

Framework For Introducing E-Procurement in South African Municipalities

by

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DISSERTATION

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ABSTRACT

South Africa faces challenges such as mismanagement of public finances, governance issues, and economic competitiveness, leading to disarray in local government and poor service delivery. This situation often results in violent strikes that damage public infrastructure. The study focuses on financial accountability, ICT solutions, and e-procurement in South African municipalities, exploring perceptions and identifying critical success factors.

Qualitative methodology was employed, with 14 participants from various stakeholder groups providing insights through semi-structured interviews and self-completed questionnaires. Data analysis was conducted using Atlas.ti and triangulated with literature to enhance trustworthiness. Thematic analysis guided pattern extraction, creating a systematic framework to understand financial accountability, ICT's role, e-procurement framework design, and critical success factors.

The research findings shed light on challenges in balancing economic development and service delivery through e-procurement. Participants highlight challenges in engaging emerging service providers while ensuring quality. Differing opinions on the importance of experience, transformative e-procurement shifts, and competitive factors are explored. Strategies for reducing prices, emphasizing online platforms, ensuring fair evaluation, transparent negotiations, and comprehensive security are discussed. A multi-faceted approach is recommended for addressing challenges in e-procurement platform availability and accessibility. Overall, participants view e-procurement as transformative for transparency, accountability, and efficiency in municipal processes.

Insights from the findings help to make some practical contributions and culminate in the development of a framework that integrates key principles of Financial Accountability Theory into the design and implementation of E-Procurement in South African Municipalities. By aligning theoretical underpinnings with practical considerations, this framework aims to enhance fiscal responsibility, ethical governance, and service delivery efficacy within the evolving landscape of municipal governance in the digital age.

Keywords: Financial Accountability; E-Procurement; Service Delivery; South African Municipalities; Municipal governance; Economic competitiveness

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STUDENT DECLARATION

The research entitled “**Framework for Introducing E-Procurement in South African Municipalities**” is an original work of the researcher. This research has been composed by the researcher and this has not been previously submitted for examination that has led to the award of a degree.

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ACRONYMS AND ABBREVIATIONS

AGSA	Auditor General of South Africa
B2B	Business to Business
BBBEE	Broad-based Black Economic Empowerment
E	Electronic
EDI	electronic data interchange
GDP	Gross Domestic Product
HR	Human Resources
ICT	information and Communications Technology
IDP	Integrated Development Planning
IT	Information Technology
NGO	non-governmental organizations
OECD	Organization for Economic Cooperation and Development
PIS	Participant Information Sheet
PR	Public report
RFP	Request for Proposals
RSA	Republic of South Africa
UN	United Nations
WB	World Bank

CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

This chapter provides the background to the study. It also outlines the problem statement and the research aim. This is then followed by the research questions.

1.2 Background

South African local government is in turmoil, weakened by high levels of corruption and poor financial accountability. The extent to which municipal government is affected is contained in the annual audit report compiled by the Auditor General of South Africa (AGSA). According to the latest audit report, namely Consolidated General Report on Local Government Outcomes MFMA 2021 (Auditor General South Africa, 2022) 64% of South African municipalities committed unauthorized expenditure to the value of R20,45 billion. In the same vein, 75% of municipalities incurred fruitless and wasteful expenditures. And to cap it all, just 16% of municipalities earned clean audit; followed by 38% that were adjudged to have unqualified audits with findings; thereafter 30% of municipalities were qualified with findings, 2% adverse with findings, and 10% had disclaimers — the least performers of the lot. According to Ms Tsakane Maluleke, the Auditor General, “local government is characterised by accountability and service delivery failures, poor governance, weak institutional capacity, and instability” (Auditor General South Africa, 2022).

Poor governance plagues South African local government and service delivery is in disasters, and this explains the extent to which communities’ resort to strikes that are increasingly violent and destructive to infrastructure such as public buildings, roads and schools. Masegare and Ngoepe (2018) maintain that municipalities are troubled simply because there is no financial accountability. Masegare and Ngoepe (2018) maintain that the reason these municipalities are in financial disarray is due to a variety of reasons, and most of these reasons are linked to the political variable.

Regarding the latter, Mazele and Amoah (2022) aver that political considerations in municipalities have left many of them captured and vulnerable to vested interests, and

as a result there is no longer proper leadership, effective and functional financial management, hence the problem of poor accountability. These key findings by the cited scholars are consistent with the audit findings by the AGSA maintaining that more than 80% of municipalities routinely underperform audit assessment, and this attests to the rot in municipal administrations.

Siebers (2018) wrote an extensive study of the poor financial management issues and concluded that municipal financial oversight instruments are simply ignored, systems and processes of financial management are evaded through political considerations, and furthermore there is poor financial management skills, and a generally corrupt relationship between political functionaries and municipal executive managers and administrators.

Within this context of financial management gloom in municipalities, there is a reigning school of thought that maintain that information technologies can be roped in to realise financial accountability in municipalities. Accordingly, ICT is viewed as a tool to improve governance, transparency as it removes the human hand in managing municipal processes, including financial management and supply chain portfolios.

This concept is recognised globally. For instance, in South Korea, government introduced e-government as a way of promoting financial accountability (Kim, 2019). The aim of this measure was to take away insular decision-making processes and considerations away from municipal managers. Through the e-government system, also known as 'OPEN', municipal services and procurement are carried out online without allowing for human interference. The system focuses on executing municipal services and processes online such as supply chain, municipal contracts, municipal registration and licensing, and executive approval procedures amongst others. Moon (2020) maintains that IT is helpful in promoting transparency, process monitoring, municipal budget management, and importantly removes the political manipulation variable that is at the core of municipal rot.

In Singapore, government introduced what it calls "Smart Nation", an e-government initiative in which municipal government is carried through ICT platform as a way of promoting efficiency and financial accountability. Accordingly, this platform empowers residents to procure services through a system that eschews human agency, enable

connectivity based on smart technologies, and generally promotes good governance (Al-Mashari, 2017).

The above discussion shows that information technology applications are used to improve governance and prudential fiscal management. Moreover, Mutula (2015) demonstrate a positive correlation between financial management in municipalities and the use of informational technology to improve financial accountability. In regard to municipal leadership, it therefore becomes apparent that the correlation of the two variables, namely financial accountability and ICT solutions, impact positively in local democracy, improves stability, and encourages open communication between those governing and those being governed. Moreover, it allows for public participation, engagement, and accountability, including financial accountability.

1.3 Context of the study

The context of the study is the confluence of strategy development and governance using municipal financial management as a setting. In a way, this study explores concept of strategy, change management and the use of interdisciplinary academic tools to navigate and provide management solutions to a poor governance situation in a typical municipal government setting. As was indicated in the background above, the South African municipal government is negatively affected by a number of issues, including poor financial accountability. Notwithstanding the worsening of financial mismanagement in municipalities, ICT-based solutions have been proven to provide financial accountability solutions to ensure sustainable development and service-delivery to communities. As will be proven in the gap analysis and purpose of the study, South African municipalities have not fully explored this option despite the fact that their newly industrialising Asian counterparts such as South Korea and Singapore have shown that bringing ICT tools in managing public service, in particular supply chain, actually works.

1.4 Problem Statement

Public procurement is a major budget expense item, with some reports claiming that it consumes vast sums of nominal budget amounts. Noteworthy, it is observed that supply chain procurement is a major outlet through which financial accountability is compromised through corruption and maladministration. AGSA (2022) reports that

South African municipalities are compromised by poor financial management, and most of it is promoted through public tendering system, hence the *tenderpreneurship* phenomenon.

Research maintains that e-government is a major variable or factor that can be employed to stem out poor financial accountability in municipalities and other public agencies (Nurmandi and Kim, 2015). South Korea and Singapore (Al-Mashari, 2017) have successfully adopted e-procurement as a measure to negate poor financial accountability, and this is a demonstration that information technology tools and creations can be used to provide financial management solutions.

Indeed, in regard e-procurement there is little knowledge in so far as designing and implementing of e-procurement in South African municipalities is concerned. What one finds in conducting literature on e-procurement in South Africa – one finds e-government instead. Jacobs and Lemekoana (2021) discovered that the Department of Justice and Constitutional Development (DoJ&CD) has established multiple electronic records management systems, although lacks integration to support e-government. Soga and Vyas-Doorgapersad studied the importance of e-government services for small enterprises in Johannesburg and found out that e-government had minimal impact on SMMEs, as it did not assist them in accessing essential regulatory, financial, market, and technical support services. Maluleka et al. performed a systematic literature review on the South African Government's utilization of Software as a Service (SaaS) for improved E-Government services. They discovered a global trend of government departments transitioning to SaaS for enhanced e-government practices, emphasising the importance of legislative compliance in the South African setting. Galushi and Malatji (2022) discussed the obstacles faced in digital public administration and e-governance during the Covid-19 pandemic. They emphasised the significance of efficient e-government in enhancing effectiveness, and accessibility and decreasing corruption in the public sector.

E-government is distinct from e-procurement. E-government in South Africa has not yet translated into incorporation of a full suite of e-procurement save for dissemination of tender forms on the municipal website. For example, procurement contracting, bid evaluation, and monitoring are still manual based.

As alluded to, there is very little existence of literature regarding e-procurement in South African municipalities. Taylor (2004) wrote about adoption of e-procurement in think-tanks and the non-government sector but did not focus on South African municipalities. However, some literature on e-procurement is starting to spring up in Sub-Saharan Africa, *but not in* South Africa. For example, Addy *et al.* (2022) observed that e-procurement in Africa is still limited, and in pockets where it exists – such as private sector business-to-business e-procurement, variables that predict usage is user-friendliness and usefulness of the information technology applications being used. There is therefore no outright and direct pivot towards e-procurement in existing literature, and therefore this research is intended to create or design a South Africa-relevant e-procurement framework that can be applied in South African municipalities. It is envisioned that the framework will enhance fiscal responsibility, ethical governance, and service delivery efficacy within municipalities

1.4.1 Research aim

To explore perceptions surrounding financial accountability, ICT solutions, and identify design elements and critical success factors for effective e-procurement in South African municipalities.

1.4.2 Research questions.

- i. What is the extent of financial unaccountability in South African municipalities?
- ii. How can information communication technology be used to address poor financial accountability in South African municipalities?
- iii. What are the design elements of the e-procurement framework suitable for South African municipalities?
- iv. What is the relevant critical e-procurement success factors in the context of South African municipalities?

1.5 Delimitations of the study

This study focused on studying municipal financial management and the role of information technology in sustaining prudential fiscal frameworks. Studies on nations that are only beginning to industrialize, like South Korea and Singapore show that ICT

can be tapped to improve financial governance. Therefore, the study focuses on local municipalities in South Africa. In the same vein, the study will not focus on central government, nor will it focus on provincial government structures. This selection of the municipalities was inspired by Ms Tsakane Maluleke, the Auditor General, who alluded in his Auditor General MFMA Report (2022) that “local government is characterised by accountability and service delivery failures, poor governance, weak institutional capacity, and instability” (Auditor General MFMA Report, 2022: iii). The population of the study are municipalities of South Africa, but with special attention being paid to Greater Giyani municipality and Greater Tzaneen municipality, and how these can incorporate proper e-procurement to improve financial accountability. These municipalities were selected because the research is familiar with area and has access to them. This focus is opposed or different from ICT applications such as e-government. E-government is not e-procurement. Lastly, the relationship between municipal financial governance and the use of ICT in enhancing financial responsibility is the study's main area of interest.

1.6 Significance of the study

South Africa experienced profound political change when local government was established by the new dawn of constitutionalism in 1996. Local government is now a sphere of public administration and is distinct from the other twin strata of government, namely provincial and national government. The major objective of local government is the provision of municipal basic services to local communities such as water, electricity and refuse collection.

Two decades since the creation of the architecture of local government, the objectives of local government service delivery have been undercut and mostly remain a pipedream. The major constraint or cause of poor municipal service delivery is the poor level of financial accountability in local government. A recent report by Auditor General paints a picture of widespread corruption and poor administration.

Literature review revealed that the evolving information technology toolkit has the capacity to provide solutions. According to this view, ICT is able to provide a dispassionate and objective solution owing to the removal of human agency in the management of municipal finance and supply chain affairs. In this regard, e-

procurement as implemented in newly industrializing countries of Asia demonstrates the efficacy of a correct approach to designing and implementing e-procurement systems that uproots corruption and poor financial management.

Little research exists in South Africa on how local government can use e-procurement in forestalling corruption and poor financial accountability in the local government. Therefore, the significance of this research is the main purpose of this academic enquiry, namely the objective to create an e-procurement framework relevant for local municipal conditions aimed at negating poor financial accountability. In the same vein, the other academic significant of this study is the plugging of knowledge gap regarding dearth of knowledge regarding local municipality e-procurement in South Africa. The inference is that the significance of the study lies in the academic profile of the purpose of the study and the practical management toolkit requirements in strengthening municipal financial accountability in South Africa.

1.7 Operational definitions

There are a few concepts that are integral to this proposal, and these are explained below:

- Local municipality: A municipality is an administrative prefecture or a unit within a provincial government of a state set up to provide municipal services to residents.
- Prudential Financial management: A purposeful adoption of frameworks that helps entities to manage financial resources in a sound manner.
- E-governance: The application of information technology tools to provide services and an accountable system of government to the electorate.
- Financial accountability: Ethos of holding public officials accountable in respect of financial management decisions they take.
- Downward accountability: A theoretical construction providing scholarly arguments for holding municipalities accountable in providing financial governance to targeted stakeholders, in particular, residents.

1.8 Structure of the dissertation

The research report starts with the background to the study. This is followed by providing the context of the study, and then an in-depth literature review, analysing various existing secondary research that exists in the literature universe. The next stage is the exposition of the research methods being used, namely qualitative research methods, and the data collection tools. The findings will then be presented and discussed. Lastly, the research report is concluded, noting the limitations of the study as well as probable areas for future research and study.

The research report is organised as follows:

- Chapter 1: Background
- Chapter 2: Literature review
- Chapter 3: Research methodology
- Chapter 4: Findings
- Chapter 5: Discussion
- Chapter 6: Conclusion and Recommendations

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter is dedicated to documenting literature review pertaining to e-procurement, with a particular attention paid to evolution of supply chain management practices in the context of e-government services. E-government is the provision of government and municipal services through online channels, of which e-procurement is a major component (Pusvita & Muttaqin, 2023; Hochstetter, 2023; Galushi & Malatji, 2022). E-procurement is a direct corollary of the rapid improvements in internet technology, which showed its glory and usefulness during the Covid pandemic such that a system that was web-based quickly adopted to interruptions (even discontinuation) of manual-based operations (Galushi & Malatji, 2022). The discussion on the evolution of the internet and its inalienability in e-procurement opens the discourse of this chapter.

This is followed by a discussion on the conception and perspectives of e-procurement today. There are a number of strands in the definition and understanding of e-procurement today. One of them is the most common one, namely that e-procurement is a business-to-business transaction on goods and services through online platforms (Truong, 2019). Over and above the conventional understanding comes a very strident definition of e-procurement and proposes that a web-based supply chain management system is a macro-economic intervention aimed at expanding and stimulating the economy through the Keynesian development policy framework, and this is occasioned by e-government portals (Bag, Dhamija, Gupta & Sivarajah, 2021). Simply stated, e-procurement is advancing in part because governments, be they national, provincial, or local, are using e-procurement to promote demand-side economic policy interventions to stimulate consumption. The combination of many more other factors, including Keynesian economics philosophy, is now contributing to massive investment in e-government and e-procurement.

The literature review chapter proceeds to concentrate on the elements or components of e-procurement, starting from e-sourcing, and e-tendering, to negotiation and contracting. The fundamental feature or common denominator of these components of e-procurement is that internet technology tools ultimately become the anchor web-

based supply management system. The literature review chapter, therefore, details technology tools, both hardware and software that establish e-procurement in a municipal set-up.

2.2. The omnipresence of internet and its application in e-procurement

2.2.1 Evolution of the internet

The internet started out decades ago from a humble beginning, and innovations around this mode of telecommunication technology now impacts almost every facet of human engagements (Alshaikhli, Elfouly, Elharrouss, Mohamed & Ottakath, 2021). Information and communication technologies are ubiquitous, and pervade all industries, be it retail, manufacturing, or government services. The omnipresent state of the internet was demonstrated as society transformed, occasioned by the recent scourge of the COVID state of disaster that saw online delivery channels being pivotal in the provision of goods and services - either on business to consumer (B2C) or business to business (B2B) platforms. Tseng and Chen (2020) observe that systems that were well-connected before the pandemic fared better than those that were still alienated from the internet. Similarly, Yuen and Cheng (2023) conclude that internet-based procurement systems, also known as e-procurement, performed better than those that were still anchored on traditional manual-based ecosystems. Understanding the e-procurement phenomenon and theoretical debates around this concept is therefore the main object of this literature review, and it is discussed below.

2.1.2. The varied conception of e-procurement

E-procurement is considered is a distinct component of the government service-internet *nexus* or e-government - as it is commonly known. The major school of thought in the definition of e-procurement anchors on the UN perspective regarding the subject. According to the World Bank definition: “public electronic procurement (e-procurement) [is] the use of information and communication technology (especially the Internet) by governments in conducting their procurement relationships with suppliers for the acquisition of goods, works, and consultancy services required by the public sector” (World Bank 2023). The gist of this definition anchors on the perspective that

conceptualise e-procurement through the prism of a transaction relationship being conducted online between government and service suppliers.

This prevailing global definition is the main anchor in the understanding of e-procurement today. For example, Mavidis and Folinias (2022) conducted a study on the unfolding evolution of web-based supply chain management practices, and they described e-procurement as essentially a transaction process by an organization aimed securing goods and services using online and channels and tools. In similar vein, Tutu, Kissi, Osei-Tutu and Desmond (2019) states simply that “public e-procurement [is] defined as the use of information and communication technology such as internet by governments in the procurement relationship with bidders for the acquisition of goods, works, services required by the public sector. This consistency highlights the ascendancy of the mercantile conception of e-procurement.

However, not every researcher in the-procurement scholarship is content to lean on what is essentially a business-to-business e-commerce paradigm. Vaidya and Campbell (2016) and a number of other writers (reviewed below) defines e-concept with the demand-side macroeconomic lenses. Vaidya and Campbell (2016) opine that e-procurement is not just a mere transaction or a method of procuring services and goods; instead, e-procurement as government attempt to transform society and drive economic output by stimulating economic demand by using innovations within the ICT sector in the hope that pursuing e-procurement will usher in benefits. In a way, they are right: a trend analysis of all demand-side interventions, including government expenditure, shows public expenditure is correlated with economic expansion and a surge of household incomes.

This reformatory gist or prism of e-procurement is very popular amongst Keynesian economics scholars and is spread forth forcefully by his preeminent biographer Robert Skidelsky John Maynard Keynes, amongst others. Skidelsky (2010) argues that the best method to stimulate economic growth is by spending, through public procurement and infrastructure investment. Vaidya and Campbell (2016) researcher on the relationship between national economic well-being and e-procurement indicate that governments across global markets spends between 10-20% of their budget in supply chain, a budgetary platform to transform government. Current-day demand-side economists therefore view e-procurement as the web-based government-supplier

market whereby process outcome promote consumption, which in turn drive economic growth.

2.2.3 Growing role of e-procurement in all forms of government

As procurement is switched into the web-based platforms and public expenditure is used to drive forward the national economic development and competitiveness agenda, e-government and e-procurement are growing, especially in developed and newly industrializing economies (Adjei-Bamfo, Maloreh-Nyamekye & Ahenkan, 2019; Maepa, Mpwanyana & Phume, 2023). For example, the 2022 UN e-government survey shows Denmark, Finland, and the Republic of Korea as the leading markets for e-government components, including e-procurement, revenue and tax management (e-tax), and e-health amongst others. The existence of this index shows the growth of government services being offered online, a repudiation of past practices that were characterised by manual systems. Moreover, the growth of e-government is correlated to economic stimulus through e-government platforms, including e-procurement. The US e-procurement is a case in point: Bromberg and Manoharan (2015) report that by 1997, all 50 US states and towns with more than 100 000 residents had an official website. By 2015, the e-procurement was fully underway based on interactive technologies aimed at promoting public service quality and economic output.

Mavidis and Folinas (2022) maintain that e-procurement is growing in OECD countries as a measure of self-preservation and promoting efficiencies, in that notwithstanding high corporate ethical standards, corruption and procurement malfeasances result in losses of up to 10 to 20% for the GDP. A number of other scholars have identified related efficiency and economic expansion factors that explain continued investment in e-procurement (Brandon-Jones & Kauppi, 2018; Mélon & Spruk, 2020). E-procurement promotes accessibility to government services and public purchase processes, whatever the geographic location, and this is complemented and accelerated by the widespread use of mobile communication devices (Sánchez-Rodríguez, Martínez-Lorente & Hemsworth, 2020). The use of communication technologies improves service efficiency, as more processes are not dependent on paper-based resources in e-procurement. Lastly, e-procurement is lauded for transparency and enhanced communication, and these are all factors that have given rise to the use of internet-based platforms in government supply chain (Smith, 2023).

Overall, e-procurement is an online transaction medium between agencies and their suppliers; a model or method through which consumption and demand are realised in large scale and, lastly, an intervention to realize efficiency in supply chain management, in particular disciplining public procurement to negate corruption, malfeasances and promote public financial accountability.

In conclusion, a thorough analysis of e-procurement perceives it as multidimensional, underpinned by both governance or political as well as transaction economics, and this explains in part the way this research is applying it in local government sphere. In terms of microeconomic underpinning, the purchasing government agency (a municipality for example), aims to secure the most possible quality and price ratio using e-procurement. In simple terms, a municipality uses e-procurement to get value for money (quality goods and services at the least cost). This is achieved by ensuring that public procurement is carried out informed by stoking competition among bidders. The other philosophical underpinning is the avoidance of corruption and managing public financial resources efficiently through removal of manual systems and involvement of human agencies in supply chain processes. Lastly, democratic accountability informs the fervour of public e-procurement systems. Simply stated, public e-procurement is intentionally underpinned by adherence to laws, rules, regulations, and oversight mechanisms. When all these underpinnings are put together, e-procurement is a web-based bidder competition to provide quality services and goods through a rules-based system that ultimately promote accountability and leads to economic growth in given government (municipal) environment. However, for e-procurement to fully provide benefits to municipality governments and other stakeholders, it must be set up, a process that reveals presence of several elements, and these are explained below.

2.3. Elements of e-procurement

2.3.1 E-sourcing

E-procurement is composed of various elements, and one of these is e-sourcing. E-sourcing is the task of identifying various vendors and the respective services that those vendors transact on (Mpehle & Mudogwa, 2020). The process does not end there; instead, it proceeds to include the compilation of proprietary information about

the self-same service providers using mostly interactive technology applications. Delina, Michňová, Hůska and Spišák (2020) note that it is not enough to merely compile information about vendors, instead a procuring organization is advised to index the vendor database, a process that include comparison of vendor information. In a way this perspective to e-sourcing promotes buying agencies to put together a database of all suppliers in each environment.

There is another, different perspective to e-sourcing, and it views e-procurement database of vendors in a different light. Whereas the preceding school of thought views e-sourcing as a mere compilation of vendor information, the contrasting worldview holds that e-sourcing is a competitive endeavour, requiring the procuring organization (municipality for example) to include in its database only capable companies that are predisposed to offer value to the procuring entity (Chatterjee & Kar, 2018). Therefore, this view defines e-sourcing in terms of a contest or competition of bidders. Thus, the requirements of supply chain management in regard e-procurement, at least in terms of e-sourcing, is the identification of competitive vendors and their inclusion in the database of municipal service providers. This view ultimately maintains that there should be an existence of database of vendor and their proprietary information; however, inclusion in the said database is a function of competition. Only best companies with track record of excellence can be included through the process of e-sourcing.

Chatterjee *et al.* (2018) are not the first to link e-sourcing in e-procurement with competition. A relatively classic research paper published by Settoon and Wyld (2006) advanced a theory that e-sourcing must be used to anchor government procurement within the competitive realm, meaning that e-sourcing must be the commencement stage for tender competition featuring only capable vendors. Note that the Settoon *et al.* (2006) study linked competitive inclusion in the e-sourcing index or database as a measure of financial accountability by the government. In simple terms, inclusion in the database of vendors is for companies that can add value and are price competitive when compared with peers, a fact that impacts positively on prudent financial management. In fact, it did not end there; the said research (Settoon *et al.*, 2006) indicated that e-sourcing should be made competitive by introducing a variable they labelled as 'reverse auction'.

Recent studies in supply chain management and financial accountability have increasingly continued the trend of linking e-sourcing with and reverse auction and arguing that e-procurement should embrace reverse auctions in the e-sourcing stage (Larsen, 2021; Cortez, Cabanelas & Charterina, 2023). Reverse auction is the counterweight to forward auctions and refers to a situation where service suppliers submit *online* bids in a contest with one another (Qian, Fang, Huang, An, Wang, 2018). In contrast with forward auctions where price for the asset, good or service increases as the bidding auction process unfolds, the price in the reverse auctions decreases. Only those companies submitting *lower bids* to be in the e-sourcing database of the government or municipality are granted the right to contest to supply the procuring government agency. For vendors, it is a race to the bottom in term of price, but it is a race that ultimately favours the commissioning agency (or municipality).

