier management plays an important role in reducing costs in Brookside Dairy Limited Company through coordination, efficient communication, proper evaluation of the suppliers, reducing mistakes, and avoiding disputes. It is worth noting that from the results of this research, it is consistent with the results obtained by Barrad and Valverde (2020). According to their study, increased integration among the suppliers and better communication helped the e-supply chain management system to be more effective in procurement and reduce costs. In addition, according to the findings of Waithaka and Kimani (2021), transaction costs are reduced hence making the procurement processes more efficient. In

their study, Farrington and Lysons (2020) emphasize the importance of managing the supplier relationship effectively in order to maintain cost efficiency and enhance procurement efficiency.

The results of the study also showed that good use of e-supplier management techniques helps companies perform better financially. This is shown by the fact that there is a strong positive relationship between e-supplier management and cost cutting ($r = .553^{**}, p < .05$). Drawing from transaction cost theory, Ketokivi and Mahoney (2020) and Cuypers et al. (2021) contend that digital procurement platforms lower transaction costs connected with monitoring, coordination, and enforcement in buyer–supplier interactions, therefore aligning with the results. Similarly, Masudin et al. (2021) showed that using e-procurement helps businesses perform better since it makes them more efficient and effective. But the results are a little different from Nawi et al. (2016), who said that although e-procurement saves money, businesses may first have to spend a lot on setting it up and training staff, which could make up for short-term savings. This implies that even if long-term cost savings are improved by e-supplier management, companies can have temporary difficulties during implementation.

Furthermore, the research results showed that lowering procurement expenses depends significantly on increased openness and responsibility in supplier relationships. The results support Ofori et al.'s (2023) argument in the literature that electronic procurement systems help to reduce public sector procurement irregularities and increase transparency, hence lowering expenses. Wadesango et al. (2023) came to somewhat the same conclusion that e-procurement methods are closely linked to cost savings resulting from better monitoring and less chances for fraud. Lewis-Faupel et al. (2016) on the other hand discovered that although e-procurement improved transparency, its direct effect on cost savings was occasionally limited depending on institutional and contextual elements. This somewhat different show that the degree to which transparency via e-supplier management lowers expenses may differ depending on organizational capability and the quality of system implementation, even if it can drastically lower costs.

5.2.2 Relationship between e-invoicing and cost reduction in BDL

The study findings revealed that e-invoicing significantly contributes to cost reduction at Brookside Dairy Limited through reduced paperwork and printing costs, shortened invoice processing time, and minimized invoice errors and duplication of payments. The conclusions correspond with the studies by Klünder et al. (2019), who contend that Procurement 4.0's digital

procurement solutions greatly reduce administrative and transaction expenses as well as improve process automation. Basiru et al. (2022) also demonstrated that making purchasing processes easy through technological means decreases operational inefficiency and reduces costs associated with documentation processes, therefore improving overall cost-effectiveness. These findings confirm the current findings in demonstrating that invoice automation increases efficiency, accuracy, and cost-effectiveness of the procurement process.

The research results also showed that including e-invoicing with financial systems helps with cost control, budget management, and accuracy in keeping track of procurement spending. The results connect with the study by Faccia and Petratos (2021), which found that including e-procurement systems with ERP and accounting information systems improves the accuracy of financial reporting and enables better cost control. Furthermore, Hallikas et al. (2021) showed that data analytics and digitalization in procurement increase financial control and visibility, hence boosting organizational performance. These results match those of the present study in showing that system integration improves cost efficiency, financial control, and openness.

The results of the research also showed a strong positive significant relationship between e-invoicing and cost reduction ($r = .624^{**}$, $p < .05$), which means that when more people use e-invoicing, their financial performance gets better. The results support Jules (2022), whose study on public organizations showed that using e-procurement systems enhances cost control and procurement efficiency. Sitompul (2022) came to the same conclusion that electronic procurement systems increase financial transactions' efficiency and accountability. The results, however, contradict Nani and Ali (2020), who found that the success of e-procurement systems depends on organizational readiness, infrastructure, and user competence, hence cost savings may not be fully realized in cases where these circumstances are insufficient. This divergence suggests that, depending on the level of implementation capacity and institutional backing, e-invoicing may have different degrees of success in lowering expenses.

5.2.3 Relationship between e-tendering and cost reduction in BDL

The results of the research showed that e-tendering helps Brookside Dairy Limited save money a lot by cutting down on advertising and tender document distribution costs, boosting supplier competition, improving openness in supplier selection, lowering administrative costs, and shortening procurement cycles. The results support Abubakar's (2021) research on e-procurement

system implementation in building projects, which lowers tendering-related transaction expenses and improves competitive bidding, hence improving pricing outcomes. Masudin et al. (2021) also found that manufacturing companies that used e-procurement platforms saw a big improvement in cost efficiency and organizational performance because they were able to streamline the tendering and supplier selection processes. Furthermore, Wadesango et al. (2023) found that by doing away with paper-based procedures and enhancing openness in supplier interactions, electronic procurement systems help to lower expenses. These researches support the current results by proving that e-tendering increases procurement efficiency and provides financial savings.