There are various advantages of executing an efficient e-sourcing strategy, especially the one laden with reverse auction to identify companies that should be included in the database of municipal or government database of suppliers. The leading advantage is that this approach leads to reduction in cost of goods and services to the municipality. Some researchers have argued that cost-saving range between 15% to 50% (Madzimure, Mafini & Dhurup, 2020).

The second leading benefit of e-sourcing is that it leads to efficiencies. Settoon *et al.* (2006) argue that e-sourcing leads to “time and temporal efficiencies that can be achieved through competitive bidding events” through the saving of “billions of dollars and millions of man-hours across the public-sector procurement agencies”. Financial savings and efficiency are not too hard to fathom e-sourcing least requires the involvement of human agency; artificial intelligence technologies do data capture, assessment, and vetting, amongst others, using various vendor databases across the ecosystem (including those providing vendor tax information services).

These advantages, especially the reduction in acquisition cost of services and goods accruable from e-procurement through e-sourcing, has now been used by current leading theorists to link e-procurement with improvement of municipal public finance management and accountability. One of the better uses of surplus financial resources is to plug municipal public deficits (Park & Moon, 2023). Financial accountability is correlated to municipal service efficiencies and improvement. Indeed, it is these

benefits that have accounted for growth of e-procurement in newly industrializing countries and developed economies as per the UN e-procurement index cited elsewhere in the literature review).

2.3.2 E-tendering

E-tendering is another component of e-procurement. Abdullahi, Ibrahim, Ibrahim and Bala (2022) observe that the e-tendering stage is the most common component of e-procurement, having evolved over time from the initial stage where tendering was a manualized, one-way push process. This first stage was followed by a two-way communication system of the 1980s; a time when most of tendering processes was mostly a hybrid: half manual and half automated. According to the dating by the authors (Abdullahi *et al.*, 2022) the 1990s automation of tendering system manifested in various municipal government website being made capable to store and download tender documents, tender submission, and tender award communication. This is still the case in some markets, especially developing and least developed economies, including rural municipalities in South Africa and other African public entities where the major components of procurement process such as tender evaluation is still being carried out done manually (Dello & Yoshida, 2017). The latest and current stage is e-tendering, itself an inalienable component of e-procurement. In developed and most of the newly industrializing economies, e-tendering is fully automated and is the deepening phase of automation, realizing e-procurement where almost every supply chain activity is now a completely web-based system (Chan & Owusu, 2022).

There are three major elements of e-tender in the e-procurement space, and these are the request for information, proposals, and quotations (Agama, Huamán, Casco & Gálvez, 2021). In effect, e-tendering is demanding management, layered by attendant communication in respect of what the municipality wants to purchase (regard goods or services). Regarding request for information, this refers to use of interactive technologies in collecting or communicating information and data about products of services that a municipal need. In the same vein, it is in the e-tender phase that allows a vendor to communicate with the buyer (municipality) using assorted ICT tools in regard asking for additional information, clarification of information in respect of requisitions and tenders advised (Tripathi & Gupta, 2021).

The e-tender phase also covers request for proposal, and this refers to publication of e-tendering notes or write-ups indicating or describing a project that will require a business or vendor to tender for (Jahani, Sepehri, Vandchali & Tirkolae, 2021). Importantly, this is communicated through an ICT capabilities or tools as well. Heckman (2020) cautions that notwithstanding the fact that e-tender is devoid of human agency, the e-RFP (e-request for proposals or quotation) process must still be public, must be comprehensive in explaining the project or opportunity at hand. Akaba, Norta, Udokwu and Draheim (2020) note that in the event these guidelines are not followed, what happens is a significantly poor e-tendering process that fails to communicate to the target market, does not advertise the products correctly, becoming irrelevant and simultaneously confuse the end-user/firms and resulting in project failure.

2.3.3 E-auctioning

In regard e-procurement, e-auctioning is a value chain segment that incorporates evaluation of suppliers, negotiation, and contract management. Tiwari, Chan, Ahmad and Zaman (2019) argue that supplier assessment is the practice of evaluating and approving supplier applications or bids. Indeed, identifying or awarding a tender to supplier(s) is one of the most contentious activities in supply chain management, that, when not done correctly, can be even trigger legal proceedings, hence the requirement that it be managed according to specified procedures. Anthony (2018) takes this counsel forward, noting that the best way of evaluating suppliers is to use scientific assessments tools - either quantitative or qualitative-based assessment tools.

Afolabi, Ibem, Aduwo and Tunji-Olayeni (2022) maintain that the ideal approach is to view it according to a loop or cycle, whereby each stage is carried out professionally according to rules: the purchasing agency (municipality) issues requirements in such a manner that it elicits elevated participation levels (through elevated quantity of bids by multiple vendors). This is followed by a thorough and scientific supplier (bid) evaluation. This elaborate value chain will effectively result in the emergence of the most desirable or competitive supplier in this competitive contest.

Afolabi *et al.* (2022) reminds us of that e-procurement is as much about efficiency as it is about accountability, and therefore the bids evaluation process should have guiding principles of its own. Evaluation should assess technical ability to carry out work at hand, and this should lean on or assess technical abilities of human resources amongst others. Past performance must be analysed as well, particularly to check if the firm completed previous tasks that it was allocated to do. Kim, Suresh and Kocabasoglu-Hillmer (2015) note that this assessment serves several objectives: It reduces risk and ensures that work is completed; it reduces costs as work will be completed on time and according to costs allocated; it improves quality and realizes community equity of the project.

A number of researchers surmise that supplier evaluation works best when carried out according to public policy assessment framework (Bobowski & Gola, 2018). For example, one can use quantitative methods that incorporates the use of questionnaires designed to evaluate all aspects of levers or capabilities, including expertise, management, and employee capabilities. Tjan, Basalamah and Sirat (2023) noted that you can just use scorecards. Moreover, Tjan *et al.* (2023) note that one can use old style site visit by technical experts and inspectors. The other option is to use industry and guild certificates. According to Weigel, Ruecker, Weigel and Ruecker (2017) the most important strategy nugget is that supplier bid evaluation must be probingly thorough so that municipalities use financial resources with accountability.

2.3.4 Negotiation and contract management

After evaluation and appointment of the service provider follows contract negotiation follows. This is a bargaining process between the municipal or purchasing entity and the winning bidder. The aim of the service purchaser, in this instance the municipality, is seeking to secure favourable terms whilst the service provider is also negotiating a better outcome for itself. These negotiations cover several areas, including pricing and payment terms, reiterating order-qualifiers and order-winners, and the schedule of performance milestone amongst others (Delina & Olejarova, 2021). It is crucial to observe that while e-procurement is mostly devoid of human agency, contracting negotiations tend to involve people from both sides, namely the goods/service seller and the goods/service buyer. Notwithstanding, it is unlikely that the presence of human agency at this stage will compromise competitive factors and accountability since a lot

would have been agreed to during the previous stages of e-procurement, including such material factors as requirements, vendor profiling and price.

2.4 Technology tools for e-procurement

There are various technologies that are inalienable in regard implementation of a prudential e-procurement strategy. Masudin and Kamara (2017) note that an electronic data interchange system should be part and parcel of the ICT system for successful implementation of e-procurement in a municipal set-up. This set up or system allows for supply chain messages or communications to be exchanged between computers of two separate organizations. This rendezvous approach hucks back to the genesis of the internet when various computers at various entities and at myriad locales were linked to allow for communication, or transfer of information and data. This e-procurement internet system allows for message to be exchanged – often in a batch.

2.4.1 Assorted internet-based tools

Vrbová, Cempírek, Stopková and Bartuška (2018) argue that municipalities and various government agencies – or even large business conglomerates – should use internet-based communication systems, including electronic data interchange (EDI), to carry out and deepen e-procurement in their prefectures. EDI is an internet-based communication system that allows for data to be communicated seamlessly between two trading partners. The said communication platform is a simple web-based data interchange system that caters for everyone, with no regard for the size of the enterprise, a feature that makes it ideal especially for municipalities that contract with emerging business entities, namely small, medium, and micro enterprises (SMMEs). Moreover, it requires very little capital investment, an added boon to these businesses for whom price elasticity is a crucial consideration. In the same vein, users do not require high level of technical skills or experience (Klapita, 2021).

The ease of this internet-based tool is evident when one realizes that it works perfectly with an email (SMTP, HTTPS) and other secure file transfer communication protocols to exchange information (Veselá, 2017). This suggest that internet-based connectivity is possible for even rural municipalities and service providers because almost all of

them have a website, and furthermore have an email. Notwithstanding a near-universal support for internet-based communication tools for linking municipal or service or goods buyer with the suppliers through EDI, this approach has attracted some criticism. Buiten, Snijkers, Saraiva, Erikson, Erikson and Born (2018) contend that in an environment where poverty and consumer prices keep rising, the cost for IT hardware and software may be prohibiting. In the same vein, Buiten *et al.* (2018) argue that certificates that small businesses should purchase or have in regard using the EDI at acceptable quality standards are onerous. Notwithstanding, the cost lever criticism is essentially undermined by the fact that most powerful and reliable browsers are effectively free to access such as Microsoft Edge and Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari.

The internet-based tools discussed above are the instruments or cogs that enable supply chain to truly become e-procurement. Through these tools, procurement can completely detach itself from manual-based form of supply chain process management into electronic or internet-based procurement system, hence the monicker e-procurement. Therefore, municipalities and government entities have solemn responsibility when introducing e-procurement to use web-based tools. Research shows that there is no onerous prescription in realizing e-procurement, accounting officers in conjunction with chief technical officers should identify internet-based tools for e-sourcing, e-tendering, e-auctioning, e-ordering, and e-catalogue (Rawashdeh & Al-namlah, 2017). As alluded to already, e-sourcing internet-based tools are used to identify suitable suppliers or vendors in the selection phase; e-tendering internet-based tools are used to communicate tender advertisement with bid or tender requirements being outlined. In addition, web-based e-auctioning tools are used to congregate all identified bidders that fulfil order-qualifiers for competition to ensue in earnest. As was indicated, e-auctioning has two approaches, namely upward price, and the downward price mechanisms.

2.4.2 Debate on open connectivity

Al-Doori (2019) sees tremendous value in the localized e-procurement internet or interconnectivity system, and his main argument is that data can be seamlessly transmitted and stored. Al-Doori (2019) further tells which type of data is transmitted and stored: it is ordering transmissions, order verification and confirmations, logistical

information, and any other information regarding invoicing. There is a debate as to the extent to which this connectivity can or should be open. Some scholars believe that interconnectivity between municipal or government ICT system and suppliers will lead to the compromise of ICT security and render the system vulnerable to attacks and other nefarious activities. Sołtysińska (2022) see a developmental agenda regarding ICT universal access, noting that an open system will promote transparency, and solution to the risk of attacks lie in continual software improvements (or updates).

Chen, Bretschneider, Stritch, Darnall and Hsueh (2022) conducted a research study on the technology needs of an ideal e-procurement system, and they recommended that electronic based supply chain system will be promoted by having an enterprise resource planning system that has a distinctive or separate module designed to manage e-procurement function. This e-procurement software is an indispensable tool that assist or run all aspects of e-procurement – such as supply chain financial management (crucial to managing goods and services expenditure), sourcing, buying, and supplier management. The most important aspect of the e-procurement software is that it should be a special purpose and tailored for various supply chain requirements.

Saxena and Agarwal (2018) wrote an extensive review of the ideal software for the e-procurement, including for the municipalities. He argues that a value-adding ERP is the one that performs not just traditional supply chain functions. Instead, it should have more features that he considers order-winners (in the context of e-procurement ERP software). For example, he mentions that it should have analytical capabilities as that is part of or relevant to public management monitoring and evaluation. In addition, the financial management function must also be comprehensive as well to accommodate aspects such as reporting and analysis, all part of prudent financial management in e-procurement. Indeed, the requirement to laden financial accountability in the e-procurement system is one of the leading factors explaining the rise of e-supply chain management system across the developed and the newly industrializing markets across global markets. In this regard, it is advised that e-procurement software should include a fundamental component of budgeting (Sánchez-Rodríguez, Martínez-Lorente & Hemsworth, 2020).

Saxena *et al.* (2018) observe that e-procurement will in the long run be compromised if not implemented with the use or application of specialist e-procurement cloud computing technology. Specialist e-procurement cloud technology realize automation of document management. E-procurement cloud technology carry out varying task in the e-procurement continuum, and this include selecting suppliers, signing contracts, and furnishing them with new orders. Cloud computing is the holy grail of e-procurement for it is the capability or tool that ultimately removes human agency in procurement. Whereas traditional supply chain used wholly manual-based system, e-procurement does away with this by chiefly using automated cloud computing capabilities. In addition, it reduces service interruptions, and this demonstrate efficiency capabilities.

2.5 Theoretical framework: Theory of Downward Accountability

McCollim (2019) links the genesis of the theory of downward accountability to the intellectual debates that took place in early 1990s. At the time several NGOs were being accused of lacking accountability to those for whom they were created to serve. As McCollim (2019) maintains, these entities were now associated with scandals and were accused of not serving the original intent, namely serving the public good. Some of the scandals involved aid workers raping women and girls instead of rescuing them from harm. Other atrocities included Catholic-aligned groups abusing vulnerable children, the list is countless (Sambasivan, Batool, Ahmed, Matthews, Thomas, Gaytán-Lugo & Consolvo, 2019). Van Zyl and Claeys (2019) noted the intellectual challenge before that and suggested that NGOs should “be held responsible or having to prove responsibility for [their] actions, and that the concept of accountability implies that the actors being held accountable have obligations to act in ways that are consistent with accepted standards of behaviours”.

Notwithstanding the above facets or characterization of this theory, pressure for reflection and introspection in the sector led to the requirement that the not-for-profit sector ensure their services focus ‘downward’ to their natural beneficiaries, referencing the people on the ground. Arising from this imperative, NGO affiliation to downward accountability now meant that they must direct the flow of assistance ‘downward’ - from their benefactors directly to the beneficiaries. No longer should resources be

wasted on salaries and perks for NGO leadership and NGO workers abuse their positions by maiming and abusing beneficiaries.

2.5.1 Downward Accountability in Municipalities

Previous studies suggest that civil society organizations take various shape and forms, and include religious organizations, issue-based community organizations, voluntary-based associations, community cooperatives, foundations, philanthropic organisations, transnational groups, and social enterprises (Brandsen, Trommel, & Verschuere, 2017). Scholars also suggest that at the core of these organizations is the singular resolve to be an intermediary of good to the community, sourcing assistance and resources for the benefit of vulnerable sectors of the society and being an agent of change to their stakeholders in the margins of society (Wood, 2017). According to Williamson *et al.* (2022) the term "downward" describes the transfer of resources and aid through non-governmental organizations funding comes from donors, goes to the NGO, and ultimately ends up with clients, beneficiaries, or service recipients. In a similar vein, downward accountability summons public entities and municipalities to provide service exclusively for the intended beneficiaries (Buyse, 2018).

2.5.1.1 Dispensing public good

Masuku and Jili (2019) maintain that across global markets municipal government has been created to provide service delivery and accelerate the provision of public good to communities. Similarly, NGOs act as intermediaries to route and channel resources to communities they serve. In South Africa, the Local Government: Municipal Systems Act 32 of 2000, a legislative framework guiding municipal affairs, contends that South African local government is created to promote socio-economic upliftment of local communities and ensure "universal access to essential services that are affordable to all" (Local Government: *Municipal Systems Act 32*, 2000). The South African Constitution (1996) list services that are inalienable in the definition of basic services and economic rights of citizens such as electricity, water, roads, sewage and refuse removal. In this context, the theory of downward accountability stipulates that, consistent with constitutional requirements, services and public goods designed or

conceived for people on the ground should reach intended targets (Chu & Luke, 2022). In a way, municipal structures are acting as intermediaries to route services to local level, and therefore any intervention in regard improvement in public service management and accountability must be consistent with this requirement. In this sense, the theory of downward accountability addresses aspects of service quality and quantity.

2.5.1.2 Meeting service delivery targets

Previous studies suggest that accountability must include the requirement to evaluate the quality of services and the extent to which targets were met (Mokgosi, Shai & Ogunnubi, 2017). For example, Manes-Rossi, Aversano, and Tartaglia (2019), argue that government performance must be monitored and measured. This understanding culminated in the development of a government service delivery and financial accountability tool called Public Report (PR), as premised on the New Public Management paradigm. The philosophical underpinning of the service delivery assessment tool maintains that municipal administrations should prioritize its residents by providing services (Kolisang, 2019). And these include, but not limited to water, sewage and waste removal, and electricity. The delivery of these services, it is argued, should be viewed as a public good (Ruplal, 2022). In fact, the intention is to ensure that such services are accessible by all residents of the municipality, including those that cannot afford to pay for such services (Mustasilta, 2021). The inference is that quantity and quality of municipal services, and the extent to which they reach their targets is a fundamental component of downward accountability in municipal administration.

2.5.1.3 Enhancing Financial Accountability and Combating Corruption

Scholars share the view that a fundamental feature of downward accountability is 'accountability' itself (Awuku, Sakyi-Darko & Gyan, 2020). In fact, accountability is a management principle that behoves an entity to be honest, be ethical, be accountable, and be responsive to constituencies. Moreover, downward accountability enjoins all community-facing organizations, more-so municipalities in this regard, to be judged on performance and consistency with the foundational goals and principles.

There is a shared understanding in the literature that accountability takes different forms, and one of them is financial (Mokgosi, Shai & Ogunnubi, 2017). Scholars also share the view that community-facing entities are funded by assorted stakeholders, and therefore they need to be financially accountable (Brandsen, Trommel, & Verschuere, 2017). In so far as municipalities are concerned, their budgets are funded by various parties, and in the case of South Africa, municipalities are financed by the taxpayer which include municipal residents and corporates through the payment of municipal services. In the context of South Africa, financial accountability of municipalities is carried through the Auditor General, through its requirement for municipalities to publish financial statements (Matlala & Uwizeyimana, 2020). Moreover, other measures created to encourage financial accountability within South Africa's government system are the public participation process, and the Integrated Development Planning (IDP), a legislative process whereby a municipality develops development plans linked with municipal budgeting and service delivery planning (Sibanda, 2017). A municipal Council acts as a statutory body that monitors financial management and holds municipal executive and bureaucracy to account (The Local Government: *Municipal Systems Act 32, 2000*).

Masuku *et al.* (2019) contend that notwithstanding various statutory frameworks and provisions aimed at enhancing financial accountability in South Africa, prudent municipal finance management is still elusive and unaccountable. Of concern is that there are reportedly high levels of corruption in South African municipalities (Matlala & Uwizeyimana, 2020), and the tools to mute maladministration and corruption have largely been ineffective (Gasela, 2022). Consequently, South African municipalities are veering towards mission drift, where the pursuit of service delivery becomes an elusive mirage. In this context, the theoretical framework of downward accountability compels stakeholders, including this academic study, to generate both academic and practical innovations and scholarships that advocate for change, facilitating the 'downward' flow of resources, services, and financial assets to communities, rather than perpetuating the existing status quo.

2.5.1.4 Engagement and social contract

The philosophical foundation of downward accountability theory defines the tenor and fervour of the relationship between municipal political authorities and municipal

residents, or the people (Kettl, 2017). This is defined as social contract, and it provides a blueprint on how residents and municipal elite engage with each other (O'Brien, Hayward & Berkes, 2009). According to the theory of elitism, relationship between those being governed and those that are governing is marked by contempt and disrespect for the electorate or the governed (Okeke, 2017). Simply stated, the elite always prefer not to be accountable to the 'people'. In such an environment municipal administration is led by a self-serving administrative and political elite unaccountable to residents. For example, in Singapore, as a measure to improve administrative accountability and root out corruption, an e-government initiative was launched to manage municipal public procurement through the internet of things (Basyal, Poudyal & Seo (2018). However, municipal administrators were not willing to be subject to this scrutiny and responded by simply ignoring this monitoring tool. This is a demonstration of elites disrespecting municipal electorates for the sake of perpetuating financial unaccountability and corruption.

In contrast, downward accountability maintains a motion advancing a social contract that promotes equitable engagement between municipal leaders and municipal residents (Rothstein, 2021). O'Brien *et al.* (2019) aver that social contract is a fundamental aspect of municipal democratic management system that result in cordial rules-based relationship between municipal leadership and the electorate. In this arrangement, the electorate is not despised, instead its wishes are heard and listened to as that congeals and constitute 'consent'. This suggest that the framework of municipal financial management is the one that is endorsed by the electorate. Service delivery and anti-corruption protests in South African municipalities inform us that municipal electorates do not consent to looting of public municipal financial resources (Mlambo, Mphurpi & Makgoba, 2023); they are opposed to poor municipal financial management (Masuku *et al.*, 2019).

O'Brien *et al.* (2019) assert that the social contract referred to is an "agreement or contract between a civil community and the state (municipality)," delineating the reciprocal rights and responsibilities of these entities to one another. In this relationship, downward accountability maintains, there is no evasion of service responsibility (Manning, 2023). Instead, there is appreciation for the municipality to translate community needs into programme of action with accountability. This social contract provision means that any framework that is created to promote financial

accountability in the municipal set up require the endorsement, sanction, and consent of the community (McCandless, 2021). Moreover, financial accountability programmes are not a top-down affair, instead it is a bottom-up policy intervention. The inference is that downward accountability is a system of municipal management in which (financial) accountability measures reflects the wishes and preferences of the community.

2.5.2 Financial Accountability Theory and E-Procurement in South African Municipalities

It is important to understand the intricate dynamics of Financial Accountability Theory and its application within the realm of E-Procurement in South African Municipalities. As financial governance undergoes transformative shifts, the intersection of theory and practical implementation becomes paramount. Exploring the theoretical underpinnings and the adoption of E-Procurement frameworks offers insights into how South African municipalities navigate fiscal responsibilities in the digital age. This inquiry aims to dissect the synergies between financial accountability principles and the integration of electronic procurement systems, shedding light on the evolving landscape of municipal governance in the context of technological advancements and fiscal responsibility.

Downward accountability theory draws attention to the idea of 'downward' channelling of public good and services to the target people (Lemanski, 2020). This suggest that the e-procurement should be aimed at funnelling better values in municipal management to the community such as promotion of financial accountability, ethical governance, prudential municipal financial management. This downward channelling of better municipal fiscal management is the hallmark of public finance-information technology tool under study, namely e-procurement in the context of municipalities in South Africa.

Previous studies suggest that public agencies exist consciously to serve the people and dispense public good (Chilenga-Butao, 2020). This proposition enjoins the e-procurement framework to be designed such that it is used to promote the interests of the municipal public as opposed to serving the interests of the few. Moreover, it serves as the reminder of the philosophy of government: municipal government is established to be the conduit for providing public goods.

The downward accountability theory also draw attention to a requirement for service delivery targets (Mdee & Mushi, 2021), as the 'bottom line', in terms of quantity and quality, to be met at all times. This theoretical property of downward accountability behoves e-procurement framework to have service targets, in terms of service quality and quantity, for those variables to be measured on regular basis.

Another shared understanding is that public service entities must always carry out their mandates with constant reference to meeting financial accountability and eschewing corruption (Mutuku, Owuoché & Jonyo, 2023). Hence, there is an emphasis the need for downward accountability, calling for the imminent e-procurement system to be meticulously crafted to thwart financial imprudence, corruption, and fiscal decay resulting from corruption and financial unaccountability.

Finally, living up to the ideals of downward accountability reflects consent of the people, a nod to the social contract. Consistent with this theoretical property, e-procurement becomes a financial-information technology that reflects people-municipal government service delivery contracts.

2.6 Conclusion

This is a literature review chapter dedicated to understanding the evolution and debates of e-procurement in current scholarship today. It argued that e-procurement is part of e-government, referring to the provision of government and municipal services through online platforms. A few definitions of e-procurement were discussed noting the online transaction anchor of the definition and the economic output model definition. Later, a few technology tools for e-procurement promotion were discussed also. The next chapter discusses the methodology.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to present the research methodology that was utilized to collect and analyse pertinent data to create a South Africa-relevant e-procurement framework for municipalities. The study used the qualitative research method and adopted an inductive approach. Data was analysed using Atlas.ti and visualised using graphics.

3.2 Research Philosophy

Previous studies suggest that a research philosophy is a set of guiding principles that underlie a researcher's approach, shaping the methodology and perspective used to conduct investigations and interpret findings (Williamson, 2021). Within this, positivism, rooted in natural sciences, seeks objective, measurable truths through empirical observation and generalizable laws (Madden, 2022). On the other hand, there is interpretivism, prevalent in social sciences, emphasizes subjective understanding, context, and qualitative data to explore the complexities of human experiences (Alharahsheh & Pius, 2020). These opposing philosophical positions are mediated by pragmatism, a middle ground. In fact, pragmatism advocates using diverse methods based on their utility, combining aspects of both positivism and interpretivism (Davids & Waghid, 2021). Previous studies share the view that pragmatists prioritise practical outcomes and solutions, valuing the flexibility to employ methods that best suit the research question (James, 2020). While positivism and interpretivism represent opposing ends of the philosophical spectrum, pragmatism integrates elements from both to achieve a balanced and context-appropriate approach in research.

This study adopted an interpretivist philosophy because of the unique socio-cultural and contextual intricacies of South Africa. In fact, South Africa, with its diverse population and complex historical background, demands a nuanced understanding that extends beyond quantitative measurements typically associated with positivism.