The research results also showed that e-tendering improves openness and accountability, therefore boosting financial discipline and value-for-money procurement results. The results support the research by Waithaka and Kimani (2021), who discovered that e-procurement methods enhance supply chain performance by means of better information sharing, openness, and lower operational expenses. Similarly, Wangari and Ndeto (2022) said that electronic sourcing methods help state-owned businesses be more competitive and make better use of prices. From a theoretical standpoint, the results support transaction cost economics, as Ketokivi and Mahoney (2020) contend that digital procurement systems lower transaction costs by limiting opportunistic behavior and information asymmetry in supplier interactions. The results, however, contradict Lewis-Faupel et al. (2016), who discovered little cost savings in some public sector settings as a result of institutional inefficiencies and implementation limits, implying that the degree of cost reduction may rely on organizational capacity and system functioning.

The results of the research also showed a very strong positive significant link between e-tendering and cost reduction ($r = .736^{**}$, $p < .05$). This means that if e-tendering is used well, it can significantly improve the financial efficiency of the company. The results support the work by Ofori et al. (2023), who discovered in public sector businesses that more e-procurement adoption is linked with better procurement performance and cost-effectiveness. Likewise, Musau (2019) found that in Kenyan state parastatals, e-procurement methods have a major bearing on lowering procurement costs. However, the findings by Nawi et al. (2016) suggest that factors such as resistance to change, technical limitations, and inadequate training of users may hinder the effectiveness of the system, thus undermining its intended savings. The gap suggests that whereas

e-tendering holds enormous potential for cost reduction, its impact is determined by how well it is implemented and how prepared the organization is.

5.2.4 Relationship between e-payment and cost reduction in BDL

Based on the findings of the research, the use of e-payment systems by Brookside Dairy Limited ensures the reduction of costs in terms of reduced costs related to cash handling, improved financial management, and increased efficiency. The study findings confirm the theory by Barrad and Valverde (2020), who stated that payment systems and digitized supply chains reduce costs in terms of automated and efficient transactions. Similarly, Basiru et al. (2022) discovered that the application of digital financial systems for streamlining the procurement process reduces administration costs. Furthermore, Wadesango et al. (2023) found that because of greater transparency and removal of manual inefficiencies, electronic procurement components, including e-payment, are closely linked to cost reduction. These research back the current conclusions that electronic financial transactions improve procurement effectiveness and cost savings.

Promoting financial discipline, the study results also showed that e-payment guarantees timely supplier invoice settlement, lowers fraud risks, and enhances internal controls. The results support the conclusions of Sitompul (2022), who found that through automated payment tools electronic procurement systems improve responsibility and lower chances for financial misbehavior. Similarly, Chegugu and Yusuf (2017) discovered that electronic procurement techniques boost organizational performance by means of increased transparency and reduction of leakages in public procurement systems. From a theoretical standpoint, the results align with Rindfleisch's (2020) claims under transaction cost theory that digital governance tools lower monitoring expenses and opportunism in exchange relationships. The results, nevertheless, conflict with Nani and Ali (2020), who found that user competence, technological infrastructure, and institutional readiness significantly affect the success of e-procurement systems—including e-payment implying that in situations where such capabilities are lacking, cost savings may not be entirely realized.

The study results further showed a strong positive significant correlation between e-payment and cost reduction ($r = .649^{**}$, $p < .05$), so more use of e-payment systems improves financial efficiency. The results corroborate with Jules' (2022) research, which revealed that in government institutions, e-procurement adoption has a good impact on procurement efficiency and cost control.

Likewise, Celestin and Sujatha (2024) found that within businesses in the East African Community, digital procurement revolution improves operational savings and financial performance. However, the results conflict with those of Maagi and Mwakalobo (2023), who found that although e-procurement techniques boost time efficiency, the direct influence on cost reduction might vary depending on the degree of system integration and implementation effectiveness. This implies that, even if e-payment methods have great promise to cut expenses, their success is contingent on the degree of appropriate integration and institutional backing.

5.3 Conclusion

The study concludes that good e-supplier management greatly helps Brookside Dairy Limited to lower costs. Effective electronic coordination with suppliers minimizes administrative and follow-up costs, enhances timely information sharing, improves supplier evaluation procedures, and helps to prevent disagreements and mistakes. Including electronic supplier management systems enhances openness and responsibility in supplier interactions, which eventually helps to increase procurement efficiency and support better financial performance inside the company.

Furthermore, the study concludes that Brookside Dairy Limited can improve cost efficiency by using e-invoicing. E-invoicing enhances operational efficiency and financial management by lowering paperwork and printing expenses, therefore cutting invoice errors and speeding invoice processing. By means of better budget management and expenditure monitoring, system integration helps the company to keep more financial discipline. Therefore, the adoption and appropriate use of e-invoicing systems much help to achieve sustainable cost savings.