Further, in the realm of e-procurement, interpretivism allows researchers to explore the subjective experiences, perceptions, and cultural influences that shape the adoption and implementation of technology in municipalities. Given the intricate interplay of political, economic, and social factors in South Africa, a qualitative approach was found to align with the need to comprehend the multifaceted nature of decision-making processes within the municipalities.

Moreover, interpretivism accommodates the exploration of local stakeholders' perspectives, acknowledging that their voices contribute significantly to the success or failure of e-procurement initiatives. By embracing interpretivism, the study aims to unravel the complex web of meanings and interpretations that underpin the adoption of e-procurement systems, offering a more holistic and contextually rich understanding essential for effective policy recommendations and implementation strategies in South African municipalities.

3.3 Research approach

Because of the nature of the research questions, an inductive approach was adopted. Previous studies suggest that the goal of inductive research is to create a research product from facts and latent content (Azungah, 2018). As in the current study, insights emerged from participants' perceptions of the municipal e-procurement systems. Understanding emerged out of the participants' voices, and experiences. Though there were areas of questioning, the responses were open ended and not predefined.

In this research, a deductive approach was eschewed due to the nuanced and context-dependent nature of the subject matter. Moreover, previous studies suggest that deductive methods rely on predetermined hypotheses, which may oversimplify complex socio-cultural phenomena (Azungah, 2018). Similarly, a pragmatic approach was not chosen as it often prioritizes practical outcomes over theoretical depth. Given the intricate dynamics of the research topic, an inductive approach was favoured. This allowed for the emergence of insights from the data, accommodating the multifaceted and context-specific aspects inherent in the study of introducing e-procurement in South African municipalities. In fact, inductive methods better suit the exploration of diverse perspectives and understanding local intricacies (Davies & Fisher, 2018).

In this sense, the research was qualitative in nature. Previous studies suggest that qualitative research is essentially an exploratory research method aimed at discovering new knowledge that is used to create theories, frameworks, formulae, and schools of thought, amongst others (Maher & Dertadian, 2018). This is very relevant for this study because its purpose is to create a financial accountability e-procurement framework anchored on the internet of things. Moreover, the intended e-procurement framework is to be relevant to the South Africa municipal environment, where corruption and maladministration are rife and at an extremely high level (Budhram & Geldenhuys, 2018). In applying a qualitative research method, the study used multiple qualitative data sources.

3.4 Research strategy

A qualitative research strategy was chosen for this study due to the inherently exploratory and context-specific nature of the research questions. The qualitative research strategy is an approach that helps in understanding the world that prioritizes meaning-making and in-depth exploration over numerical measurement and statistical analysis (Saunders & Thornhill, 2016; Denzin & Lincoln, 2011). Qualitative research offers a valuable lens for exploring the subjective, contextualized experiences and meanings that shape human behaviour and social phenomena (Saunders & Thornhill, 2016)

Qualitative methods are well-suited for capturing the depth and richness of experiences, perceptions, and contextual nuances associated with financial unaccountability in South African municipalities. The first research question, assessing the extent of financial unaccountability, required an in-depth understanding of the diverse factors contributing to this issue, which can be best explored through qualitative techniques such as interviews, open-ended surveys, and document analysis.

Similarly, investigating how information communication technology can address poor financial accountability necessitated a qualitative approach to delve into the intricacies of ICT implementation, stakeholder perspectives, and potential challenges. Qualitative methods offer a nuanced exploration of the complex interplay between technology and financial management practices.

For inquiries into the design elements of an e-procurement framework and the critical success factors in the South African municipal context, qualitative strategies provided the flexibility to capture the multifaceted perspectives of experts, stakeholders, and practitioners. This approach allowed for a holistic and contextually rich examination, aligning well with the qualitative nature of the research questions, and promoting a comprehensive understanding of the intricate issues under investigation.

3.5 Population of the study

Population is defined by Creswell (2013) as a full set of cases or elements from which a sample is taken. According to Saunders and Thornhill (2016), a target population is a subset of the population that is easy to access and contains all the elements and cases known to the research. This study focused on a targeted population opposed to corruption, drawing insights from organized structures within the municipalities. Participants included non-governmental organizations, political groups, municipal IT experts, auditors from the Auditor General's office, and senior managers in municipal administrations, ensuring diverse perspectives from key stakeholders in the anti-corruption discourse.

3.5.1 Sampling

The study adopted a combination of convenience sampling and snowball sampling. Convenience sampling is a sampling technique where participants are chosen based on their availability and convenience (Creswell, 2013) and snowball sampling techniques is where participants are volunteered to be part of the research rather than being chosen (Saunders and Thornhill, 2016). The intention was to reach those participants that were voluntarily willing to participate, and who had some knowledge about e-procurement. This helped the researcher to reach those participants with relevant experiences and understanding of e-procurement within the context of municipalities in South Africa. Hence, non-probability sampling techniques were used to select study participants.

3.5.2 Data collection

Data was collected using self-completed semi-structured questions, and in-depth interviews. The use of multiple qualitative data sources is consistent with previous

qualitative studies as this enhances the trustworthiness and robustness of the research. Previous studies suggest that interviews are a data collection tool that depends mostly on word of mouth to derive experiences from interviewees (Adeoye-Olatunde & Olenik, 2021). There are three different sorts of interviews: structured, semi-structured, and unstructured.

3.5.2.1 Structured interviews

Structured interviews are a type of verbal questionnaire that are conducted in response to pre-planned questions (Adeoye-Olatunde & Olenik, 2021). In structured interviews, the researcher collects data by asking the same set of questions to every subject without the possibility of variety or flexibility. Here, the researcher set a list of 20 questions that were guided by the research objectives. These questions were sent to participants to answer in a self-completing format. In total, 10 participants were able to complete.

3.5.2.2 Semi-structured interviews

Semi-structured interviews combine some aspects of unstructured interviews with the planned interviewing process that is characteristic of structured interviews. The interview procedure is quite thorough and aims to greatly profit from the partnership that the interviewer forges with the interviewee (Edwards & Holland, 2020). Following from this, semi-structured interviews should be viewed as a discussion that develops between the interviewer and the interviewee, led by a schedule of questions presented in no specific order other than to keep the conversation going. The objective of the interview is for the researcher to keep investigating different research project themes to obtain the informant's account of their experiences as well as their impressions of them. Langley *et al.* (2020) encourage asking open-ended questions as a way of unearthing hidden experiences.

The researcher also used semi-structured interviews with the intention of probing deeper into the shared experiences of the participants. These interviews were informed by an interview guide but allowed flexibility to explore further, the insights that were emerging from the participants. The interviews were audio recorded, and conducted in real-time, thus, providing an opportunity for the researcher to probe further into different parts of the responses shared by participants.

3.5.3 Data Collection Procedure and Sample Size

Two data sources were used, with conveniently selected sample sizes as tabulated in table 3.1.

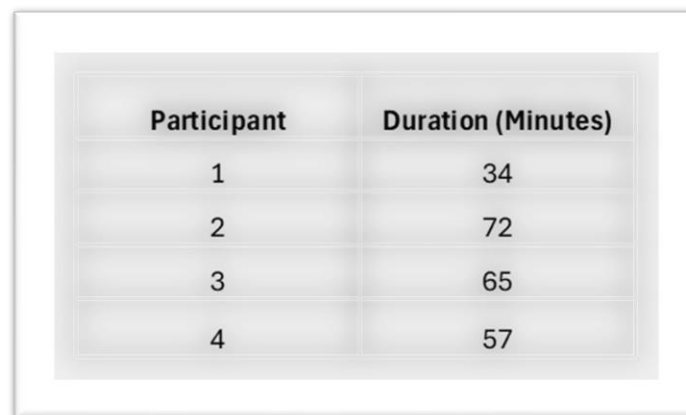
Table 3. 1: Sample Size

Data Source	Number of participants
Structured interviews (self-completing)	10
Sem-structured interviews (real-time plus audio recorded)	4

Source: Author's own construction

The 4 participants that took part in the semi-structured interview generated 228 minutes of audio, and all this was transcribed on a word-by-word basis. This is illustrated in table 3.2.

Table 3. 2: Duration of Audios



Participant	Duration (Minutes)
1	34
2	72
3	65
4	57

Source: Author's Own Construction

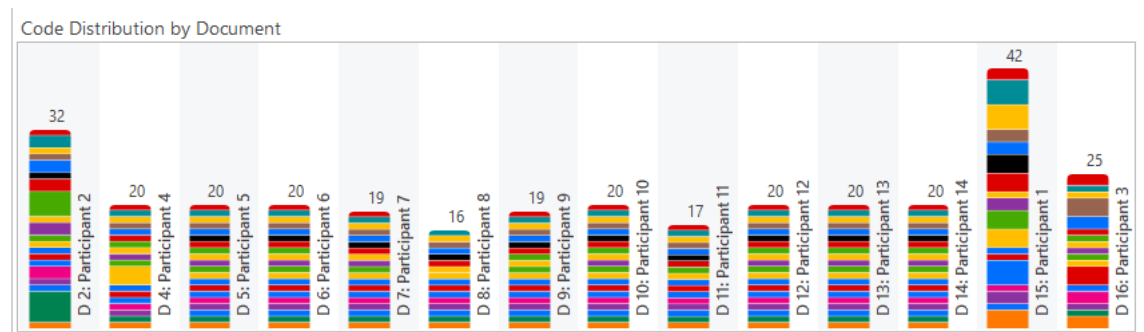
Previous studies suggest that collecting diverse data sets for a qualitative study is crucial to gaining a comprehensive understanding of the research topic (Chitakunye, 2012; Edwards & Holland, 2020). The inclusion of structured interviews with self-completing questionnaires for 10 participants ensured a standardized data collection method that enabled the comparison of responses. Meanwhile, the incorporation of semi-structured interviews, conducted in real-time and audio-recorded for 4 participants, added depth to the analysis. Real-time interactions allowed for

spontaneous insights, capturing nuances that might have been missed in structured formats. Audio recordings further enhanced data richness, enabling the exploration of non-verbal cues and contextual elements. This methodological diversity promoted triangulation, validating findings through multiple sources, and enhancing the study's credibility. The combination of structured and semi-structured approaches ensured a well-rounded exploration, offering a more holistic and nuanced perspective on the research topic.

3.6 Data Analysis

Data was analysed using Atlas.ti. This was informed by the process of open coding, axial coding, and selective coding. Data was coded at the question level, and this progressed throughout all the transcripts, as illustrated in figure 3.1.

Figure 3. 1: Distribution of Coding



After the coding process, data was then analysed using the word frequency tool in Atlas.ti to help determine the concepts that were emerging from each chunk of data. This helped to assign meanings to different chunks of data. The word cloud was used to help visualise the meanings assigned to the data. This also helped to see the pattern of text, and variability across all the participants. Here, text was contextualised, and decontextualized to extract meanings.

Further analysis was then conducted using thematic analysis, and in an iterative manner, guided by the principles of analysing qualitative data as illustrated by Spiggle (1994). The researcher embarked on a process of coding and categorisation to help divide data into more manageable parts, such as paragraphs, words, themes, and

ideas. This method helped the researcher to extract meanings, concepts, narratives, and experiences. This was done repetitively, resulting in the creation of new categories from pre-existing ones, demonstrating interpretive skills (Berthelsen, Grimshaw-Aagaard & Hansen, 2018). The researcher wrote memos, or notes, as the categories took shape, noting any new interpretations that surfaced. This helped to extract deeper meanings and understanding of the text that was used by the participants.

3.7 Validity and reliability

Previous studies suggest that research projects should employ a variety of tactics to guarantee the validity and reliability of their findings (Coleman, 2022), as stated by the obligation of scholarly inquiry and documentation to fully explain how research findings are credible (Chitakunye, 2012; Rose & Johnson, 2020). Reliability, on the other hand, relates to the extent to which study findings are constant across time and observations may be repeated when data is analyzed again (Sahin, 2018). On the other side, the degree to which the research project's ideas are correct, sincere, and supported by evidence is known as validity. As a result, reliability and validity are concerned with the methods the researcher uses to make sure that the research project's conclusions are correct and objective, and that they can also be repeated if the same data set is again examined. Previous qualitative research also draws attention to triangulation and trustworthiness as techniques to outline the validity and reliability of qualitative studies (Stahl & King, 2020; Adler, 2022).

3.7.1 Trustworthiness

The trustworthiness of findings in this study, analyzed using the data analysis software Atlas.ti, is fortified through a meticulous process and diverse data sources. The use of Atlas.ti ensures a systematic and transparent approach to qualitative data analysis, allowing for the identification and coding of patterns and themes in a replicable manner. This software enhances the reliability of the findings by providing a structured and traceable analytical framework.

The inclusion of 4 semi-structured interviews, totaling 238 minutes of audio recordings, adds depth to the qualitative exploration. The richness of these narratives contributes to the trustworthiness of the findings, capturing the nuances and intricacies of participants' experiences. Additionally, the incorporation of 10 structured qualitative

interviews, self-completed by participants, introduces a quantitative aspect, bolstering the comprehensiveness of the study.

The convergence of data from both interview types, alongside the use of a sophisticated analysis tool, strengthens the internal validity of the findings. Moreover, the transparency in reporting the study's methodology and the inclusion of detailed transcripts enhance the credibility of the research, fostering trust in the conclusions drawn from this combined approach.

3.7.3 Researcher Reflexivity

Previous studies suggest that researcher reflexivity is paramount in this qualitative study to acknowledge and mitigate potential biases, subjectivities, and preconceptions that may influence the research process (Takhar-Lail & Chitakunye, 2015; Gough, 2017). As the researcher engages with participants and data, continuous self-awareness is maintained, recognizing personal perspectives that may shape interpretations (Corlett & Mavin, 2018). In fact, reflexivity involves documenting and critically examining the researcher's positionality, experiences, and values to enhance transparency and rigor (Snounu, 2021).

Some scholars suggest that the researcher's reflexivity is vital in shaping interview protocols, data interpretation, and addressing inherent assumptions (Takhar-Lail & Chitakunye, 2015). In exploring the extent of financial unaccountability, acknowledging any preconceived notions about the issue helped to approach the research with an open mind. Similarly, when investigating the use of information communication technology, e-procurement framework design, and critical success factors, reflexivity aided in recognizing and managing any biases that may have influenced the study's findings.

Transparent reporting of the researcher's reflexivity process was integrated into the study, allowing readers to assess the potential impact of the researcher's perspectives on the research outcomes. By actively engaging in reflexivity, the researcher enhanced the credibility, validity, and reliability of the study, promoting a more nuanced and contextually sensitive exploration of the research questions.

3.7.4 Briefing participants

The researcher prepared and presented a participant information sheet to all study participants prior to all interviews. The intention was not only to gain informed consent, but also ensuring validity and reliability by fostering transparency, and consistency. Firstly, the information sheet served as a transparent communication tool, providing participants with comprehensive details about the research objectives, procedures, and potential risks. This transparency contributed to the internal validity of the study, as participants were better informed and could provide more accurate and relevant data.

Secondly, the information sheet established a foundation for informed consent, outlining the nature of participation and emphasizing voluntary involvement. Informed consent enhanced the ethical aspect of the study, contributing to the trustworthiness of the data collected. Previous studies suggest that participants who are well-informed are more likely to engage meaningfully, providing reliable insights (Wallander, Ferraro & Higgins, 2017).

Furthermore, the consistent use of a participant information sheet across all participants ensured reliability in the research process. Every participant received the same set of information, minimizing variations in understanding and expectations. Previous studies suggest that this consistency contributes to the reliability of the findings by reducing potential bias and standardizing the participant experience (Motulsky, 2021).

A well-crafted participant information sheet enhanced the validity and reliability of the qualitative study by promoting transparency, facilitating informed consent, and ensuring consistency in the participant experience. The procedures adopted to ensure validity and reliability are further illustrated in table 3.4.

Table 3. 3: Procedures followed to ensure validity and reliability

Concept	Techniques the study will use	Phases of research in which the technique occurs
<i>Construct validity</i> Objective: conformability	<ul style="list-style-type: none"> • Multiple sources • Key informants review • Chain of events details 	Data collection Researcher's diary Data analysis
<i>Internal validity</i> Objective: credibility	<ul style="list-style-type: none"> • Triangulation • Peer debriefing • Self-monitoring 	Data analysis Researcher's diary
External validity Objective: transferability	<ul style="list-style-type: none"> • Semi-structured interviews • Description of coding and analysis • Thick descriptions 	Research design Data collection Data analysis
Reliability Objective: dependability	<ul style="list-style-type: none"> • Documentation of the process of enquiry • Explanation and clarification of theoretical position and biases 	Research design

Source: Author's Own Construction

3.8 Ethical issues

Ethical considerations were meticulously addressed at every stage to ensure participant welfare, data integrity, and researcher accountability. Prior to commencement, ethical approval was obtained from relevant institutional review boards, affirming adherence to ethical guidelines. Informed consent was obtained from

all participants, emphasizing voluntariness and the right to withdraw at any stage without repercussion.

To protect participant confidentiality, anonymization procedures were applied during data collection and analysis, using pseudonyms, and avoiding identifiable information. Additionally, participants were assured of the confidentiality of their responses, fostering an environment of trust. Transparency was maintained through clear communication about the study's purpose, potential risks, and benefits.

Sensitivity to cultural and contextual nuances was paramount, especially when exploring topics like financial unaccountability. Ethical considerations informed the development of interview protocols, ensuring respectful and non-intrusive questioning. Findings were reported objectively, avoiding any potential for misrepresentation or harm.

In this sense, ethical standards were upheld by aligning the research design, data collection, and reporting processes with ethical principles. This approach ensured the study's integrity, safeguarded participant well-being, and upheld the ethical standards expected in academic research.

Electronic records, encompassing audios, transcripts, and self-completed qualitative interviews, were securely stored with encryption and password protection. A dedicated, password-secured server ensured restricted access, and regular backups to prevent data loss. Strict confidentiality measures were implemented, adhering to ethical standards, safeguarding participant anonymity, and complying with data protection regulations throughout the storage and archiving processes.

3.9 Limitations

This qualitative study is not immune to inherent limitations. Firstly, the qualitative nature of the research introduces the potential for subjectivity in data interpretation. However, this challenge was mitigated through a robust methodological approach, incorporating multiple data sources, triangulation, and analytical rigor. By drawing insights from various perspectives and employing systematic analysis, the study sought to enhance the credibility and reliability of its findings.

Another noteworthy limitation is the constrained timeframe for data collection, analysis, and submission within the MBA requirements. The compressed schedule might have impacted the depth and breadth of the study, limiting the opportunity for prolonged engagement with participants or a more extensive review of literature. The time constraint could potentially influence the study's thoroughness and depth, potentially compromising the richness of data collected and the depth of analysis.

Despite these limitations, acknowledging these constraints transparently enhances the study's integrity. The strategic use of qualitative methodologies and clear communication about the time constraints underscores the study's commitment to rigor and provides a contextual understanding of the scope within which the research was conducted.

3.10 Summary of the chapter

The methodology chapter of this qualitative study navigates a comprehensive approach to address its research questions. Employing a qualitative strategy, the study embraced in-depth exploration and understanding. Data collection involved semi-structured interviews and self-completed questionnaires, ensuring diverse perspectives from key stakeholders, including non-governmental organizations, political groups, IT experts, auditors, and senior municipal managers.

To enhance trustworthiness, triangulation was employed by combining interview data with insights from literature. Thematic analysis guided the extraction of patterns, providing a systematic framework for understanding financial unaccountability, the role of information communication technology, e-procurement framework design, and critical success factors. Ethical considerations were prioritized with informed consent, participant confidentiality, and an awareness of the researcher's potential biases.

While recognizing time constraints, the study navigated these limitations through meticulous planning and execution. The methodology chapter underscored the researcher's reflexivity, transparency in data analysis, and a commitment to addressing potential biases. This comprehensive methodological framework aligns with the qualitative nature of the research questions, ensuring a nuanced exploration of financial accountability in South African municipalities and offering valuable insights into ICT solutions and e-procurement strategies.

CHAPTER 4: FINDINGS

4.1 Introduction

This chapter delves into a comprehensive exploration of various dimensions shaping the efficiency and accountability of municipal operations, with a particular focus on financial management and e-procurement practices. The investigation has scrutinized key aspects, including the definition of a well-run municipality, the characterization of residents, major concerns regarding financial management, and the indicators of poor financial accountability. In addition, the study has probed into the role of procurement, specifically supply chain dynamics, and whether municipalities should exclusively engage experienced service providers.

A crucial juncture in this exploration is the understanding and application of e-Procurement, shedding light on its potential advantages, challenges, and its role in reducing human resource requirements. The competitive factors for suppliers seeking inclusion in e-procurement databases, as well as strategies for negotiating lower prices, have been addressed. The chapter also grapples with the evaluation of bids and proposals in the e-procurement landscape, considering fairness and transparency.

Technological aspects, including the tools essential for effective e-procurement, the concept of electronic data interchange (EDI), and the intricacies of ICT system security in interconnected municipal and service provider systems are critically examined. Furthermore, the chapter explores the implications of electricity challenges on the high availability of e-procurement platforms and debates the cloud versus on-premises hosting dilemma.

Ultimately, the research aims to unravel the potential of e-Procurement in enhancing accountability for municipal financial resources, offering insights into its viability as a transformative tool for local governance.

4.2 Characteristics of the Participants

The characteristics of the participants are illustrated in Table 3.3 below.

Table 4.1: Characteristics of the Participants

Participant No.	Gender	Job Role	Years in current job
1	Female	Senior Auditor	7
2	Male	Educator	25
3	Male	Manager Performance	14
4	Male	Municipal Manager	3
5	Female	Director Community Services	3
6	Male	Manager Internal Audit	6
7	Male	Director Corporate Services	3
8	Male	Manager Revenue	8
9	Female	Manager HR	7
10	Female	Manager Budget	8
11	Male	MPAC Chair	3
12	Male	Former Mayor	2
13	Male	Manager ICT	8
14	Not stated	Not stated	Not stated

Source: Author's Own Construction

The study participants exhibit a diverse profile encompassing various demographics and professional backgrounds. Of the participants who voluntarily shared their

characteristics, gender representation included seven males and three females, offering a balanced mix that reflected both genders. Geographically, participants were drawn from municipalities such as Greater Tzaneen and Greater Giyani, providing regional diversity within the study.

Occupationally, the participants showcase a range of roles critical to the public sector. Positions include Senior Auditor, Municipal Manager, Director of Community Services, Manager Internal Audit, and more. This diversity ensured a comprehensive understanding of perspectives from different job roles within local governance.

Years of experience in their current positions also varied, spanning from 2 to 25 years. This diversity in tenure contributed to a rich dataset, capturing insights from both seasoned professionals and relatively newer entrants into their roles.

Understanding the characteristics of the participants is crucial for the study's success. The varied professional backgrounds ensure a holistic exploration of the subject matter, while the regional and gender diversity guards against potential biases. The range in years of experience added depth, allowing for nuanced insights that varied based on the participants' career longevity. This comprehensive participant profile ensured a well-rounded and representative study, offering insights that can be generalized and applied across diverse scenarios within the public sector.

4.3 Extent of financial unaccountability in South African municipalities

4.3.1 Profile of a well-run municipality

Participants were queried about their perspective on the criteria and attributes that, in their understanding, constitute a profile of a well-run municipality. Employing a word cloud, we sought to encapsulate the emerging concepts, revealing a mosaic of terms like "run," "community," "support," "service," "leadership," "quality," and more, as visually depicted in Figure 4.1. The overarching objective was to distil these concepts and visualize the textual patterns employed by participants, providing a comprehensive understanding of their perspectives.

transparent, accountable, and inclusive processes that enhance the municipality's responsiveness and adaptability to evolving challenges. This comprehensive profile encapsulates the multifaceted dimensions necessary for a municipality to thrive, fostering a resilient, participatory, and sustainable community.

A well -run municipality in my view is a municipality that is able to render the services to the community it serves... consult the public and various stakeholders on issues that affects them... is sustainable by collecting the rates and taxes... creates a conducive environment for investors to invest in through provision of infrastructure and maintenance thereof... is proactive and responsive to the needs of the public... creates a safe and healthy environment for its people... uses its fund for the benefit of the community and able to account... has its structure and systems gear towards achieving the vision and mission of the municipality... has a culture of serving the community and consistently communicate its success and challenges (Participant 7)

Participant 7 underscores key attributes of a well-run municipality, envisioning it as a service-oriented entity that prioritizes community needs. Effective public engagement and stakeholder consultation emerge as vital components, ensuring decisions align with the community's interests. Financial sustainability is emphasized, highlighting the importance of responsible tax collection and infrastructure investment to attract investors. Proactiveness and responsiveness to public needs underscore the municipality's agility and commitment. Safety, health, and community well-being are integral, shaping a holistic environment. Transparent fund utilization, aligned with community benefit, speaks to financial accountability. Structural alignment with the municipality's vision and mission ensures focused development. Lastly, a culture of public service and consistent communication reflects transparency, fostering community trust. This profile outlines a municipality committed to holistic, accountable, and community-centric governance.

... when residents are happy with the services that they receive... that would be a well run... (Participant 2).