In addition, the study concludes that e-tendering significantly improves procurement efficiency and cost savings inside a company. E-tendering enhances value-for-money results by means of lower administrative costs related to tenders, greater supplier competition, better clarity in vendor selection, and shorter procurement cycles. The use of this strategy effectively promotes financial discipline and efficient operations, making it an essential electronic procurement instrument in achieving organizational cost efficiency.

Finally, the findings of the study have revealed that the financial efficiency and cost-effectiveness of Brookside Dairy Limited are highly supported by the use of electronic payments. Electronic payments result in reduced costs of cash management, increased payment efficiency, better

financial monitoring, and more effective internal control systems. Thus, the use of e-payment strategies effectively contributes to achieving long-term cost objectives of the organization.

5.4 Recommendations

Recommendations have therefore been proposed based on the findings of the study in relation to the relationship between the practice of electronic procurement and cost reduction; in this instance being Brookside Dairy Limited (BDL) in Uganda.

To enhance procurement cost effectiveness, it is recommended that Brookside Dairy Limited improve its process for implementation of e-supplier management systems by improving the coordination of suppliers, their performance and information. The company should invest in areas such as integrated supplier databases, performance-tracking tools and continuous training of both the employees and the suppliers on how best to use the systems. Enhanced electronic supplier management will assist in reducing errors, reduce conflicts, increase transparency and ultimately improve cost-effectiveness.

For purposes of enhancing real-time tracking of procurement costs and budget management, it is recommended that there be complete integration of e-invoicing systems with finance/accounting applications. There is need to ensure flawless system integration, automation of invoice approval and clear definitions of electronic verification methods in order to avoid redundancy and errors. System integration will not only promote accountability but also reduce operational expenses.

In addition, the study suggests that there is a need for the expansion and growth in the use of e-tendering systems to promote the participation of suppliers in competition pricing. In order to ensure accessibility, availability, and ease of use by suppliers, Brookside Dairy Limited should always update its electronic tendering process. Further, capacity building of internal staff and suppliers needs to be done to enhance efficiency in using the system. Efficiency in e-tendering will result in better value for money outcomes and continuous savings on costs.

Further, the study recommends the need for enhancement of use of electronic payment systems to guarantee timely payments to suppliers and minimize transaction costs. The company management should establish sound policies of use of e-payment systems to reduce frauds, improve internal control in the process, and use efficient e-payment modes. Efficient electronic payment systems

will simplify payment processes, minimize unnecessary penalties, and enhance overall procurement efficiency.

In conclusion, it is recommended that the company should provide for ongoing capacity building for employees as well as system audits to ensure the efficiency of its electronic procurement systems. Through capacity building, users will gain competency while technology adoption will ensure that the system remains reliable. Continual investment in human resource capacity building and technology will allow Brookside Dairy Limited to maximize savings from its electronic procurement system.

5.5 Areas for further research

The effect of electronic procurement on the performance of manufacturing organizations in Uganda needs further exploration. Research in the context of government organizations, service organizations, and small and medium enterprises within different sectors is necessary to establish the applicability of the findings of this study. The comparison of interactions between organizations and the electronic procurement processes and cost savings would assist in establishing whether the connection between the two variables is consistent.

In conclusion, future research may also focus on exploring the influence of other factors such as organizational culture, technological capacity, employee capabilities, and management support on the efficiency of electronic procurement processes. Such analysis will provide a deeper insight into the situations in which the utilization of electronic procurement processes results in cost savings.

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APPENDICES

Appendix 1. Questionnaires

Questionnaires Respondents at Brookside Dairy Limited

Dear Respondents,

I am Komuntale Yvonne, a final year student of Uganda Christian University pursuing a Bachelor's Degree of procurement and logistics Management. Am conducting a study of Electronic procurement practices and cost reduction of an organization. The study is a partial fulfilment requirement leading to the award of a degree. Therefore, the information provided shall only be used for academic purpose and will be highly treated with utmost confidentiality, therefore it's my humble request that you fill questionnaires.

Population and sampling methods

Categories of respondents	Population	Sample size	Sampling method
Lower-level employees			Simple random sampling
Top management			Purposive sampling
TOTAL			

Background Information of the respondents

Item	Description	Frequency	Percentage (%)
Gender	Male		
	Female		
	Total		
Age bracket	21-30 years		
	31-40 years		
	41-50 years		
	Above 50 years		
	Total		
Level of education	Certificate		

	Diploma		
	Bachelor's degree		
	Master's degree		
	Total		
Department	Administration		
	Procurement & Logistics		
	Operations		
	Finance & Accounts		
	Total		
Period spent working	Less than 1 year		
	1-5 years		
	6-10 years		
	Above 10 years		
	Total		

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The use of electronic supplier management systems has improved coordination between Brookside Dairy Limited and its suppliers					
E-supplier management enables timely sharing of information with suppliers, reducing procurement delays					
Electronic suppliers' evaluation helps Brookside Dairy Limited select Cost-effective and reliable suppliers					

The use of e-supplier management has reduced errors and disputes in supplier transactions					
Digital communication suppliers minimized administration and follow-up					

Thank you for accepting and sacrificing your time to answer my question.