Participant 2 simplifies the criterion for a well-run municipality, asserting that resident satisfaction with services defines success. This succinct perspective implies that an effective municipality is one that consistently meets and exceeds the expectations of its residents, ensuring their contentment with the services provided. This resident-centric approach aligns with the fundamental goal of municipal governance,

The research then sought to understand the context in which this text was used, and this is illustrated by extracts from the participants. For instance, participant 9 had this to say:

The community profile is a summary of baseline conditions and trends in a community and study area. It establishes the context for assessing potential impacts and for project decision-making. Developing a community profile involves identifying community issues and attitudes, locating notable features in the study area, and assessing social and economic conditions and trends in the community and region that have a bearing on the project (Participant 9).

Participant 9 highlights the significance of a community profile in understanding the residents of a municipality. The profile serves as a comprehensive overview, capturing the baseline conditions, attitudes, and notable features in the community. It delves into social and economic aspects, providing essential context for evaluating potential impacts and informing project decisions. This approach suggests a nuanced understanding of residents, acknowledging their issues, attitudes, and the broader socio-economic landscape. By incorporating these elements, a municipality can better address community needs and align development projects with the dynamics and aspirations of its residents.

...includes things like age, gender, ethnicity, education level, and income distribution. Different municipalities may have distinct demographic profiles depending on their location and historical development... Residents' socioeconomic status varies depending on factors such as employment, income, and access to resources and opportunities.... The types of housing, household sizes, and living arrangements in a municipality can provide information about its population... (Participant 13)

Participant 13 emphasizes the importance of demographic factors in characterizing the residents of a municipality. Key aspects include age, gender, ethnicity, education, and income distribution, highlighting the diversity shaped by location and historical development. Socioeconomic status is a crucial determinant, influenced by employment, income, and access to resources. Housing types, household sizes, and living arrangements offer insights into the municipality's population dynamics. This nuanced demographic profiling allows municipalities to tailor policies and services, recognizing the unique needs and challenges of their residents, fostering targeted and inclusive development strategies.

4.3.3 Concerns regarding municipal financial management

Extensive corruption, Nepotism, Mismanagement of public funds, Increased rates and taxes, Political interference (Participant 5)

Participant 5 highlights residents' major concerns regarding municipal financial management. The issues raised include extensive corruption, reflecting a fear of dishonest practices eroding public funds. Nepotism signifies unease about favouritism in employment or resource allocation. Mismanagement of public funds suggests a lack of confidence in responsible fiscal stewardship. Increased rates and taxes raise concerns about the financial burden on residents. Political interference points to worries about external influences impacting financial decision-making. These concerns collectively underscore the need for transparent, accountable, and efficient financial practices to address resident apprehensions and foster trust in municipal financial management.

Ineffectiveness and inefficiency in the delivery of municipal services as is currently experienced in South Africa (Participant 8)

Participant 8 expresses residents' major concerns about municipal financial management, specifically focusing on the perceived ineffectiveness and inefficiency in service delivery in South Africa. This implies dissatisfaction with how municipal funds are utilized, suggesting a desire for improved resource allocation and outcomes. The concern reflects a call for enhanced financial management practices to optimize service delivery, emphasizing the need for transparency, accountability, and strategic allocation of resources to address the current challenges faced by residents in experiencing efficient municipal services.

Lack of expertise to carry out work in the organisation for quality of services e.g engineers and accountants, an inability to collect arrear debt in communities, extensive corruption, exorbitant salaries, and bonuses for municipal leadership. Lack of efficient consultation with the community inform plans and budgets, community not understand the procurement processes (Participant 9).

Participant 9 identifies residents' major concerns about municipal financial management, citing a lack of expertise in essential roles like engineering and accounting, potentially compromising service quality. The inability to collect arrear debt and concerns about corruption imply financial mismanagement, eroding public trust. Criticism of exorbitant salaries and bonuses for municipal leadership raises questions about fiscal responsibility. Inefficient community consultation suggests a gap in inclusive decision-making and budgeting. Additionally, a lack of community

understanding of procurement processes indicates a communication barrier. These concerns collectively underscore the need for skill enhancement, transparent financial practices, and improved community engagement to address residents' apprehensions about municipal financial management.

4.3.4 Poor financial accountability in a municipality

The researcher sought participants' perspectives on what they considered to be the defining factors that constitute poor financial accountability in a municipality. Using a word cloud, the researcher strived to encapsulate evolving concepts, revealing a tapestry of terms like *"inability," "accountability," "management," "corruption," "budget," "fraud,"* and more, vividly illustrated in Figure 4.4. The central objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

Figure 4. 4: Concept for poor financial accountability



The research then sought to understand the context in which this text was used, and this is illustrated by extracts from the participants. For example, participant 11 had this to say:

Poor financial accountability is lack/failure to hold an official or individual accountable for failing to follow the municipalities approved process and incurring financial loss to the municipality. Inability to collect outstanding debts, excessive salaries, and benefits (Participant 11).

Participant 11 defines poor financial accountability in a municipality as the failure to hold officials or individuals responsible for deviating from approved processes, resulting in financial losses. The inability to collect outstanding debts indicates a lack of fiscal diligence. Criticism of excessive salaries and benefits for officials underscores concerns about misallocation of resources. Overall, the extract highlights that poor financial accountability manifests when there's a breakdown in adherence to

established procedures, leading to financial setbacks and potential mismanagement within the municipality.

...Failure to provide clear and accessible information about the municipality's financial activities, including budget allocations, expenditures, and financial reports...Incomplete or inaccurate financial reporting, including delays in publishing audited financial statements and failure to provide comprehensive information on the use of public funds. ..Instances of misappropriation, embezzlement, or fraud involving public funds, as well as inadequate controls to prevent such occurrences. ... Persistent budget deficits, excessive borrowing without a clear plan for repayment, or a pattern of overspending that leads to financial instability. .. Inadequate internal controls and oversight mechanisms to ensure that financial transactions are properly authorized, recorded, and monitored.... Non-compliance with legal and regulatory requirements related to financial management, accounting standards, and reporting obligations (Participant 13).

Participant 13 identifies poor financial accountability in a municipality as encompassing several key issues. This includes the failure to provide transparent information about financial activities, incomplete or inaccurate reporting, instances of misappropriation or fraud, persistent budget deficits, inadequate internal controls, and non-compliance with legal requirements. These factors collectively signify a lack of transparency, integrity, and adherence to financial regulations, contributing to a climate of financial instability and potential mismanagement within the municipality.

The poor financial accountability for me it's something which will affect both the municipal officials and community members. When it comes to the municipal officials it's a situation where the municipality doesn't have systems... There are no systems of managing the finances of the municipality. There are no controls when there is to be expenditure, you don't follow that process up such that at a later stage you look at how things were supposed to have been done and they were not done. And that is solely because there are no monitoring systems. The governing systems are not effective. Somewhere you will go to an extent of experiencing instances where municipal officials don't get paid because we could not, you know, manage our finances properly and now when it comes to community members, that's where you speak of infrastructure projects. For example, you will find that some projects are left incomplete when you ask... you are told that there was money set aside for this project, it was started at some point, just in the middle of construction, it was left there unattended. That on its own gives a negative message to members of the community because on regular basis or continuously or annually we want to plan forward and bring other new projects, but members of the community will want to go back and say, but how do we go forward? How do we bring new projects when there is project one, there is Project 2, there's Project 3. In fact, there are so 5 or so projects which are left incomplete, and there we're not told what it's happening, blah blah blah. All of those things. And that on

its own it's a vote of no confidence from members of the community to the municipality itself, so all we're saying is that systems must be put in place, control measures, and the monitoring tools be put in place on regular basis, we are able to monitor, we are able to check if indeed that which we said we are going to do it's indeed being done. And then we also have, want to those that are looking at us, members of the community and even the other oversight structures where we are, we are supposed to report to so that for me it's a sign of a poor financial management (Participant 3).

Participant 3 describes poor financial accountability in a municipality as a systemic issue affecting officials and the community. The absence of effective financial management systems and controls leads to unchecked expenditures, resulting in incomplete projects and infrastructure. This lack of transparency erodes community trust, hindering future planning and project development. The participant emphasizes the need for robust monitoring tools, controls, and regular checks to ensure adherence to planned financial processes, restore confidence, and foster effective financial management within the municipality.

... Our understanding in relation to poor financial accountability in the municipality, it's when we are not prudent on how we utilise municipal funds. For an example..., maybe that tender it should be around 2 million and we end up recruiting for around 4 million. That in itself is poor financial accountability and on the reporting part of it, if we don't report accurately and as and when the report is due, those are some of the issues which constitute poor financial accountability because we cannot justify to some extent in terms of how did we then expand on a particular activity in relation to that... (Participant 4)

Participant 4 defines poor financial accountability in a municipality as imprudent use of funds, citing instances like overspending on tenders. Inaccurate and delayed reporting further contributes to the issue, as it hampers the ability to justify expenditures. The participant highlights the importance of accurate reporting and financial discipline to avoid instances of poor financial accountability within the municipality.

4.3.5 Role of procurement or supply chain in poor financial accountability in a municipality

Participants were questioned about their insights into the role of procurement or supply chain in contributing to poor financial accountability within a municipality. Using a word cloud, the researcher strived to encapsulate evolving concepts, revealing a tapestry of terms like "quality," "accountability," "system," "price," "management,"

ideally the idea we have right now of SCM unit is they want to serve their people so they can also benefit, so they're not. They're not awarding as they should be and awarding in a fair manner that allows for services to actually be delivered (Participant 1).

Participant 6 indicates that poor financial accountability in a municipality, especially in the context of irregular expenditure, can be attributed to Supply Chain Management (SCM) issues. This may stem from a failure to adhere to SCM regulations or other relevant legislation. Meanwhile, Participant 1 highlights corruption and fraud within the SCM unit as key contributors to ineffective use of funds. The concern is that money intended for public benefit is misappropriated for personal gain. The participants collectively emphasize the critical role of SCM in financial accountability, stressing the importance of transparent, fair, and compliant procurement processes to curb irregularities and ensure funds are utilized efficiently for the betterment of the community.

4.3.6 Service Provider Expertise: Municipal Preferences

The researcher sought participants' opinions on whether a municipality should exclusively engage with experienced service providers or open its business to every interested service provider and requested elaboration on their perspectives. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like "quality," "experience," "diversity," "expertise," "time," "service," and more, vividly illustrated in Figure 4.6. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

Participant 11 advocates for municipalities to engage with emerging service providers, emphasizing the importance of contributing to local economic development. The participant suggests that supporting upcoming businesses within the municipality's boundaries can uplift the community and benefit the country.

On the contrary, Participant 9 argues in favour of engaging only with suitably qualified and experienced service providers. The emphasis is on achieving effective service delivery, with the belief that experienced providers bring the necessary expertise for the job. This perspective prioritizes quality and efficiency, asserting that mere interest is insufficient without the required experience.

Participant 10 aligns with Participant 9 by advocating for municipalities to work exclusively with experienced service providers. The focus is on building durable infrastructure that can withstand the test of time. The participant draws attention to the potential longevity issues associated with projects completed by less experienced providers, using roads as an example.

These perspectives reflect a balance between promoting local economic development through engaging emerging service providers (Participant 11) and ensuring effective service delivery and long-lasting infrastructure by working with experienced providers (Participants 9 and 10). The challenge lies in finding a middle ground that fosters growth for emerging businesses while maintaining high standards of expertise and quality in service delivery.

4.3.7 Years of experience

Participants were asked to express their agreement or disagreement with the idea of municipalities conducting business exclusively with experienced service providers. If participants responded affirmatively, they were then prompted to specify the number of years of experience they deemed necessary and provide justification for their stance. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like "*stability*," "*experience*," "*competition*," "*principle*," "*opportunity*," "*service*," and more, vividly illustrated in Figure 4.7. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

Participants express varying views on the years of experience required for service providers to engage with a municipality. Participant 6 advocates for equal opportunities, suggesting that all service providers should be given a chance, provided they meet predetermined capability requirements. This viewpoint emphasizes fairness and inclusivity in municipal engagements.

In contrast, Participant 9 introduces a nuanced perspective, asserting that the requisite years of experience should be contingent on the project's complexity. For infrastructure development, particularly road construction, a service provider with a substantial track record (e.g., 10 years) is deemed necessary. This viewpoint underscores the importance of specific expertise for intricate projects.

Participant 10 proposes a baseline requirement of at least 5 years of experience in the field. This is justified by the belief that a person becomes an expert after dedicating a significant time (5 years or more) to a particular field. This perspective aligns with the idea that extended experience correlates with expertise.

These findings reveal a spectrum of opinions on the years of experience required. While Participant 6 emphasizes equal opportunities, Participants 9 and 10 assert the importance of experience, with Participant 9 tying it to project complexity and Participant 10 suggesting a general threshold of 5 years for expertise. Balancing these perspectives is crucial for municipalities to foster inclusivity while ensuring competency in service provision.

4.4 Technology for South African Accountability

4.4.1 Understanding of e-Procurement

The researcher asked participants to articulate their comprehension of e-Procurement, seeking their understanding and insights into the electronic procurement process. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"e-ordering," "e-service," "technology," "online," "transparency," "website,"* and more, vividly illustrated in Figure 4.8. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

procurement as using an automated system for sourcing goods and services, emphasizing the shift from traditional manual processes to digital platforms.

Participant 8 provides a more comprehensive view, highlighting the objectives of e-procurement. The participant sees it as a tool to promote fairness, equitability, transparency, competitiveness, and cost-effectiveness. Moreover, the emphasis on reducing human interaction and errors suggests a focus on enhancing efficiency and accuracy through automation.

Participant 3's interpretation underscores the practical aspects of e-procurement. The participant sees it as a transition from paperwork to electronic processes, emphasizing the elimination of manual documentation. The description of the electronic process, from clicking on a website to the electronic processing, highlights the streamlined and automated nature of e-procurement.

The participants collectively view e-procurement as an automated system for sourcing goods and services that goes beyond mere technology adoption. It is seen as a transformative tool aimed at improving fairness, transparency, efficiency, and reducing errors, with a practical shift from paperwork to electronic processes.

4.4.2 Streamlining Procurement: Workforce Optimization

The researcher inquired about participants' opinions regarding the reduction of human resources in the context of e-procurement. Specifically, participants were asked to suggest processes that, in their opinion, could be employed to decrease the number of human resources needed for administering procurement, with a focus on transitioning to a technology-driven platform. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"software," "e-service," "resource," "testing," "strategy," "need,"* and more, vividly illustrated in Figure 4.9. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

Participant 12 suggests a strategic approach to reduce the prices of goods by ceasing the outsourcing of consulting services. The participant advocates for empowering and skill transfer to municipal employees, indicating a shift toward in-house capabilities. This approach aligns with the idea that internal expertise can enhance efficiency and potentially lower costs.

Participant 14 emphasizes understanding the types of services rendered by the municipality and monitoring operations. This highlights the importance of a clear comprehension of the services provided and vigilant oversight to optimize the procurement process.

Participant 11 offers a technological solution, proposing the computerization of processes like pre-evaluation of tenders and bidders. The participant envisions a system capable of automatically eliminating non-qualifying bidders, streamlining the process, and ensuring efficiency. The system's ability to check mandatory compliance, including tax status and minimum bid requirements, reflects an emphasis on precision and adherence to regulations.

Collectively, the participants underscore a combination of strategic, operational, and technological approaches to reduce human resources and transition to a technology-driven procurement platform. This involves internal capacity building, a clear understanding of services, and the implementation of automated systems for more efficient and compliant procurement processes.

4.4.3 e-Procurement: Competitive Factors

Participants were asked to express their opinions on the competitive factors that should be considered when services are sourced through e-Procurement. The researcher sought insights into the indicators, factors, or variables that participants believed companies should compete on to be included in the e-procurement database of suppliers in a local municipality. Examples, such as price, quality of service, and quick turnaround times, were provided as reference points for participants to consider. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"delivery," "time," "service," "value," "supplier," "performance,"* and more, vividly illustrated in Figure 4.10. The objective was to distil these concepts

Criteria, Project Team, Pre Evaluation Criteria such as Price ,B-BBEE, BBBEE level (Participant 11)

...The issue around turnaround time for me comes first. Because like I've indicated in my earlier example with the E procurement, you know that you punch in the information within a wink of an eye we will get the service but at the same time the issue around the price, I think we'll remember that when it comes to price, we earlier spoke about those categories, to say in order for us to allow the new contractors, at least there must be a threshold so that they as well get the steak. But for the quality like I said, the quality of work comes first. And then the issue around the pricing, yes, that that is also given because for those that will price less as per the available pieces, I mean legislative provisions will go for them, but at the same time we emphasise on the quality of service, yeah (Participant 3)

Participants highlight key competitive factors to consider when sourcing services through e-Procurement. Participant 6 outlines various criteria, emphasizing price, quality, turnaround time, financial viability, experience, and ownership. This comprehensive approach ensures a balanced consideration of cost, durability, efficiency, financial sustainability, expertise, and empowerment of black-owned service providers.

Participant 11 reinforces the need for a flexible e-Procurement system, suggesting criteria based on specific needs. This includes functionality, project experience, implementation criteria, project team, and pre-evaluation criteria such as price and B-BBEE level. The participant advocates for adaptability, allowing the system to accommodate diverse requirements based on the nature of the procurement/service needs.

Participant 3 prioritizes turnaround time as crucial, given the efficiency of e-Procurement. Price is also emphasized, with a threshold to support new contractors. However, the participant underscores that quality of work takes precedence. This nuanced perspective aligns with the idea that while cost considerations are vital, ensuring high-quality services remains a top priority in procurement decisions.

These findings collectively stress a multi-faceted approach to competitive factors in e-Procurement, encompassing cost-effectiveness, quality, efficiency, financial viability, experience, and empowerment of diverse service providers. This ensures a holistic and adaptable system that considers specific needs and legislative provisions.

The researcher then sought to understand the context in which this text was used, and this is illustrated by extracts from the participants. For example, participants 5, 14 and 1 had this to say:

... for me then and us setting the price, we're not necessarily saying that we don't want people to get discounts. We're saying that as a municipality, this is how much we're willing to pay. This is how much we budgeted, that's how much we're willing to pay for the project. The who gets what, at what amount is not necessarily a factor. We've used the average prices of goods. And should you acquire those goods at a lower price then...it benefits you, but we're looking at how much are we willing to spend on this project based on just average prices, not necessarily taking into account that you might get discounts or you might be charged because even if you are a supplier and you're charged higher, you can't be charged higher than the average price of the material (Participant 1).

I think is to order or buy goods in bulk and to get more quotations so that you could compare prices. The other strategy is to have good relationship with your service provider (Participant 14).

Automate and streamline procurement process. Provide clear guidelines with samples on goods and services required. Design successful promotions. Use one click price comparison (Participant 5).

Participant 1 emphasizes a strategic approach to reducing prices of goods and services through e-procurement. The municipality sets a predetermined budget based on average prices, ensuring transparency and financial prudence. The participant clarifies that the municipality's willingness to pay is fixed, encouraging suppliers to compete based on the average prices. This approach aligns with cost-effective budgeting while leaving room for suppliers to benefit if they acquire goods at lower prices.

Participant 14 suggests a multifaceted strategy involving bulk orders, obtaining multiple quotations for price comparison, and cultivating good relationships with service providers. These tactics aim to leverage economies of scale, enhance price competitiveness, and foster collaborative partnerships, contributing to overall cost reduction.

Participant 5 underscores the importance of automating and streamlining the procurement process through e-procurement. Clear guidelines, sample references, promotional strategies, and one-click price comparisons are recommended to enhance efficiency. This technologically driven approach aims to simplify the procurement process, facilitate better decision-making, and drive down costs.

Here, the findings reveal a combination of budget-based approaches, relationship-building, and technological solutions as strategies for reducing prices of goods and services through e-procurement. These approaches collectively promote financial discipline, competition, and efficiency in the procurement process.

4.5 Elements of the e-procurement suitable for South African municipalities

4.5.1 "E-Procurement Communication: Best Practices"

Participants were asked to share their opinions on the most effective way or process for a municipality to communicate its requests for goods and services to potential service providers during the implementation of e-procurement. The researcher sought insights into participants' preferences and perspectives regarding communication methods in the context of electronic procurement processes. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"portal," "website," "bid conferences," "e-proposal," "video," "advertising,"* and more, vividly illustrated in Figure 4.12. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

to reach potential service providers. This emphasizes the importance of digital channels in modern communication.

Participant 12 goes a step further by recommending a complete shift to online processes, starting from project specification to evaluation and adjudication. The participant highlights the drawbacks of traditional tendering systems and emphasizes the need for an online-only approach to minimize corruption risks.

Participant 11 proposes a phased approach, introducing the new e-procurement process during public participation and issuing adverts before the implementation date. This suggests a combination of proactive communication and public engagement to ensure a smooth transition to the new system.

The participants collectively emphasize the significance of online platforms for communication, with variations in the degree of transition from traditional systems to fully embracing e-procurement processes.

4.5.2 Fair Tech-Based Bid Evaluation

The researcher inquired about participants' opinions on addressing the challenges associated with traditional tender evaluation methods, citing the loss of key documents in submitted tender packs leading to citizens losing confidence. Participants were asked to provide their insights on what they believed to be a fair process for evaluating bids, quotations, or proposals within an e-procurement platform, especially in situations where decisions are made using technology platforms. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like "*e-process*," "*compliance*," "*transparency*," "*information*," "*technology*," "*trail*," and more, vividly illustrated in Figure 4.13. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

.... for me it would be to live in digital trail of how things were done. A digital trail that anybody can be able to access and see where two apples were compared and the red one was chosen as opposed to the green one, and the reasons that made this one stand out... (Participant 2).

Participants offer insights into fair processes for evaluating bids, quotations, or proposals in e-procurement platforms, with an emphasis on technology-driven decision-making. Participant 5 outlines a conventional approach, suggesting examination of formal qualifications, evaluation of technical compliance, pricing assessment, and ultimately awarding the deserving bidder. This method reflects traditional but fundamental criteria for fair evaluation.

Participant 10 introduces the idea of using Artificial Intelligence (AI) for bid evaluation in e-procurement. AI could potentially automate and enhance the evaluation process, ensuring efficiency and objectivity in decision-making.

Participant 1 underscores the importance of securing the integrity of the electronic system, emphasizing that it should be resistant to manipulation. The participant advocates for restricted access to bid documents once submitted, ensuring transparency, and preventing unauthorized alterations.

Participant 2 highlights the significance of a digital trail for transparency, allowing anyone to access and understand the evaluation process. This digital trail would provide a clear record of comparisons, selections, and the rationale behind decisions, promoting accountability and openness.

The participants collectively advocate for a fair and transparent e-procurement evaluation process. While some emphasize traditional criteria, others explore the potential of AI, and all underscore the importance of maintaining a secure and accessible digital trail for accountability and transparency.

4.5.3 Bid Success: Key Factors

The researcher asked participants to share their perspectives on the key deciding factors that, in their opinion, contribute to a service provider being deemed successful in their bid. Participants were prompted to express their thoughts on the criteria or

Yeah, I think here we can take into account the price, the quality of the material, the turnaround time because in most cases also the past experiences. Also communicate with the people that we've done projects for, because in most cases you find that bidders are hired with the lowest price and somewhere along the line they decide to know we can't finish this project at this price. And then you've got all these variation orders. So rather look at the track record of the person as well. What has the response from the community been for previous projects that they've completed and how long does it actually take them to complete the project for the projects that have completed? ...were they able to then stick to the budget that they were allocated or did they deviate somewhere along the way?(Participant 1).

Participants highlight key deciding factors for a service provider to be deemed successful in their bid. Participant 8 emphasizes compliance with the normal procurement process and adherence to tender specifications, highlighting the importance of procedural integrity and alignment with project requirements.

Participant 14 focuses on practical considerations, stressing the significance of cost-effectiveness and the service provider's ability to meet deadlines. This underscores the essential elements of financial efficiency and timely project completion. On the other hand, participant 1 introduces a multifaceted perspective, considering price, material quality, turnaround time, past experiences, and community feedback. The participant emphasizes the importance of evaluating the bidder's track record, including their ability to adhere to budgets and complete projects within the allocated time. This holistic approach aims to ensure that the successful service provider not only offers a competitive price but also demonstrates consistent quality, reliability, and community satisfaction.

The findings collectively underscore the importance of a balanced assessment, encompassing procedural compliance, cost-effectiveness, adherence to deadlines, and a thorough evaluation of the service provider's past experiences and community impact. This holistic perspective aims to ensure comprehensive and informed decision-making in the bid evaluation process.

4.5.4 Contract Negotiations: Tech or In-person

Participants were asked to provide their opinions on the preferred mode of conducting contract negotiations: in person or through technology. The researcher sought insights into participants' views on the most effective method for negotiating contracts and requested elaboration on their choice, encouraging them to provide detailed

benefits than the interests of the municipality. Quite often prices are inflated to enrich corrupt officials and Councillors at the expense of the community (Participant 7).

Contracts negotiations must be conducted through technology to avoid employees favouring certain service providers knowing that they will get kickbacks (Participant 10).

Participants strongly advocate for the use of technology in contract negotiations, highlighting the benefits of reliability, transparency, and prevention of corruption. Participant 6 underscores the value of technology in maintaining a reliable audit trail, emphasizing the importance of a comprehensive record of negotiation proceedings.

Participant 7 expresses concerns about the potential for corruption in face-to-face negotiations, arguing for technological solutions to record and monitor negotiations. The participant suggests that in-person negotiations may lead to inflated prices and favouritism, with the focus on personal benefits rather than the municipality's interests.

Participant 10 echoes these concerns, emphasizing the necessity of technology in negotiations to prevent favouritism and potential kickbacks to employees. The participant's view aligns with the notion that a technology-driven process can mitigate the risk of biased decision-making and corrupt practices.

The findings advocate for the use of technology in contract negotiations to ensure transparency, accountability, and the prevention of corruption. The shared concern is that face-to-face negotiations may be susceptible to unethical practices, and technological solutions offer a safeguard against such risks.

4.6 E-procurement Technology

4.6.1 Essential Tools in E-Procurement Technology

Participants were asked to share their opinions on the technology tools that they believe should be utilized in the context of e-procurement. The researcher sought insights into participants' perspectives on specific technology items and their intended applications within the e-procurement process. Participants were encouraged to provide details on the purpose and functionality of each technology tool they deemed essential. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like "e-auction," "internet," "e-bid," "technology," "transparency," "portal," and more, vividly illustrated in Figure 4.16. The objective was

The procurement, the technology tools will be, I think will e-mail will do. E-mail will do, the internet, a website. Yeah, those kind of platforms that for me. Are very relevant....(Participant 3).

Participants highlight various technology tools that are crucial in e-procurement processes. Participant 14 outlines several internet-based tools such as Electronic Data Interchange (EDI), XML-based data exchange, and email. Additionally, the internet is identified as a platform for various e-procurement functions, including sourcing, auctioning, tendering, ordering, and cataloguing. This emphasizes the diverse range of tools available to facilitate different stages of the procurement process.

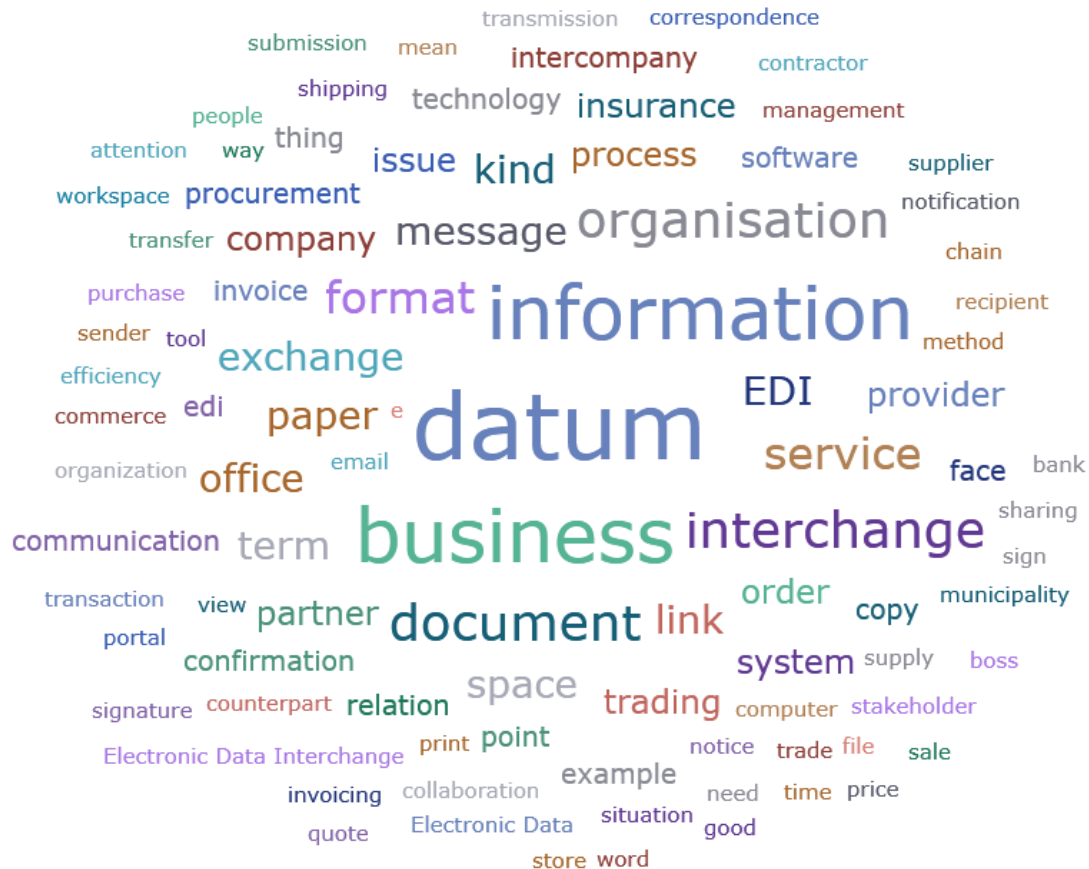
Participant 11 takes a flexible approach, stating that there is no exact tool but emphasizes the importance of configuring tools based on the institution's supply chain management process, aligned with relevant legislations and procurement guidelines. This viewpoint underscores the adaptability of technology tools to suit specific organizational requirements and legal frameworks. Similarly, participant 3 emphasizes the practicality of commonly used tools like email, the internet, and websites in the procurement process. The participant identifies these platforms as highly relevant for effective communication, information dissemination, and transaction facilitation.

The participants collectively stress the importance of various internet-based tools, emphasizing adaptability and alignment with legal frameworks. The highlighted tools, including EDI, XML-based data exchange, email, and internet platforms, contribute to the efficiency, transparency, and compliance of e-procurement processes.

4.6.2 Understanding Electronic Data Interchange (EDI)

The researcher asked participants to articulate their views or understanding of Electronic Data Interchange (EDI). This question aimed to gather insights into participants' perspectives on the concept and functionality of electronic data interchange within the context of the research. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"datum," "software," "exchange," "system," "space," "link,"* and more, vividly illustrated in Figure 4.17. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

Figure 4. 17: Concept for Understanding of EDI



The researcher then sought to understand the context in which this text was used, and this is illustrated by extracts from the participants. For example, participants 14, 1 and 3 had this to say:

... For me, it's...information that needs to be to be communicated between stakeholders. It be between the municipality, the service provider, or between the service providers themselves and the supplier, the service provider and the contractor... instead of driving from point A to point B, we can use technology to deliver those kind of messages. The same with E procurement when it was manual, we would expect the service provider to drive from point A to point next and to deliver that. So, we are now saying that you can do all these things while sitting in, in your office or within your comfortable space. So, it's about exchanging the information from where people are located (Participant 3).

It's the first time I hear of EDI (Participant 1).

Electronic data interchange it is a paperless trading which involves the transfer of data from one computer to another (Participant 14).

Participants provide diverse perspectives on Electronic Data Interchange (EDI). Participant 3 sees EDI as a means of efficient communication, enabling the exchange of information between various stakeholders in the procurement process. The participant emphasizes the shift from manual processes, where physical movement was required, to the convenience of transmitting messages electronically, enhancing efficiency and reducing the need for travel. Similarly, participant 14 succinctly defines EDI as paperless trading, emphasizing the transfer of data between computers. This interpretation captures the essence of EDI as a technology that enables seamless and electronic exchange of business information.

On the contrary, participant 1 expresses unfamiliarity with EDI, indicating that it might be a relatively new or unfamiliar concept to them. This highlights the varied levels of awareness and understanding among participants regarding technological tools like EDI.

Hence, participants' understanding of EDI varies from viewing it as a transformative tool for efficient communication and paperless trading to encountering it for the first time, showcasing diverse levels of familiarity with this technology.

4.6.3 Security in E-Procurement Interactions

The researcher inquired about participants' thoughts regarding the security implications associated with the interconnectivity between municipal or government ICT systems and suppliers in the context of e-procurement. The question addressed concerns raised by scholars, suggesting potential risks such as compromised ICT security and vulnerability to attacks or nefarious activities. Participants were prompted to share their perspectives on the security considerations when municipal and service provider ICT systems interact through an e-procurement platform. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like "*hacking*," "*access*," "*authentication*," "*breach*," "*data encryption*," "*privacy*," and more, vividly illustrated in Figure 4.18. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

Figure 4. 18: Concept of Security



The researcher then sought to understand the context in which this text was used, and this is illustrated by extracts from the participants. For example, participants 5 and 7 had this to say:

Security solutions should include antivirus, firewalls, authentication, back up, recovery and monitoring software and hardware (Participant 5).

Have a back-up of data on continues basis. Educate all officials to use strong passwords and have a multi-factor authentication. Do ICT risk assessment on a short interval. Install and update anti-virus and malware protection (Participant 7).

The participants draw attention to the crucial aspects of ensuring the security of Information and Communication Technology (ICT) systems, particularly in the context of interactions between a municipality and its service provider through an e-procurement system. Participants 5 and 7 highlight key security measures necessary for robust protection. For instance, antivirus and firewall solutions are mentioned as fundamental components of security, acting as the first line of defence against

malicious software and unauthorized access. The emphasis on authentication, strong passwords, and multi-factor authentication underscores the importance of controlling access to sensitive information.

The recommendation to have a continuous backup of data is vital for mitigating data loss risks. Regular ICT risk assessments are advised, indicating a proactive approach to identifying and addressing potential vulnerabilities. The call to install and update antivirus and malware protection underlines the dynamic nature of cybersecurity threats, requiring constant vigilance and adaptation.

These findings underscore the need for a comprehensive security strategy that combines technical solutions (antivirus, firewalls) with user-centric practices (strong passwords, education) and proactive measures (backup, risk assessment, updates). This multi-faceted approach is essential for safeguarding the integrity, confidentiality, and availability of ICT systems in the municipality-service provider interaction within an e-procurement framework.

4.6.4 Ensuring E-Procurement Availability: Considerations and Choices

Participants were asked to provide insights into the challenges related to the continuous availability and accessibility of an e-procurement platform, particularly in the context of existing electricity challenges. The question aimed to gather participants' opinions on factors that municipalities should consider ensuring high availability. Additionally, participants were asked to express their views on the choice between cloud-based and on-premises solutions in addressing these availability challenges. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"outage," "power," "generator," "electricity," "availability," "backup,"* and more, vividly illustrated in Figure 4.19. The objective was to distil these concepts and visually depict the textual patterns used by participants, providing a comprehensive insight into their perspectives.

harm. Uh, sometimes. Uh. One may be able to manipulate it so somehow, so physically. So, for me, I think the cloud is the way to go as far as ICT is concerned and including the procurement (Participant 4).

Participants address challenges related to the continuous availability and accessibility of e-procurement platforms, particularly in the context of electricity challenges. Participant 1 suggests investing in backup generators and exploring alternative electricity sources like solar or wind power, especially in areas prone to electricity shortages. This approach aims to ensure a reliable power supply for uninterrupted e-procurement operations. Similarly, participant 12 echoes the idea of standby generators and introduces the concept of solar panels as a solution to power outages. The participant emphasizes proactive measures that municipalities can take to mitigate the impact of electricity challenges on e-procurement accessibility.

Participant 4 introduces a different dimension, highlighting the importance of building strong security measures around IT infrastructure to ensure accessibility. The participant acknowledges the vulnerability of cloud-based systems but emphasizes the need for robust security protocols. The cloud is identified as a key component for ICT and procurement, suggesting that despite its vulnerabilities, it remains a crucial and preferred technology.

In summary, participants propose a multi-faceted approach, including investment in backup generators, alternative energy sources, and robust security measures, to address challenges related to continuous availability and accessibility of e-procurement platforms in the context of electricity limitations. These solutions aim to ensure reliability, resilience, and security in the e-procurement process.

4.6.5 E-Procurement and Municipal Accountability

The researcher asked participants to share their opinions on the potential of e-Procurement in enhancing accountability for how municipal financial resources are utilized. This question sought participants' perspectives on the role of e-Procurement as a tool for increasing transparency and accountability in the management of municipal financial resources. The researcher used a word cloud, to encapsulate evolving concepts, revealing a tapestry of terms like *"resource," "management," "accountability," "datum," "transparency," "audit,"* and more, vividly illustrated in Figure

I think if procurement can really assist municipalities... there are ways in which if this is programmed thoroughly, we should be able to minimise the filming of information, from any kind of employees and so forth. So, for me, I think if E procurement it's done or it's given to a lot of departments, it will really play a major, major, major role in terms of improving the financial management within the municipalities and some time it will drastically reduce the issues of irregular expenditures, which is a big bed and countrywide as far as municipal finance are concerned. So for me, I think procurement, it can be the future as far as this is concerned and something that we really need to look into in terms of improving our procurement processes...(Participant 4).

Participants express a consensus that e-Procurement can significantly contribute to increasing accountability in how municipal financial resources are utilized. Participant 12 identifies a current bias in tender allocation within municipalities and sees e-Procurement to eliminate human interference, fostering a more transparent and fair process. In this vein, participant 11 emphasizes the audit trail provided by e-Procurement, which can identify the individuals involved in the procurement process through IP addresses. This accountability measure allows municipalities to pinpoint any irregularities or identify responsible parties, promoting transparency and accountability. Similarly, participant 4 believes that thorough programming of e-Procurement can minimize information tampering and enhance financial management within municipalities. The participant highlights the potential role of e-Procurement in reducing irregular expenditures, a common issue in municipal finances.

In summary, participants collectively view e-Procurement as a transformative tool capable of addressing biases, providing an audit trail for accountability, and improving financial management within municipalities. The consensus is that e-Procurement has the potential to contribute significantly to transparency and accountability in municipal financial resource utilization.

4.7 Summary of Chapter 4

The findings highlight a nuanced perspective on balancing local economic development with effective service delivery in e-procurement. Participants stress the challenge of finding a middle ground between engaging emerging service providers for growth and ensuring quality through experienced providers. There is a varied opinion on the importance of years of experience, with some emphasizing equal

opportunities and others linking it to project complexity or suggesting a threshold of 5 years. E-procurement is seen as transformative, improving fairness, transparency, efficiency, and reducing errors. The approach involves strategic, operational, and technological changes to shift from paperwork to electronic processes. The focus is on competitive factors such as cost-effectiveness, quality, efficiency, financial viability, experience, and empowerment. Strategies for reducing prices include budget-based approaches, relationship-building, and technological solutions.

Online platforms are emphasized for communication, and a fair and transparent evaluation process is advocated, considering procedural compliance, cost-effectiveness, adherence to deadlines, and the provider's past experiences. Technology is proposed for transparent contract negotiations, addressing concerns about unethical practices. The importance of a comprehensive security strategy in ICT systems is highlighted, combining technical solutions, user-centric practices, and proactive measures. Lastly, participants recommend a multi-faceted approach to address challenges in the continuous availability and accessibility of e-procurement platforms, involving backup generators, alternative energy sources, and robust security measures. Overall, participants view e-procurement as transformative and vital for transparency, accountability, and efficiency in municipal processes.

CHAPTER 5: DISCUSSION

5.1 Introduction

In the landscape of South African municipalities, the imperative for financial accountability and the adoption of innovative solutions has become increasingly evident. This chapter delves into the findings of a comprehensive study aimed at unravelling the intricacies of financial unaccountability in South African municipalities. The investigation encompasses multifaceted dimensions, with a specific focus on leveraging Information Communication Technology (ICT) to address existing challenges.

The first facet of our exploration examines the extent of financial unaccountability within South African municipalities. By scrutinizing fiscal practices, governance structures, and adherence to regulatory frameworks, we seek to illuminate the underlying factors contributing to lapses in financial accountability.

Moving forward, our inquiry extends to the potential of ICT as a transformative tool to rectify poor financial accountability. We investigate how technological interventions can enhance transparency, streamline financial processes, and fortify accountability mechanisms within the intricate fabric of municipal governance.

A significant portion of our study is dedicated to unravelling the design elements of an e-procurement framework tailored to the unique context of South African municipalities. We critically examine the intricacies of such frameworks, considering local needs, regulatory landscapes, and technological infrastructures.

Lastly, we navigate the realm of e-procurement success factors, specifically tailored to the South African context. By identifying and analysing critical success factors, we aim to provide insights that can guide municipalities in optimizing their e-procurement initiatives.

This chapter serves as a comprehensive exploration into the intricate dynamics of financial accountability, ICT intervention, e-procurement framework design, and success factors, contributing valuable insights for policymakers, practitioners, and scholars engaged in the advancement of municipal governance in South Africa.

5.2 Municipal Management and Financial Accountability

The literature on Municipal Management and Financial Accountability in South Africa reflects a complex landscape shaped by historical, political, and socio-economic factors (Jeeva & Cilliers, 2021). Researchers highlight the challenges faced by municipalities in achieving effective governance and financial transparency (Masegare & Ngoepe, 2018; Ginzarly, Houbart & Teller, 2019). Of concern is that issues such as corruption, mismanagement, and lack of capacity have been recurrent themes. Scholars argue that historical inequalities and the legacy of apartheid contribute to disparities in municipal performance, with some regions facing more significant hurdles than others (Turok, 2018; Kaywood, 2021).

Financial accountability is a central concern, with studies exploring the impact of budgetary constraints, revenue collection inefficiencies, and irregular expenditures on municipal operations (Masiya, Davids & Mangai, 2021). Previous studies also discuss the role of legislation and regulatory frameworks, such as the Municipal Finance Management Act, in shaping financial practices (Brunette, Klaaren, & Nqaba, 2019). Hence, there is an emphasis on the need for enhanced oversight mechanisms and institutional capacity building to strengthen financial accountability.

Additionally, the literature addresses citizen engagement and the role of communities in holding municipalities accountable (Bvuma & Joseph, 2019; Ricker, Cinnamon & Dierwechter, 2020). There is recognition of the importance of transparency, public participation, and civic education in fostering accountability. However, there are still concerns about challenges related to civic awareness and the effective implementation of participatory mechanisms (Biljohn & Lues, 2020).

5.2.1 Profile of a well-run municipality

Participants were surveyed to define the characteristics of a well-run municipality. Participant 6 emphasizes key elements, identifying effective leadership as crucial for strategic decision-making and guidance. Sound financial management is highlighted for stability, community participation is championed for prosperity, sustainable service delivery is crucial for balancing present needs with long-term impacts, and effective governance is paramount for transparency and adaptability. This holistic profile envisions a resilient and participatory community. Participant 7 envisions a service-

oriented municipality prioritizing community needs, emphasizing engagement, financial sustainability, proactiveness, safety, and transparent fund utilization. Structural alignment with the municipality's vision and a culture of public service are crucial for development and community trust. Participant 2 simplifies the criteria, stating that a well-run municipality is one that ensures resident satisfaction with services, emphasizing the importance of responsiveness and quality service delivery in gauging success.

The findings align with the literature on Municipal Management and Financial Accountability in South Africa (Masegare & Ngoepe, 2018; Ginzarly, Houbart & Teller, 2019). Consistent with the literature, participants collectively emphasise effective leadership, sound financial management, community participation, sustainable service delivery, and transparent governance as crucial elements for a well-run municipality (Bvuma & Joseph, 2019; Ricker, Cinnamon & Dierwechter, 2020).

5.2.2 Poor financial accountability in a municipality

Participants 5 and 8 highlight residents' deep-seated apprehensions about municipal financial management, revealing a pervasive lack of trust. Participant 5 underscores the urgency for transparent and accountable financial practices, essential for rebuilding resident confidence amidst concerns about corruption, nepotism, and increased rates. Participant 8 expands the discussion to service delivery inefficiencies in South Africa, emphasizing the need for improved financial management to optimize resource allocation and outcomes. However, the analysis falls short of probing deeper into the systemic roots and underlying causes of these issues. Participant 9 adds complexity with concerns about expertise, debt collection, corruption, and community consultation. While calling for skill enhancement and transparency, the analysis lacks a thorough exploration of systemic factors contributing to these multifaceted challenges. A more critical examination of root causes would enhance the analysis, providing a comprehensive understanding essential for effective reforms in municipal financial management. The finding is consistent with the literature on Municipal Management and Financial Accountability in South Africa, highlighting widespread resident mistrust due to concerns about corruption and inefficiencies (Mavidis & Folinas, 2022).

5.2.3 Concerns regarding municipal financial management

Participant 5 and Participant 8 shed light on residents' significant concerns about municipal financial management. Participant 5 identifies issues such as corruption, nepotism, mismanagement of public funds, increased rates, and political interference, highlighting a pervasive lack of trust in financial practices. These concerns underscore the imperative for transparent and accountable financial management to rebuild resident confidence. Participant 8, focusing on service delivery inefficiencies in South Africa, points to a broader problem of suboptimal resource allocation and outcomes. The emphasis is on the necessity for improved financial management practices to enhance service delivery, necessitating transparent, accountable, and strategic financial decisions.

Participant 9 delves into a broader range of concerns, including the lack of expertise, debt collection challenges, corruption, excessive leadership compensation, and poor community consultation. These issues collectively indicate a multifaceted problem in municipal financial management. The call for skill enhancement, transparent practices, and improved community engagement is evident. However, the analysis could benefit from a more critical examination of potential root causes and systemic issues contributing to these concerns, offering a more comprehensive understanding of the challenges faced in municipal financial management.

The findings are consistent with the literature on Municipal Management and Financial Accountability in South Africa, highlighting pervasive resident concerns about corruption, inefficiencies, and poor service delivery (Sánchez-Rodríguez *et al.*, 2020; Park & Moon, 2023). However, a more critical examination of root causes and systemic issues is needed for a comprehensive understanding.

5.3 Resident Profile and Engagement

The examination of resident profiles and engagement in South African municipalities offers valuable insights into prevalent concerns. Participants highlight deep-rooted apprehensions, emphasizing corruption, nepotism, and mismanagement. While acknowledging the importance of transparent financial practices and improved service delivery, the analysis falls short by not thoroughly exploring systemic issues, hindering

a comprehensive understanding essential for effective reforms in municipal management.

5.3.1 Characterisation or profile of residents of a municipality

Participant 9 underscores the critical role of a community profile in comprehending a municipality's residents, emphasizing its utility in project decision-making. By addressing community issues, attitudes, and socio-economic conditions, the profile becomes a tool for informed decision-making and impact assessment. This approach reflects a nuanced understanding of residents, enabling municipalities to align development projects with community dynamics. However, the analysis lacks depth in discussing potential drawbacks or challenges associated with relying solely on community profiles for decision-making.

Participant 13 highlights the importance of demographic factors in characterizing municipality residents, providing a comprehensive view of their diversity and socio-economic status. This insight allows for tailored policies and services to meet residents' unique needs. While the emphasis on demographic profiling is valuable, the analysis could benefit from discussing potential limitations or ethical considerations associated with using demographic data, such as privacy concerns or the risk of perpetuating stereotypes. A more critical examination of these aspects would enhance the analysis and provide a well-rounded perspective on the use of demographic information in municipal governance.

5.3.2 Service Provider Expertise: Municipal Preferences

Participants 11, 9, and 10 present differing perspectives on whether a municipality should engage exclusively with experienced service providers or open its business to every interested provider. Participant 11 advocates for supporting emerging service providers to contribute to local economic development. In contrast, Participants 9 and 10 emphasize the importance of engaging experienced providers for effective service delivery and the construction of durable infrastructure. However, this finding is consistent with the findings of Mpehle & Mudogwa (2020), when they focused on the utilisation of digital central supplier database in enabling electronic procurement in the Limpopo provincial departments.

This analysis highlights a nuanced challenge faced by municipalities – balancing the promotion of local economic growth (Participant 11) with the need for expertise and quality in service delivery (Participants 9 and 10). Striking a balance between supporting emerging businesses and ensuring high standards is crucial. The perspectives collectively underscore the complexity of decision-making in municipal engagements, where considerations of economic development and service quality must be carefully weighed to achieve optimal outcomes.

5.3.3 Years of experience

Participants present diverse perspectives on the requisite years of experience for service providers engaging with municipalities. Participant 6 advocates for equal opportunities, emphasizing predetermined capability requirements. This stance underscores fairness and inclusivity in municipal engagements. In contrast, Participant 9 introduces a nuanced view, tying experience to project complexity, particularly in infrastructure development. For intricate projects like road construction, a substantial track record (e.g., 10 years) is deemed necessary, highlighting the importance of specific expertise. Participant 10 proposes a baseline of at least 5 years, aligning experience with expertise. Balancing these opinions is vital for municipalities, requiring inclusivity while ensuring competency in service provision. The range of perspectives reflects the complexity of determining the appropriate criteria for engaging service providers in municipal projects.

5.4 E-Procurement and Technology

As depicted in chapter 2, the literature on e-procurement and technology reveals a dynamic landscape marked by transformative potential and challenges (Qian *et al.*, 2018; Park & Moon, 2023). Scholars extensively explore the advantages of e-procurement, emphasizing efficiency gains, cost savings, and increased transparency (Abdullahi *et al.*, 2022; Park & Moon, 2023). The integration of technology in procurement processes is seen as a catalyst for improved decision-making, streamlined workflows, and enhanced collaboration between stakeholders. Researchers also highlight the role of e-procurement in reducing human resource requirements, allowing organizations to focus on strategic aspects (Afolabi *et al.*, 2022).

However, there are also concerns centre around the security of e-procurement platforms, with discussions on the vulnerability to cyber threats and the need for robust encryption and authentication measures (Saxena *et al.*, 2018; Sołtysińska, 2022). Interoperability and standardization issues are also raised, as different technologies may hinder seamless integration across diverse systems.

Moreover, the literature emphasizes the importance of fair competition and ethical considerations in e-procurement (Mavidis & Folinas, 2022). Questions are posed regarding the criteria for vendor selection and the potential impact on local businesses. Scholars stress the need for transparent evaluation processes to mitigate biases and ensure a level playing field (Mavidis & Folinas, 2022; Sołtysińska, 2022). Within this context, the literature underscores the transformative potential of e-procurement and technology while cautioning against potential pitfalls, urging careful consideration of security, ethical, and interoperability aspects to harness the full benefits of these advancements.

5.4.1 Understanding of e-Procurement

Participants' perspectives on e-procurement collectively offer a comprehensive understanding, highlighting both its technological and efficiency aspects. Participant 6 succinctly emphasizes the shift from manual to digital processes, capturing the essence of automation. Participant 8 expands on this, presenting e-procurement as a tool with objectives to enhance fairness, transparency, competitiveness, and cost-effectiveness while minimizing human errors. This underscores the system's potential for transformative impact. Participant 3 contributes a practical dimension, emphasizing the elimination of paperwork through electronic processes. Together, these findings depict e-procurement not merely as a technological adoption but as a holistic and transformative tool aimed at improving overall procurement efficiency and effectiveness. The diverse viewpoints enrich the researcher's understanding of participants' perceptions.

These findings are consistent with the literature on E-Procurement and Technology (Abdullahi *et al.*, 2022; Park & Moon, 2023), in that they provide a comprehensive perspective, emphasizing the shift from manual to digital processes, the transformative impact of automation, and the tool's objectives to enhance fairness, transparency, competitiveness, and cost-effectiveness. The findings highlight e-procurement as a

holistic and transformative tool for improving procurement efficiency, as has been depicted in the literature (Saxena *et al.*, 2018; Sołtysińska, 2022).

5.4.2 Streamlining Procurement: Workforce Optimization

Participants offer diverse strategies for reducing human resources in the context of e-procurement, aligning with strategic, operational, and technological approaches. Participant 12 advocates for a strategic shift by ceasing the outsourcing of consulting services, emphasizing the empowerment and skill transfer to municipal employees. This aligns with the idea that internal expertise can enhance efficiency and potentially lower costs. Participant 14 emphasizes the importance of understanding the types of services provided and monitoring operations, contributing to operational optimization. Participant 11 proposes a technological solution by suggesting the computerization of processes like pre-evaluation of tenders, focusing on efficiency, precision, and compliance. Together, these suggestions highlight a holistic approach that combines strategic management, operational understanding, and technological advancements to achieve a streamlined and technology-driven procurement process.

These findings are consistent with the literature in proposing strategies for reducing human resources in e-procurement align with strategic, operational, and technological approaches (Abdullahi *et al.*, 2022; Park & Moon, 2023). Advocating a strategic shift, emphasizing internal expertise, operational optimization, and proposing technological solutions, these findings suggest a holistic approach for a streamlined and technology-driven procurement process, as has been documented in the literature (Qian *et al.*, 2018; Park & Moon, 2023).

5.4.3 E-Procurement: Competitive Factors

Participants articulate diverse perspectives on competitive factors in e-Procurement. Participant 6 adopts a comprehensive approach, emphasizing price, quality, turnaround time, financial viability, experience, and ownership. This ensures a balanced consideration of cost, durability, efficiency, financial sustainability, expertise, and empowerment of black-owned service providers. Participant 11 advocates for a flexible e-Procurement system, suggesting criteria based on specific needs like functionality, project experience, and pre-evaluation criteria. This approach allows adaptability to diverse procurement/service needs. Participant 3 prioritizes turnaround

time and price but underscores that quality takes precedence, aligning with the notion that high-quality services remain a top priority. These perspectives collectively advocate for a holistic, adaptable, and nuanced approach to competitive factors in e-Procurement.

More importantly, these diverse views on competitive factors in e-Procurement, such as comprehensive considerations by Participant 6 and flexible criteria proposed by Participant 11, align with literature advocating for a holistic, adaptable, and nuanced approach (Chatterjee *et al.*, 2018). Further, participant 3's emphasis on quality supports established priorities in the literature (Bromberg & Manoharan, 2015; Kim, Suresh, Kocabasoglu-Hillmer, 2015).

5.4.4 Optimizing Costs: E-Procurement Strategies

Participants provide diverse strategies for municipalities to obtain lower prices from suppliers through e-procurement. Participant 1 advocates for a transparent and cost-effective budgeting approach, setting a fixed willingness to pay based on average prices. This encourages suppliers to compete within a predetermined range, promoting financial prudence while allowing for supplier benefits with lower acquisition costs.

Participant 14 proposes a multifaceted strategy, including bulk orders, multiple quotations, and building relationships with service providers. These tactics leverage economies of scale, enhance price competitiveness, and foster collaborative partnerships for overall cost reduction.

Participant 5 emphasizes technological solutions, advocating for automated procurement processes, clear guidelines, promotional strategies, and one-click price comparisons. This approach aims to simplify decision-making, drive efficiency, and reduce costs. Together, these findings suggest a nuanced combination of budgeting, relationship-building, and technological efficiency for municipalities to achieve lower prices through e-procurement.

These findings are consistent with the literature, as they echo established principles for achieving lower prices in e-procurement (Klapita, 2021). The strategies align with existing recommendations, emphasizing transparent budgeting, leveraging

economies of scale, and adopting technological solutions to enhance efficiency and reduce costs (Afolabi *et al.*, 2022; Mavidis & Folinas, 2022).

5.4.5 "E-Procurement Communication: Best Practices"

Participants offer varied strategies for municipalities to communicate requests for goods and services during e-procurement implementation. Participant 9 emphasizes the importance of online platforms, including websites, social media, and radios, recognizing the centrality of digital channels in modern communication. Participant 12 advocates for a complete shift to online processes, from project specification to evaluation, aiming to minimize corruption risks associated with traditional tendering systems. Participant 11 suggests a phased approach, introducing e-procurement during public participation and issuing adverts before implementation. These diverse perspectives collectively underscore the significance of leveraging digital communication tools while presenting differing levels of transition from traditional to fully online procurement processes.

These findings are consistent with literature advocating for diverse communication strategies in e-procurement (Vrbová *et al.*, 2018). Emphasizing digital platforms aligns with modern communication trends, while varied approaches to transitioning from traditional to online processes reflect the nuanced perspectives in the literature.

5.4.6 Fair Tech-Based Bid Evaluation

Participants' responses reflect a convergence on the need for fairness, transparency, and technological efficiency in e-procurement evaluation. Participant 5 underscores traditional yet essential criteria, including formal qualifications, technical compliance, and pricing, to determine the deserving bidder. Meanwhile, Participant 10 introduces the innovative idea of employing Artificial Intelligence, emphasizing its potential in automating the evaluation process for enhanced objectivity. Participant 1 emphasizes securing the integrity of the electronic system, restricting access to maintain transparency. Participant 2 emphasizes a digital trail for accountability, allowing stakeholders to trace and understand decision-making. These insights collectively advocate for a blend of tradition and technology to ensure a fair and trustworthy e-procurement evaluation process.

These findings are consistent with the literature, emphasizing a balance between traditional criteria and technological innovation for fair e-procurement evaluation (Dello & Yoshida, 2017; Chan & Owusu, 2022). The convergence on fairness, transparency, and technological efficiency aligns with established principles in the literature.

5.4.7 Bid Success: Key Factors

Participants offer diverse yet interconnected perspectives on the key factors contributing to a service provider's success in a bid. Participant 8 emphasizes procedural integrity, emphasizing the importance of compliance with the normal procurement process and alignment with tender specifications. This perspective underscores the significance of following established procedures and meeting project requirements. On the other hand, Participant 14 focuses on practical aspects, highlighting the crucial factors of cost-effectiveness and meeting deadlines. This emphasizes financial efficiency and timely project completion as essential elements of a successful bid. Meanwhile, participant 1 provides a comprehensive perspective, considering various factors such as price, material quality, turnaround time, past experiences, and community feedback. The emphasis on evaluating the bidder's track record, including budget adherence and community satisfaction, reflects a holistic approach to assessing success.

Together, these insights underscore the importance of a well-rounded evaluation, encompassing procedural adherence, cost-effectiveness, timely delivery, and a thorough examination of the service provider's history and community impact. This multifaceted perspective aims to ensure a comprehensive and informed decision-making process in bid evaluations.

These perspectives align with the literature, advocating for a comprehensive evaluation of service providers in bid processes (Rawashdeh & Al-namlah, 2017; Weigel *et al.*, 2017). Emphasising procedural integrity, cost-effectiveness, timely delivery, and community impact reflects a well-rounded approach, consistent with established principles as outlined by previous studies (Kim *et al.*, 2015; Madzimure, Mafini & Dhurup, 2020).

5.4.8 Contract Negotiations: Tech or In-person

Participants uniformly advocate for the adoption of technology in contract negotiations, emphasizing its advantages in maintaining transparency, accountability, and preventing corruption. Participant 6 highlights the importance of a reliable audit trail facilitated by technology, ensuring a comprehensive record of negotiation processes. This supports accountability and serves as a safeguard against potential disputes.

Participants 7 and 10 express concerns about the potential for corruption in face-to-face negotiations, emphasizing the need for technological solutions to record and monitor proceedings. The consensus is that in-person negotiations may lead to biased decision-making and personal benefits, whereas technology offers a more objective and controlled environment. The findings collectively endorse the use of technology in contract negotiations as a means to enhance fairness, transparency, and ethical practices.

These findings align with previous studies, as participants uniformly support technology adoption in contract negotiations for transparency and accountability (Mavidis & Folinas, 2022; Park & Moon, 2023). Concerns about corruption in face-to-face negotiations reinforce the consensus that technology fosters fairness, objectivity, and ethical practices (Mavidis & Folinas, 2022).

5.4.9 Essential Tools in E-Procurement Technology

Participants emphasize the importance of diverse technology tools in e-procurement processes. Participant 7 identifies internet-based tools such as Electronic Data Interchange (EDI), XML-based data exchange, and email, underscoring their roles in various e-procurement functions. This highlights the technological versatility available for different stages of procurement.

Participant 11 takes a flexible stance, advocating for the configuration of tools based on an institution's supply chain management process and relevant legislations. This reflects the adaptability of technology tools to suit specific organizational needs and legal frameworks. Meanwhile, participant 3 emphasizes the practicality of commonly used tools like email, the internet, and websites for effective communication,

information dissemination, and transaction facilitation. These tools are regarded as highly relevant in the procurement process.

Collectively, participants stress the importance of various internet-based tools, emphasizing adaptability and alignment with legal frameworks. The highlighted tools contribute to the efficiency, transparency, and compliance of e-procurement processes.

These findings align with the literature, emphasizing the diverse roles of technology tools in e-procurement (Masudin & Kamara, 2017; Rawashdeh & Al-namlah, 2017; Heckman, 2020). The recognition of internet-based tools, adaptability based on organizational needs, and the practicality of commonly used tools is consistent with established principles promoting efficiency, transparency, and compliance (Afolabi *et al.*, 2022; Sołtysińska, 2022).

5.5 Security and Availability of E-Procurement Platforms:

The literature surrounding the security and availability of e-procurement platforms underscores the critical importance of robust systems in the face of increasing cyber threats and the need for seamless accessibility (Al-Doori, 2019). Scholars have extensively explored the potential vulnerabilities arising from the integration of municipal or government ICT systems with suppliers (Al-Doori, 2019; Chen, *et al.*, 2022). Concerns have been raised about the compromise of ICT security, leading to the vulnerability of systems to cyber-attacks and malicious activities (Al-Doori, 2019; Sołtysińska, 2022). Researchers emphasize the need for stringent security measures, encryption protocols, and continuous monitoring to mitigate these risks (Sánchez-Rodríguez *et al.*, 2020). The concept of electronic data interchange (EDI) is discussed as a cornerstone of secure information exchange in e-procurement.

Furthermore, discussions delve into the potential impacts of interconnectivity on the confidentiality and integrity of sensitive data. Scholars argue for the adoption of best practices, such as secure data transmission protocols and authentication mechanisms, to safeguard against unauthorized access and data breaches (Sołtysińska, 2022). The literature also explores the dilemma of choosing between cloud-based and on-premises solutions, considering factors like reliability, data sovereignty, and resilience against electricity challenges. Within this context, the

literature advocates for a holistic approach that combines advanced security measures with strategic decisions regarding platform architecture to ensure the robust security and uninterrupted availability of e-procurement systems in municipal contexts.

5.5.1 Understanding Electronic Data Interchange (EDI)

Participants' understanding of Electronic Data Interchange (EDI) ranges from viewing it as a transformative tool for efficient communication and paperless trading to encountering it for the first time. Participant 3 sees EDI as a means of exchanging information efficiently between stakeholders in the procurement process, emphasizing the convenience of electronic communication over manual processes. Similarly, participant 14 succinctly defines EDI as paperless trading, highlighting its role in data transfer between computers. Conversely, participant 1 expresses unfamiliarity with EDI, indicating varying levels of awareness and understanding among participants regarding this technology. This diversity underscores the need for comprehensive education and training on e-procurement tools.

The findings are consistent with the literature, revealing a spectrum of perceptions on EDI—from transformative efficiency to unfamiliarity (Veselá, 2017; Vrbová *et al.*, 2018). Participant diversity underscores the necessity for widespread education, aligning with existing literature emphasizing the importance of comprehensive training on e-procurement tools for varied understanding levels.

5.5.2 Security in E-Procurement Interactions

Participants emphasize the importance of comprehensive security measures for Information and Communication Technology (ICT) systems in the context of e-procurement. Participants 5 and 7 advocate for antivirus, firewalls, authentication, backup, recovery, and monitoring tools to fortify the security infrastructure. The focus on strong passwords and multi-factor authentication reflects a user-centric approach, enhancing access controls. Continuous data backup is recommended to mitigate data loss risks, while regular ICT risk assessments ensure a proactive stance against vulnerabilities. The call for installing and updating antivirus and malware protection highlights the need for ongoing vigilance in the face of dynamic cybersecurity threats. This multi-faceted approach addresses both technical and user-related aspects, crucial for a secure e-procurement environment.

The finding aligns with existing literature, emphasizing the significance of robust security measures for ICT systems in e-procurement (Al-Doori, 2019; Sołtysińska, 2022). Participants' advocacy for comprehensive tools, user-centric strategies, and proactive risk assessments resonates with established recommendations for maintaining a secure e-procurement environment.

5.5.3 Ensuring E-Procurement Availability: Considerations and Choices

Participants propose diverse solutions for addressing challenges related to the continuous availability of e-procurement platforms amid electricity limitations. Participants 1 and 12 advocate for investing in backup generators and exploring alternative energy sources like solar or wind power, particularly in areas prone to electricity shortages. This proactive approach aims to provide a reliable power supply for uninterrupted e-procurement operations. In contrast, Participant 4 introduces the perspective of building strong security measures around IT infrastructure to ensure accessibility, acknowledging the vulnerabilities of cloud-based systems. Despite concerns, the cloud is identified as a crucial and preferred technology for ICT and procurement. Overall, participants suggest a combination of energy diversification and robust security protocols to enhance e-procurement platform availability.

The findings bring in new insights that are relevant to the South African context, that of limitations with electricity and power outages. This emerges as a challenge to e-procurement within the South African context. However, participants' suggestions of backup generators, alternative energy sources, and security measures align with established strategies for ensuring continuous availability, emphasizing the importance of both energy diversification and robust IT security protocols (Al-Doori, 2019).

5.6 Accountability and Impact on Municipal Financial Resources

Theories on accountability play a crucial role in shaping the dynamics of municipal financial resources. Principal-agent theory, emphasizing the relationship between elected officials (principals) and bureaucrats (agents), examines the mechanisms that ensure accountability in managing financial resources (Peters, 2018; Khaile, Davids, & Khaile, 2021). This theory suggests that clear lines of responsibility and effective

monitoring mechanisms can curb agency problems, fostering responsible financial stewardship (Han, 2020, Dwangu & Mahlangu, 2021).

In contrast, public choice theory contends that individuals, whether elected officials or bureaucrats, act in their self-interest (Tullock, 2019; Self, 2021). This theory implies that accountability mechanisms need to align with incentives to ensure optimal financial decision-making. Scholars argue that incorporating competition and market-like mechanisms in public services can enhance accountability, leading to efficient allocation of municipal financial resources (Benish, 2020; Rubalcaba & Peralta, 2023).

Additionally, institutional theory emphasizes the role of formal and informal rules in shaping behaviour (Kaufmann, Hooghiemstra, & Feeney, 2018; Peters, 2022). Municipal financial accountability is influenced by the institutional context, including legal frameworks, norms, and organizational cultures. The institutional perspective suggests that changes in accountability structures and norms can impact how financial resources are managed within municipalities. In this vein, the impact of accountability theories on municipal financial resources is multifaceted. Understanding these theories allows policymakers and researchers to design accountability mechanisms that align with the complex dynamics of municipal governance, ensuring responsible and efficient utilization of financial resources.

5.6.1 E-Procurement and Municipal Accountability

Participants converge on the belief that e-Procurement holds substantial potential to enhance accountability in municipal financial resource utilization. Participant 12 identifies biases in current tender allocations and envisions e-Procurement to eliminate human interference, fostering a fair and transparent process. Participant 11 emphasizes the audit trail provided by e-Procurement, using IP addresses to identify individuals involved and hold them accountable. Additionally, Participant 4 sees e-Procurement as a future-oriented solution, capable of minimizing information tampering, reducing irregular expenditures, and overall improving financial management in municipalities. This collective perspective underscores the transformative impact e-Procurement can have on transparency and accountability in municipal financial practices.

The findings are consistent with theories of accountability as participants highlight e-Procurement's potential to enhance transparency (Kaufmann, Hooghiemstra, & Feeney, 2018; Peters, 2022). The emphasis on eliminating biases, providing an audit trail, and minimizing tampering aligns with the notion that e-Procurement can transform financial practices, fostering accountability in municipal resource utilization (Peters, 2018; Khaile, Davids, & Khaile, 2021).

5.6.2 Role of procurement or supply chain in poor financial accountability in a municipality

Participants 6 and 1 offer insights into the role of procurement or supply chain in municipal financial accountability. Participant 6 attributes poor financial accountability, particularly irregular expenditure, to Supply Chain Management (SCM) issues arising from non-compliance with regulations. Participant 1 expands on this, pointing to corruption and fraud within the SCM unit as culprits for ineffective fund utilization. The critique is directed at the unit's failure to award contracts fairly, diverting funds from intended public benefits to personal gains. Collectively, the participants underscore the pivotal role of SCM in financial accountability, emphasizing the necessity of transparent, fair, and compliant procurement processes to mitigate irregularities and ensure funds are efficiently used for the community's welfare. The analysis effectively connects SCM practices with financial mismanagement while calling for ethical and accountable procurement practices.

The findings are consistent with theories of accountability, emphasizing the significant role of procurement and supply chain management in municipal financial accountability (Afolabi *et al.*, 2022; Park & Moon, 2023). Non-compliance, corruption, and fraud within SCM are identified as key factors affecting fund utilization, supporting the call for transparent and fair procurement practices to ensure community welfare (Mavidis & Folinias, 2022).

5.7 Summary of Discussions

In this chapter, Municipal Management and Financial Accountability were examined through various lenses. Resident profiles and engagement in South African municipalities were scrutinised, revealing deep-seated concerns related to corruption, inefficiencies, and poor service delivery. Participants underscore the imperative for

transparent financial practices to rebuild resident confidence, as depicted in the literature, but the findings fall short by not delving deeply into systemic issues.

E-Procurement and Technology emerge as critical components, with participants recognizing the potential for enhancing accountability and streamlining processes. The varied perspectives include proactive measures such as energy diversification and robust security protocols to ensure the continuous availability of e-procurement platforms, particularly in areas with electricity limitations. The findings amplify the transformative impact of e-procurement on transparency and accountability in municipal financial practices, as was discussed in chapter 2.

The discussion on Security and Availability of E-Procurement Platforms further amplifies the need for comprehensive security measures. Participants advocate for antivirus software, firewalls, authentication, and continuous data backup to mitigate risks. The findings align with existing literature, drawing attention to the significance of robust security measures for ICT systems in e-procurement.

Finally, the chapter concludes by exploring the nexus between Accountability and its Impact on Municipal Financial Resources. Participants underscore the role of e-Procurement in fostering financial transparency, mitigating irregularities, and ensuring efficient fund utilization for community welfare. However, there is still a need for a deeper examination of systemic factors to address multifaceted challenges in municipal financial management effectively.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

In the concluding chapter of this study, we delve into the multifaceted landscape of financial accountability within South African municipalities, addressing the research questions that have guided our exploration. This study employed a qualitative research approach, the study embraced in-depth exploration and understanding. The data collection involved semi-structured interviews and self-completed questionnaires, ensuring diverse perspectives from key stakeholders, including non-governmental organizations, political groups, IT experts, auditors, and senior municipal managers. Our first inquiry focused on unravelling the extent of financial unaccountability, shedding light on the intricate challenges faced by municipalities in managing their financial resources. As we navigate through the findings, a nuanced understanding emerges, illustrating the diverse factors contributing to the existing scenario. Moving forward, the study examined the transformative potential of Information Communication Technology (ICT) as a tool to mitigate poor financial accountability. The second research question explores innovative avenues through which municipalities can harness ICT to enhance transparency and streamline financial processes.

Furthermore, our investigation extends to the design elements of an e-procurement framework tailored for South African municipalities. We dissect the intricacies of an effective e-procurement system, aligning technological solutions with the unique requirements of the local context. Lastly, we unravel the critical success factors in the realm of e-procurement, identifying elements that are pivotal for achieving sustainable and impactful outcomes within South African municipalities. As we conclude, the study not only addresses the identified research questions but also offers actionable insights for policymakers, practitioners, and researchers aiming to fortify financial accountability in the South African municipal landscape.

6.2 Revisiting the research questions.

The first research question was: “*What is the extent of financial unaccountability in South African municipalities?*”. The findings on the extent of financial unaccountability

in South African municipalities unveils a complex and multifaceted scenario. The findings underscore the pervasive challenges faced by these local entities, revealing a spectrum of issues ranging from inadequate financial reporting to deficiencies in internal controls. The prevalence of irregularities in financial transactions and the lack of transparent mechanisms further exacerbate the landscape of unaccountability. It becomes evident that the extent of financial unaccountability is not a singular challenge but rather a confluence of systemic deficiencies that demand comprehensive and targeted interventions.

Moreover, our study underscores the urgent need for tailored strategies that address the unique socio-economic context of South African municipalities. As we navigate the nuanced contours of financial unaccountability, our findings emphasize the necessity for holistic reforms, including enhanced training for financial personnel, robust internal control mechanisms, and a cultural shift towards transparency and accountability. Ultimately, this investigation not only quantifies the extent of financial unaccountability but also provides a roadmap for transformative measures, guiding municipalities towards a more accountable and sustainable financial future.

The second research question was: *“How can information communication technology be used to address poor financial accountability in South African municipalities?”*. The findings illuminated promising avenues for transformative change. The findings underscore ICT's potential to serve as a catalyst for transparency, efficiency, and accountability within municipal financial systems. The integration of advanced technological solutions offers an opportunity to streamline financial processes, enhance real-time monitoring, and establish robust reporting mechanisms.

Our study highlights the importance of customized ICT implementations, recognizing the diverse needs and challenges faced by South African municipalities. From digital financial management systems to data analytics tools, the spectrum of ICT applications offers a comprehensive toolkit for municipalities to bolster financial accountability. However, it is crucial to navigate potential barriers such as limited resources and digital literacy, ensuring that the benefits of ICT are accessible and equitable across all municipalities.

In essence, this research advocates for a strategic embrace of Information Communication Technology, positioning it not merely as a tool but as an integral component in the ongoing efforts to address and rectify poor financial accountability in South African municipalities. The findings provide a roadmap for policymakers and practitioners to harness technology effectively, fostering a new era of transparent, efficient, and accountable financial practices in municipal governance.

The third research question was: “*What are the design elements of the e-procurement framework suitable for South African municipalities?*” The findings revealed essential insights to guide the development of effective and contextually relevant systems. The findings underscore the necessity of a holistic approach, emphasizing user-friendly interfaces, scalability, and integration capabilities. The intricate nature of procurement processes within municipalities requires a framework that accommodates diverse needs, promoting transparency, accountability, and efficiency.

Moreover, our research advocates for the incorporation of adaptive features, allowing for flexibility in compliance with evolving regulatory frameworks and local nuances. The importance of stakeholder engagement emerges as a central theme, emphasizing the need for collaboration between policymakers, vendors, and end-users in shaping an e-procurement framework that aligns with the unique challenges and opportunities of South African municipalities.

As we conclude, the study not only provides a comprehensive understanding of the essential design elements but also emphasizes the dynamic nature of e-procurement, urging continuous evaluation and refinement. The proposed framework stands as a roadmap, offering actionable guidance for policymakers and practitioners in the pursuit of modernizing procurement practices, fostering transparency, and fortifying the overall governance structure within South African municipalities.

The fourth research question was: “*What is the relevant critical e-procurement success factors in the context of South African municipalities?*” The findings illuminate the path towards effective implementation and sustainable outcomes. The findings underscore the significance of stakeholder collaboration, emphasizing the need for active

engagement between policymakers, procurement professionals, and technology providers. The success of e-procurement initiatives in this context is intricately tied to the cultivation of a supportive and cooperative ecosystem.

Furthermore, the study identifies the paramount importance of capacity building and training programs to enhance digital literacy and proficiency among municipal staff. The successful integration of e-procurement hinges on empowering personnel with the skills necessary to navigate and optimize the technology. Additionally, the research highlights the role of clear regulatory frameworks and compliance standards, emphasizing the need for alignment with local legislative requirements.

As we conclude, the identified success factors stand not only as individual components but as interwoven elements essential for a comprehensive and sustainable e-procurement strategy. This study serves as a guide for municipal decision-makers, offering a roadmap for fostering a conducive environment that maximizes the potential of e-procurement, ultimately contributing to improved governance, transparency, and efficiency in South African municipalities.

6.3 Proposed Framework for Integrating Financial Accountability Theory into E-Procurement in South African Municipalities

Understanding the intricate dynamics of Financial Accountability Theory (FAT) and its application in the context of E-Procurement within South African Municipalities is crucial as financial governance undergoes transformative shifts. The intersection of FAT theory and practical implementation becomes paramount, offering insights into how municipalities navigate fiscal responsibilities in the digital age.

The research findings presented in Chapter 5 provide critical insights that inform the development of a framework for integrating Financial Accountability Theory (FAT) into e-procurement in South African municipalities. The qualitative data analysis revealed several key themes related to financial accountability challenges in municipalities, perspectives on e-procurement, and the potential role of technology in enhancing transparency and oversight. These findings align closely with the core tenets of FAT and highlight the need for mechanisms to strengthen accountability through e-procurement implementation.

The research findings underscore deficiencies in financial accountability based on participants' concerns over corruption, mismanagement of funds, lack of transparency, and inadequate financial controls in municipalities. This demonstrates the need for accountability mechanisms centred on monitoring, control, and enforcement.

Additionally, the enthusiasm participants expressed for e-procurement suggests a strong understanding of its potential advantages. The perceived advantages of e-procurement in promoting transparency, efficiency, competitiveness, and oversight strongly resonate with the objectives of FAT. These further cement the need for an integrated framework to leverage e-procurement to enhance financial accountability.

Specific findings on the audit trail capability, security, and accessibility of e-procurement provide insights into functional design elements that can strengthen answerability and enforceability. Moreover, the research highlights opportunities to incorporate artificial intelligence and machine learning to automate controls and oversight.

By harnessing these findings through a FAT lens, the proposed framework aims to address the financial accountability limitations in municipalities and capitalise on e-procurement's capabilities to improve transparency, oversight, and ethical financial management. The integration of theory and findings creates a robust foundation for developing an accountability-focused framework tailored to the South African municipal context. The next section will outline the specific components of the framework based on the research findings.

Table 6. 1: Proposed Framework

		Theoretical Framework	
		Downward Accountability Framework	E-Procurement Framework
Area of Interest	Theoretical Focus	The 'downward' channeling of public goods and services to the target community.	Funneling better values in municipal management to the community, including promotion of financial accountability, ethical governance, and prudential municipal financial management
	Public Service Mandate	Public agencies exist consciously to serve the people and dispense public good.	Promote the interests of the municipal public, serving as a conduit for providing public goods rather than catering to the interests of a few
	Service Delivery Targets	The need for service delivery targets in terms of quantity and quality	Incorporate measurable service targets for regular assessment of service quality and quantity
	Financial Accountability and Anti-Corruption	Carry out mandates with constant reference to meeting financial accountability and eschewing corruption.	Crafted to thwart financial imprudence, corruption, and fiscal decay resulting from corruption and financial unaccountability.
	Social Contract and Consent	The consent of the people, embodying a nod to the social contract	Serves as a financial-information technology that upholds the people-municipal government service delivery contract

Source: Author's Own Construction

The proposed framework integrates key principles of Financial Accountability Theory into the design and implementation of E-Procurement in South African Municipalities. By aligning theoretical underpinnings with practical considerations, this framework aims to enhance the fiscal responsibility, ethical governance, and service delivery efficacy within the evolving landscape of municipal governance in the digital age.

6.4 Recommendations

Based on the findings related to the design elements of an e-procurement framework suitable for South African municipalities, the following recommendations emerge:

6.4.1 Customized E-Procurement Frameworks

Tailor e-procurement frameworks to align with the unique socio-economic and regulatory landscape of South African municipalities. Recognize and accommodate diverse procurement needs by incorporating customizable features that address specific challenges faced by municipalities. The framework should be adaptable to different scales of operations and should consider variations in procurement practices across regions. A one-size-fits-all approach may not be effective; hence, customization is key to ensuring the relevance and success of the e-procurement system.

6.4.2 Facilitate Stakeholder Engagement

Prioritize stakeholder engagement throughout the design and implementation phases of the e-procurement framework. Collaborate with key stakeholders including government officials, vendors, and end-users to gather insights, address concerns, and ensure that the system meets the needs of all participants. Establish communication channels for continuous feedback and refinement, fostering a sense of ownership among stakeholders. By actively involving those who will be impacted by the e-procurement framework, municipalities can enhance user acceptance, minimize resistance to change, and increase the likelihood of successful adoption and sustained success.

6.4.3 Enhance Training and Capacity Building

Recognizing the complexity of financial processes and the varied challenges faced by municipalities, it is imperative to invest in comprehensive training programs for financial personnel. These programs should focus on improving their skills in financial management, reporting, and internal control mechanisms. By strengthening the capacity of staff involved in financial responsibilities, municipalities can mitigate errors, improve adherence to financial regulations, and foster a culture of accountability. This recommendation addresses the root causes of financial unaccountability by ensuring that the human resources responsible for financial management are well-equipped and informed.

6.4.4 Implement Robust Internal Control Systems

To curb financial irregularities and enhance accountability, municipalities should prioritize the establishment and reinforcement of robust internal control systems. This involves implementing checks and balances, periodic audits, and stringent oversight mechanisms to detect and prevent fraudulent activities. A well-designed internal control framework not only acts as a deterrent to financial malpractice but also serves as a proactive measure to identify and rectify issues promptly. Municipalities should consider adopting technology-driven solutions for internal controls to automate processes, ensure accuracy, and provide real-time visibility into financial transactions.

This recommendation aims to fortify the structural foundations of financial management and accountability within South African municipalities.

6.4.5 Integrated ICT Solutions for Financial Management

Implement comprehensive, integrated ICT solutions specifically tailored for financial management within municipalities. This involves adopting robust financial software systems that automate processes such as budgeting, accounting, and reporting. The integration should facilitate real-time data updates, ensuring accuracy and transparency in financial transactions. Additionally, municipalities should explore the use of data analytics tools to gain actionable insights, enabling informed decision-making. The implementation of a holistic ICT infrastructure designed for financial governance can significantly contribute to streamlining operations and improving overall accountability.

6.4.6 Invest in Digital Literacy Programs

Recognizing the transformative potential of ICT, municipalities should invest in digital literacy programs for employees involved in financial processes. Adequate training and skill development initiatives can empower staff to effectively use and navigate digital tools. This recommendation addresses the human aspect of ICT implementation, ensuring that municipal employees possess the necessary skills to leverage technology for enhanced financial accountability. Moreover, fostering a culture of continuous learning and adaptation to technological advancements is essential for the sustained success of ICT initiatives in improving financial management within South African municipalities.

6.4.7 Establish Clear Regulatory Guidelines and Compliance Standards:

Develop and communicate clear regulatory guidelines and compliance standards for e-procurement processes within South African municipalities. This includes ensuring alignment with national procurement laws and regulations while also considering local variations. Clearly defined rules and standards will provide a solid foundation for e-procurement implementation, reducing ambiguity and promoting adherence to legal requirements. Regular updates and training on these guidelines should be conducted to keep all stakeholders informed and compliant.

6.4.8 Promote Interoperability and Integration

Emphasize interoperability and integration capabilities in the design and implementation of e-procurement systems. Ensure that the e-procurement framework can seamlessly integrate with existing systems and platforms used by municipalities. This integration facilitates the exchange of data and streamlines processes across various departments, enhancing overall efficiency. Additionally, interoperability enables municipalities to collaborate with external entities, such as suppliers and regulatory bodies, creating a more interconnected and responsive procurement ecosystem. Prioritizing interoperability is crucial for optimizing the benefits of e-procurement and creating a cohesive and interconnected procurement landscape within South African municipalities.

6.5 Limitations

6.5.1 Generalization Challenges

One limitation of this study could be related to the generalization of findings. While the study provides valuable insights into the multifaceted landscape of financial accountability within South African municipalities, the specific challenges and factors identified may not be universally applicable to all municipalities in the country. South Africa is characterized by diversity in terms of geography, socio-economic conditions, and governance structures. Therefore, findings from a selected sample of municipalities may not fully capture the heterogeneity within the entire municipal landscape, limiting the extent to which the results can be generalized.

6.5.2 Static Nature of Findings

Another potential limitation may arise from the static nature of the findings, particularly in the context of ICT and e-procurement. Technology is dynamic, and its rapid evolution may render certain aspects of the study outdated over time. The transformative potential of ICT and the critical success factors identified may be subject to changes in technological advancements, policy frameworks, and organizational practices. Consequently, the study might face challenges in providing insights that remain relevant and applicable in the face of ongoing developments in

the fields of technology and governance. This limitation underscores the need for continuous research to keep pace with the evolving nature of the subjects under investigation.

6.6 Directions for future studies

6.6.1 Impact of Digital Literacy on E-Government Initiatives

Investigate the role of digital literacy among municipal employees and stakeholders in influencing the success of e-government initiatives, with a specific focus on financial management systems. Examine how varying levels of digital literacy impact the adoption, utilization, and effectiveness of ICT tools in enhancing financial transparency and accountability. This study can provide valuable insights into the importance of training programs and capacity-building initiatives to support the successful integration of technology in municipal governance.

6.6.2 Comparative Analysis of E-Procurement Frameworks in Global Municipalities

Conduct a comparative study to analyse the design elements and outcomes of e-procurement frameworks implemented in municipalities globally. This research could explore successful case studies from different countries, examining the similarities and differences in the design, implementation, and impact of e-procurement systems. The goal would be to identify best practices, lessons learned, and innovative approaches that South African municipalities can leverage to enhance their own e-procurement frameworks. Such a comparative analysis could contribute to a broader understanding of effective strategies for leveraging technology in municipal procurement processes.

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APPENDICES

Appendix A: Schedule of interview questions

1. What in your understanding defines a profile of a well-run municipality?
2. What is the characterisation or profile of residents of a municipality?
3. What are residents' major concerns regarding municipal financial management?
4. What in your understanding constitutes poor financial accountability in a municipality?
5. What is the role of procurement or supply chain in poor financial accountability in a municipality?
6. Do you think a municipality should conduct its business only with experienced service providers or each and every interested service provider? Please elaborate.
7. If yes, how many years of experience? Please justify.
8. What is your understanding of e-Procurement?
9. Research shows that amongst others, one of the advantages of e-procurement is the employment of fewer people (human resources) to administer procurement processes. What process in your opinion should be used to reduce the number of human resources to ensure procurement is run on a technology platform?
10. When services are sourced through e-Procurement, on which indicators/ factors/ variables do you think they should compete on. For example, should they compete on price, or promise of quality service, quick turnaround times? Name any factor that comes to your mind that you think companies should compete on to be on the e-procurement database of suppliers in a local municipality.
11. What do you think a municipality should do to get lower prices from suppliers. Describe in your opinion the best strategy of reducing prices of goods and services using e-procurement.

12. What in your opinion is the/ will be the best way/process for a municipality to communicate its request for goods and services to potential service providers when implementing e-procurement?
13. Research shows that citizens have lost hope in the traditional tender evaluation methods as key documents often go missing from submitted tender packs. What in your opinion can be the fair process to evaluate bids, quotations or proposals in an e-procurement platform where decisions are taken using technology platforms?
14. What do you think can be key deciding factors for a service provider to be deemed successful in their bid?
15. How do you think those contract negotiations should be conducted – in person or through technology? Please elaborate.
16. What technology tools do you think should be used in e-procurement? What should each technology item be used for?
17. What is your view/ understanding of electronic data interchange (EDI)?
18. Some scholars believe that interconnectivity between municipal or government ICT system and suppliers may lead to the compromise of ICT security and render the system vulnerable to attacks and other nefarious activities. What is your thinking around security of ICT systems when they (municipality and service provider ICT systems) interact through an e-procurement platform?
19. e-Procurement requires that such platform is always available and accessible, what should a municipality take into consideration to enable such high availability in line with current electricity challenges? Should it be on the cloud or on premises?
20. Do you think e-Procurement can assist municipalities increase accountability on how municipal financial resources are used?

Appendix B: University Ethical Approval

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg



Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA1865818/162

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title Framework for introducing e-procurement in South African municipalities

Investigator / Researcher Mr Vusi Khoza

Nature of Project MBA (Research Article)

Decision of the Committee Approved, provided stakeholders and participants are guaranteed confidentiality.

Issue Date of Certificate 9/12/2023

Expiry date Date of submission of the project / research report

Chairperson
Dr Pius Oba
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☎ +27 82 733 6587
✉ pius.oba@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

Date:

Appendix C: Participant Information Sheet

Participant Information Sheet (PIS)



Dear Sir / Madam,

My name is Vusi Khoza. I am a Masters student in the faculty of Commerce Law and Management at the University of the Witwatersrand, Johannesburg. My supervisor is Dr. Sylvester Horvey. I am conducting a research study about creating a framework introducing e-procurement in South African municipalities. The study title is FRAMEWORK FOR INTRODUCING E-PROCUREMENT IN SOUTH AFRICAN MUNICIPALITIES.

I am inviting you to take part in an interview session. If you decide to take part, your participation in this research study will last about 40 minutes. The interview will take place at a venue of your choice during working hours.

With your permission, I would like to audio record the interview. This data will be stored in password protected computer for 3 years and/or deleted after 3 years. Only the researcher will have access to the data.

The interview will be confidential and anonymous. When I share the results of the research study, I will not include your name or anything else that could identify you. With your permission, other researchers may use the data collected from this research study, but your name and any personal information will not be used or passed on.

If you decide to take part in the research study, it should be because you want to volunteer. You do not have to take part. You can stop being in the study at any time. You do not have to answer any questions if you do not want to. You will not get any direct benefits if you choose to join the research study. You will not lose any services, benefits, or rights you would normally have if you decided not to join. Taking part in the research study will not cost you anything. You will not be paid for being in this research study. Your travel/data costs to attend the interview will be reimbursed to a maximum of R0.

The risks for this research study are no more than what happens in everyday life.

This research study will be written up as a research report. The report will be available on the university library website. If you would like to receive a summary of this report, I will be happy to send it to you.

If you have any questions during or afterwards about this research study, feel free to contact me or my supervisor on the details listed below. If you have any concerns or complaints about the ethical procedures of this research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,

Vusi Khoza

Researcher:

Vusi Khoza, 1865818@students.wits.ac.za, 0828256241

Supervisor:

Appendix D: Greater Tzaneen Municipality Permission



GREATER TZANEEN MUNICIPALITY GROTER TZANEEN MUNISIPALITEIT MASIPALA WA TZANEEN MASEPALA WA TZANEEN



P.O. BOX 24
TZANEEN
0850

TEL: 015 307 8000
FAX: 015 307 8049

www.tzaneen.gov.za

24 May 2023

Ref.: 4/4/R
G Hlangwane

University of the Witwatersrand
Private Bag 3
Wits
2050

Sir/Madam

PERMISSION TO CONDUCT RESEARCH: Mr. VUSI DUNCAN KHOZA

Your letter dated 21/05/2023 bears reference.

Kindly note that permission has been granted to conduct research at the Greater Tzaneen Municipality on the topic "How using Information Technology Systems can enhance financial accountability in South African local government."

The student is welcome to conduct research according to a structured questionnaire/ and or conduct face-to-face interviews. However, the student must undertake the responsibility of providing the Municipality with a copy of the final report.

The student is welcome to liaise for further assistance with the Senior Training Officer, Ms. Glacia Hlangwane on tel.no. (015) 307 8378 or by e-mail: glacia@tzaneen.gov.za.

It is trusted that you will find this matter in order

Yours faithfully

**D MHANGWANA
MUNICIPAL MANAGER**

Appendix E: Greater Giyani Municipality Permission



Tel : 015 811 5500
Fax : 015 812 2068

GREATER GIYANI MUNICIPALITY

F/Bag X 9559
Giyani
0826

OFFICE OF THE MUNICIPAL MANAGER

Enq: Hlungwani MP
Contact: 0837485962
Hlungwanimafemani678@gmail.com

To: Mr Khoza VD
1865818@students.wits.ac.za

Application to conduct an Academic Research in Greater Giyani Municipality.

1. The above matter has reference.
2. Receipt of your letter dated 21 May 2023 regarding the matter mentioned above is hereby acknowledged.
3. Your request to conduct an Academic Research in Greater Giyani Municipality has been approved.

Regards

A handwritten signature in black ink, appearing to be 'Mrs Sithole KV', written over a horizontal dotted line.

Mrs Sithole KV
Acting Municipal Manager

29/05/2023

Appendix F: Research Plan

June 2023: Appearance before Research Panel

July 2023: Literature review

August 2023: Collection of qualitative data

September 2023: Transcribing Data

October 2023: Data analysis

November 2023: Documentation of findings

December 2023: Discussion of results and writing of e-procurement framework

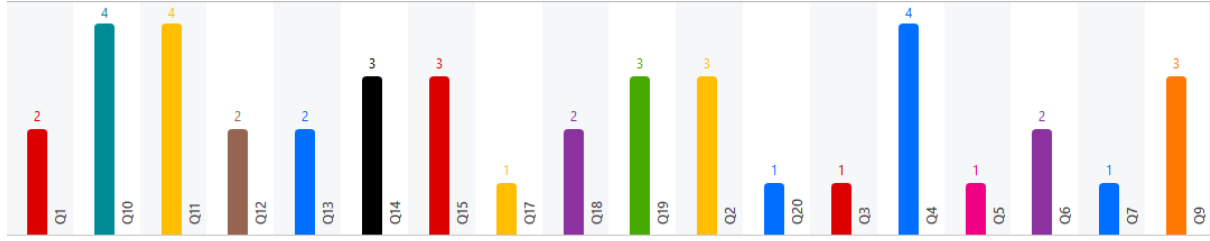
January 2024: Documentation and writing of the conclusion

February 2024: Submission of the final research report

Appendix G: Code Distribution Across Documents

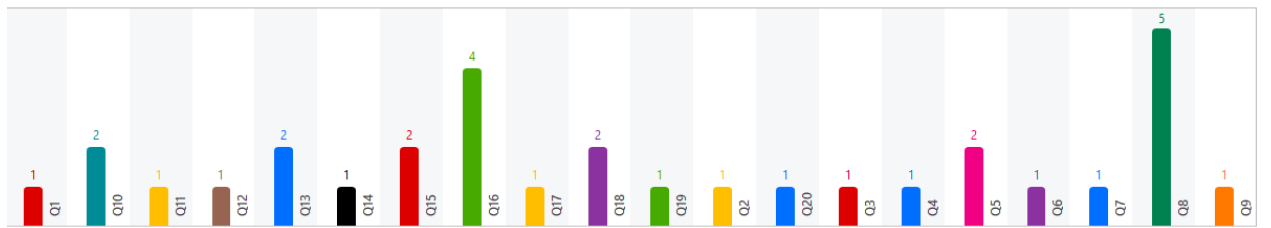
Participant 1

Code Distribution across Documents



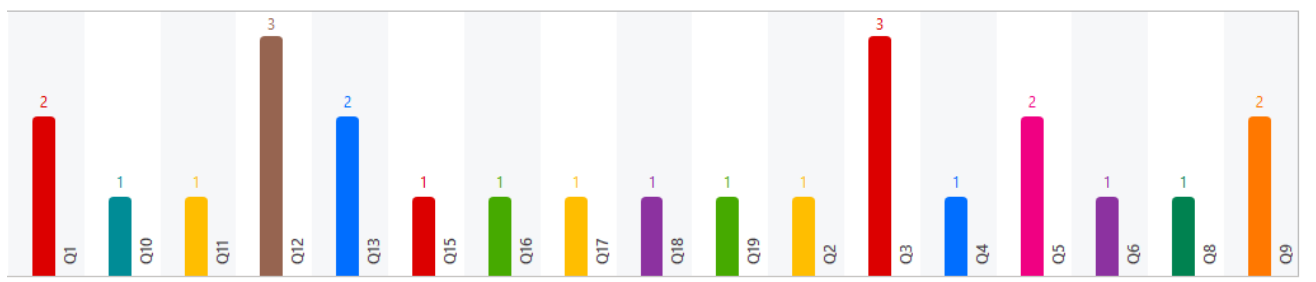
Participant 2

Code Distribution across Documents



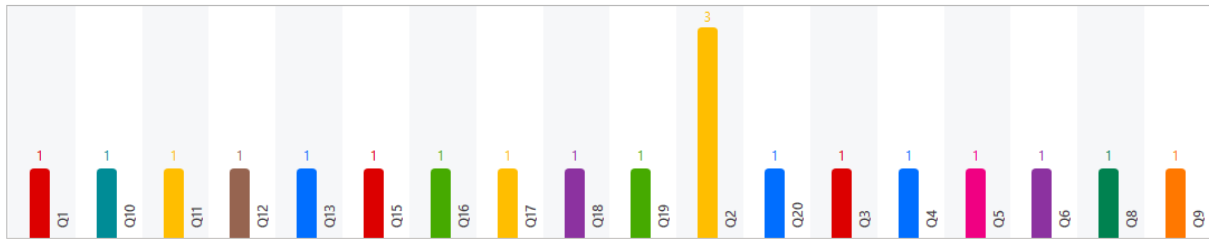
Participant 3

Code Distribution across Documents



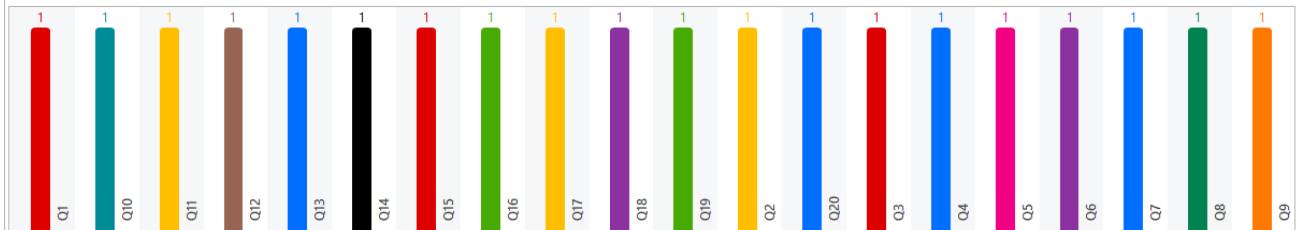
Participant 4

Code Distribution across Documents



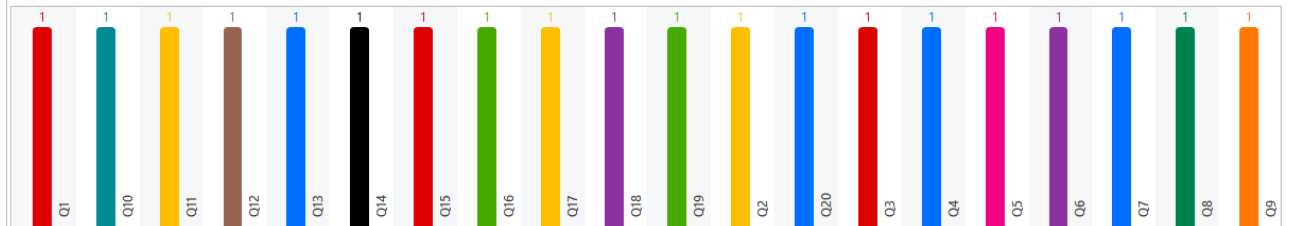
Participant 5

Code Distribution across Documents



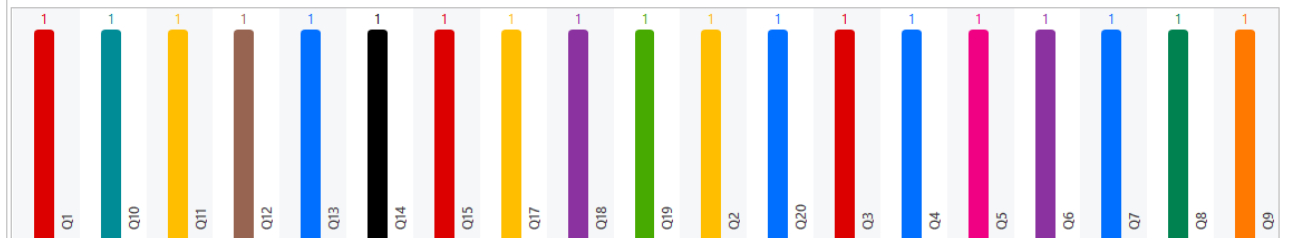
Participant 6

Code Distribution across Documents



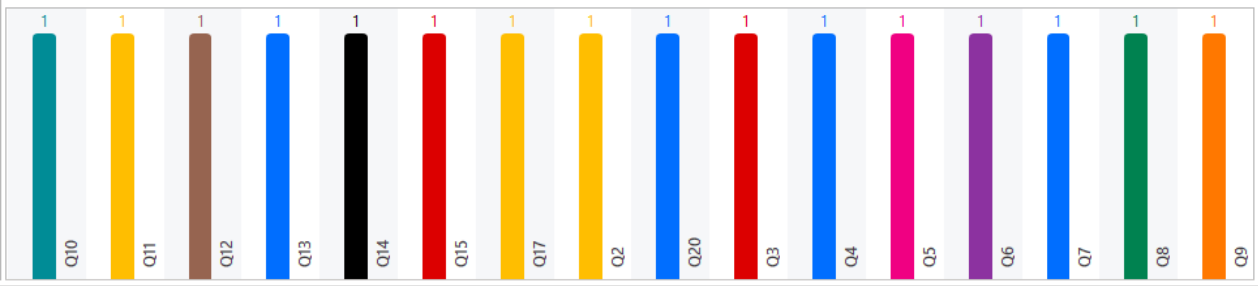
Participant 7

Code Distribution across Documents



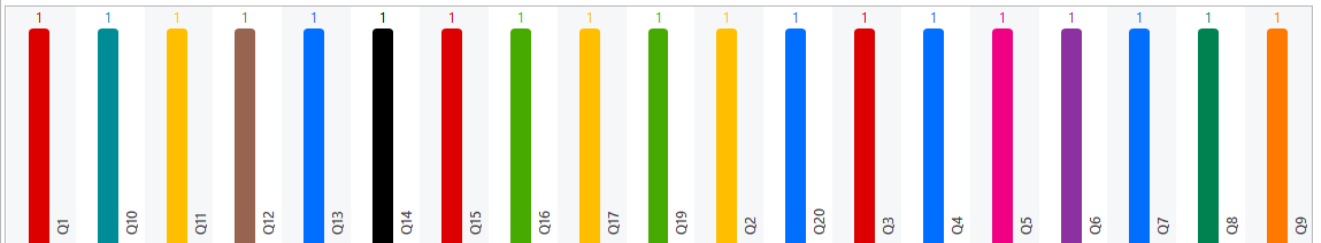
Participant 8

Code Distribution across Documents

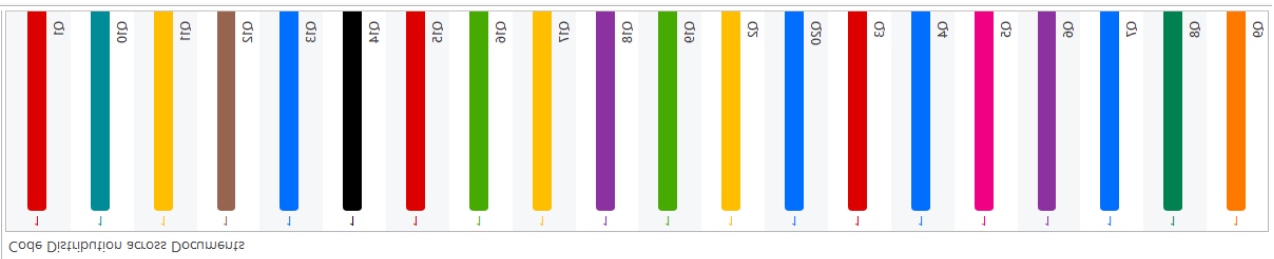


Participant 9

Code Distribution across Documents

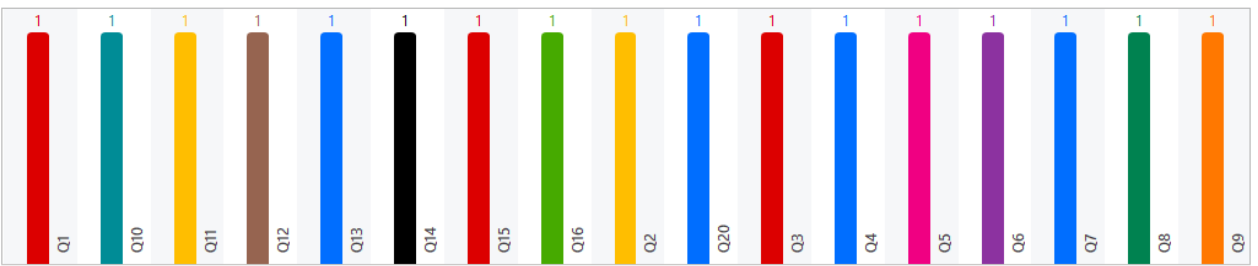


Participant 10

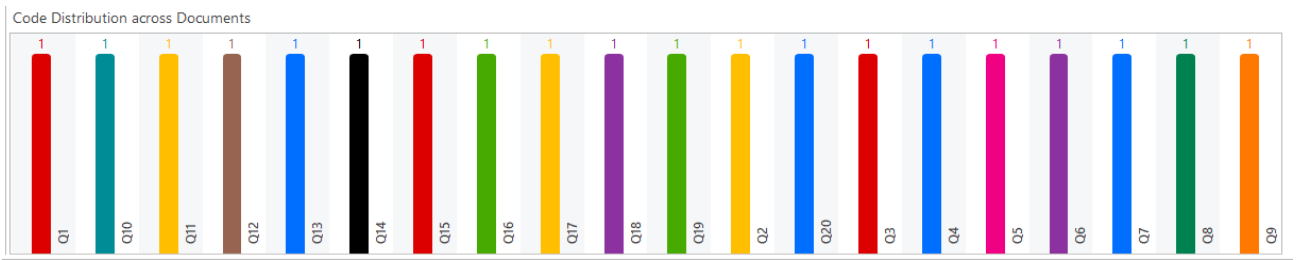


Participant 11

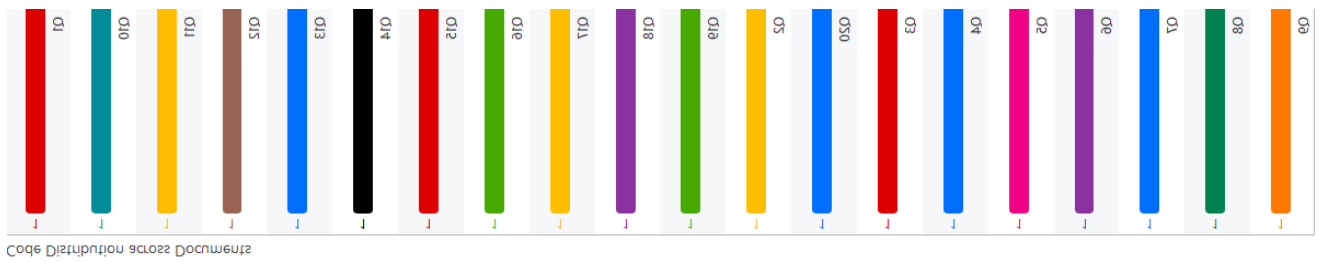
Code Distribution across Documents



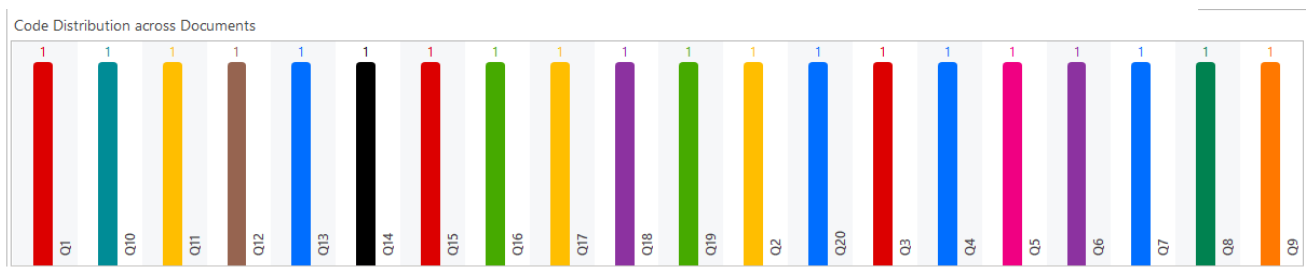
Participant 12



Participant 13

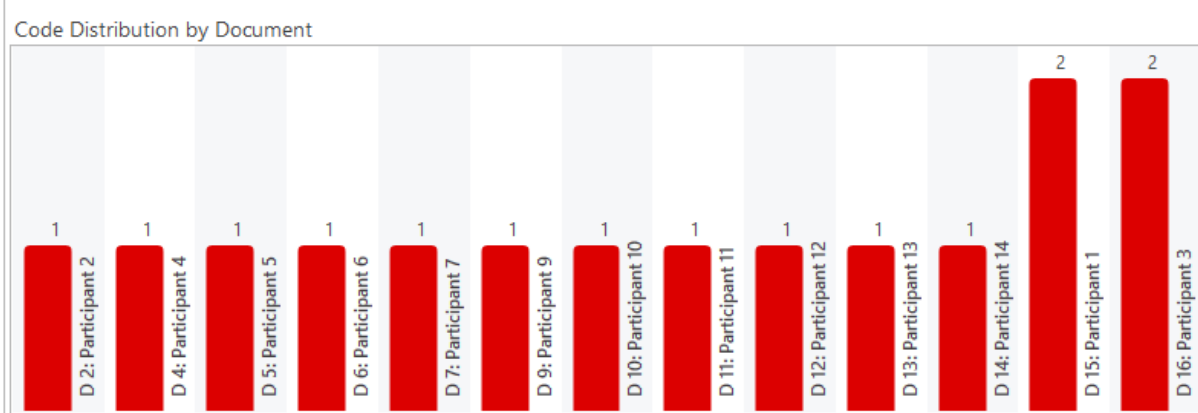


Participant 14

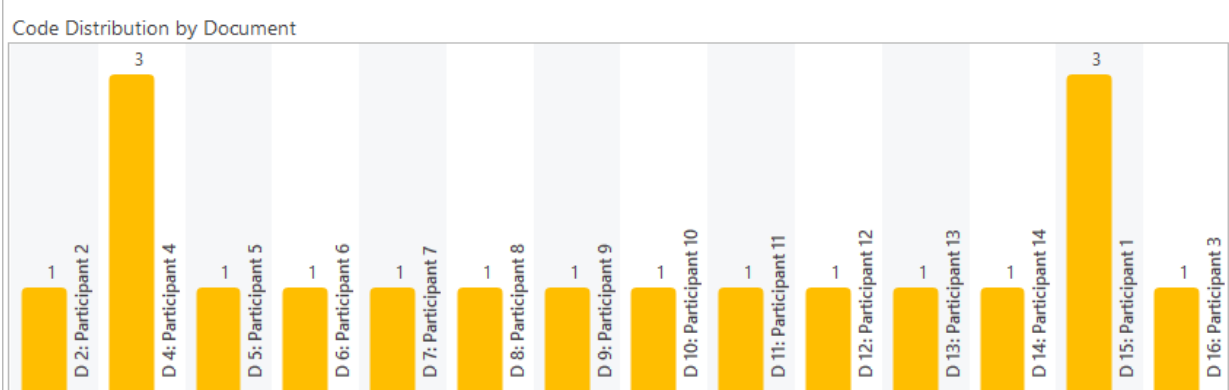


Appendix H: Code Distribution by Document

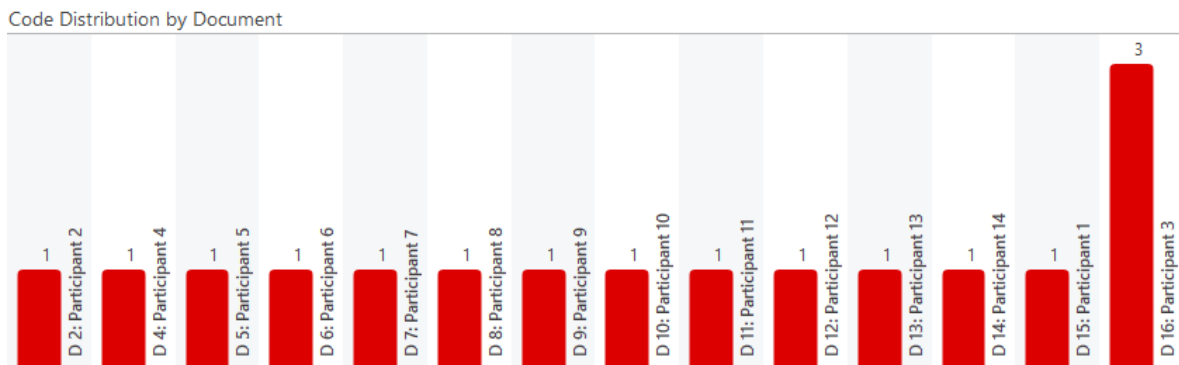
Question 1



Question 2

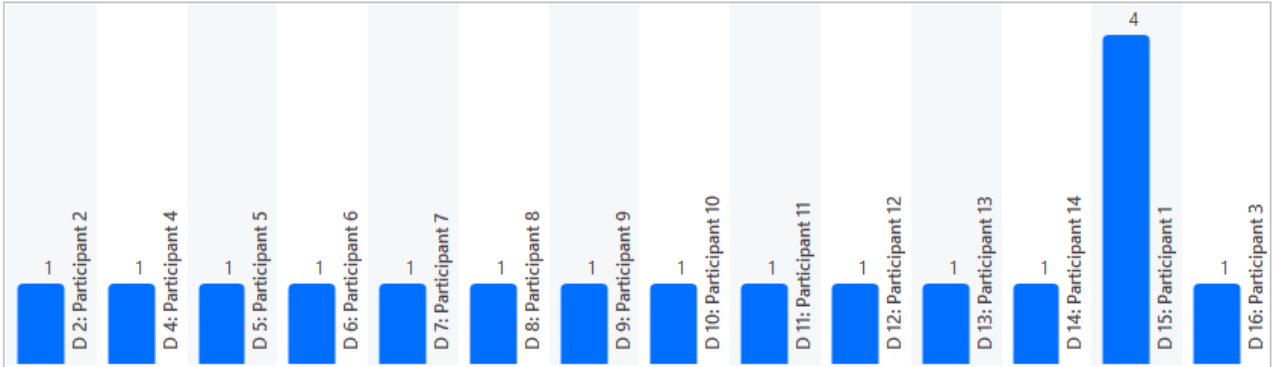


Question 3



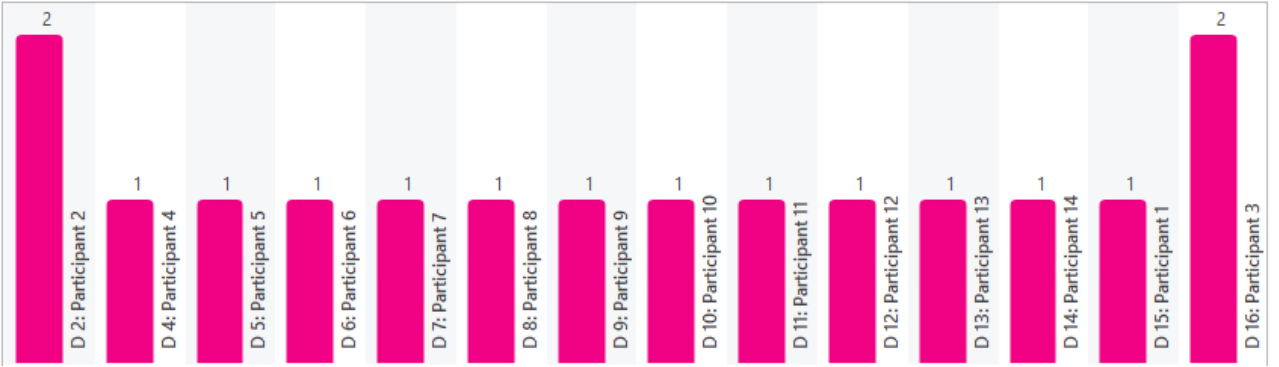
Question 4

Code Distribution by Document



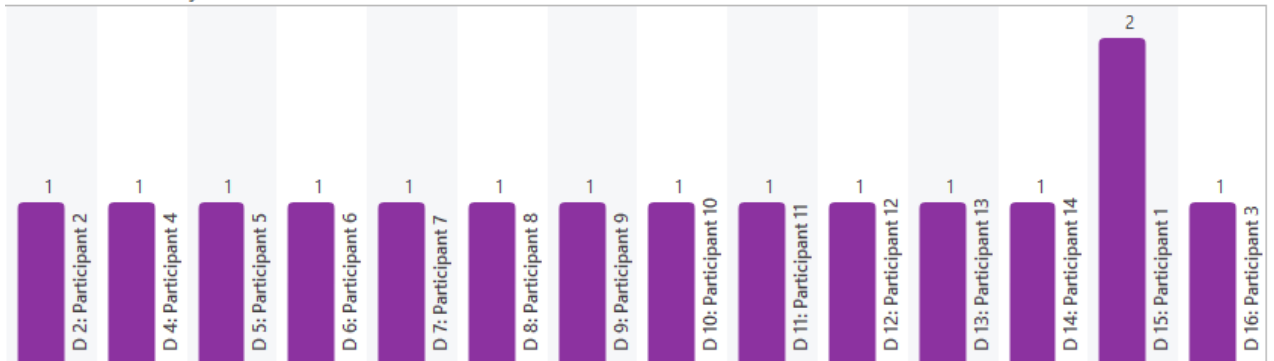
Question 5

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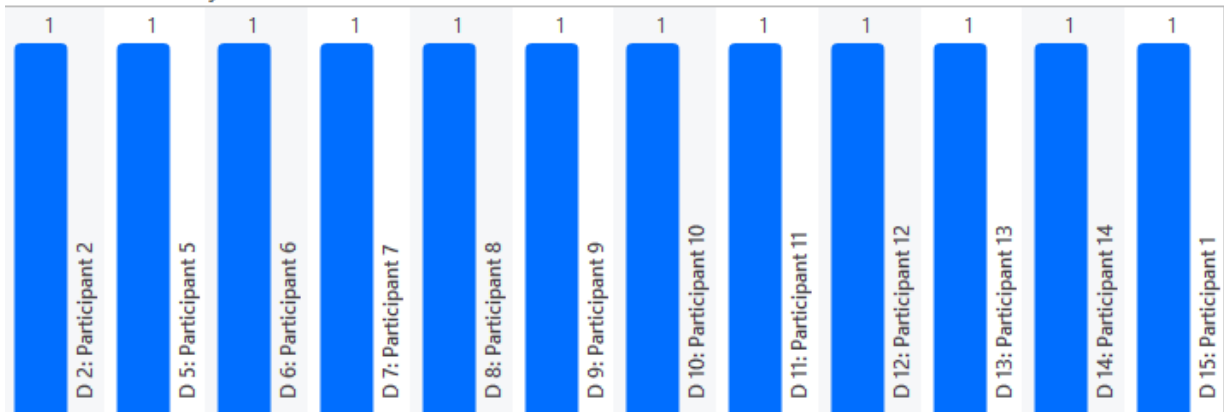
Question 6

Code Distribution by Document



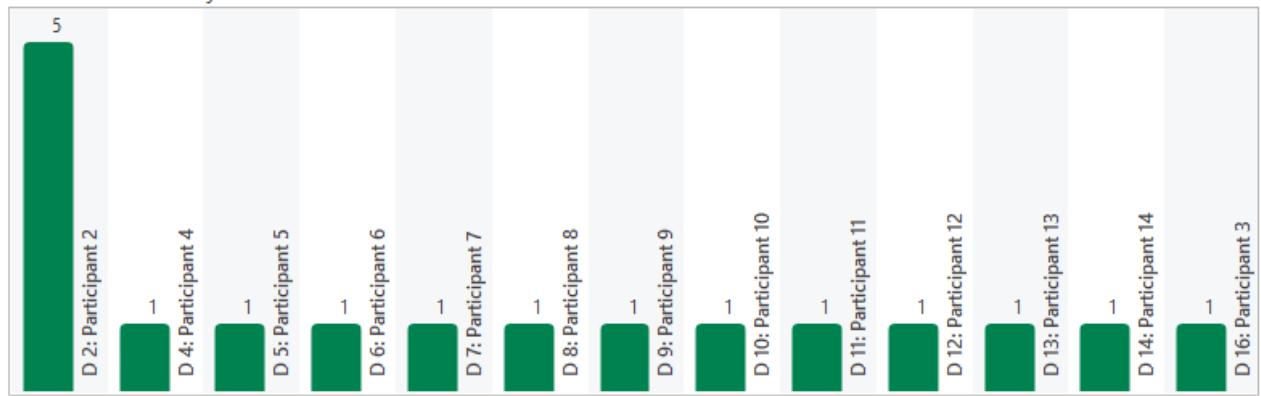
Question 7

Code Distribution by Document



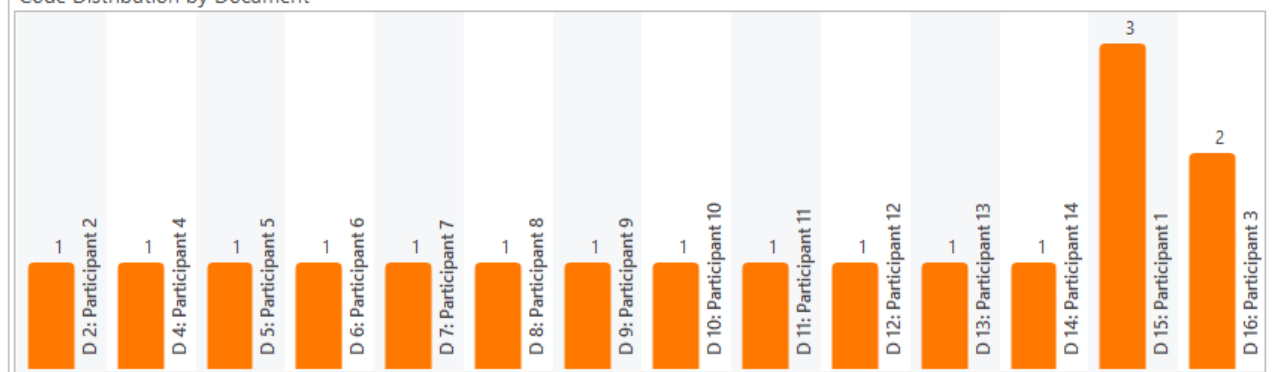
Question 8

Code Distribution by Document



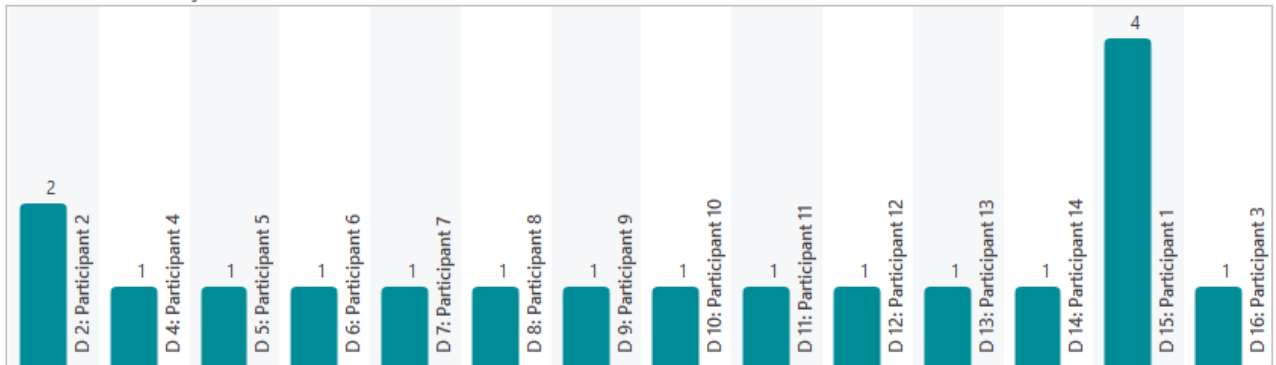
Question 9

Code Distribution by Document



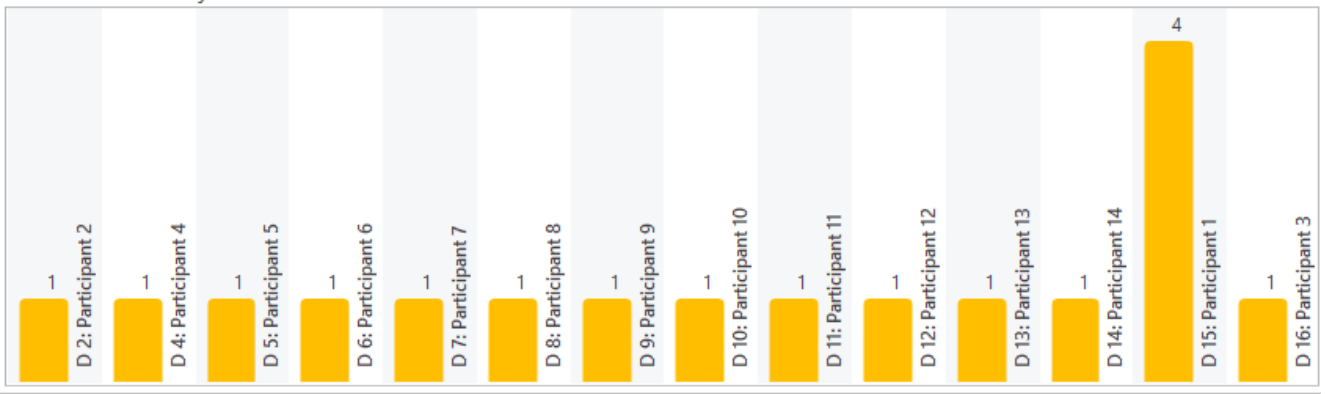
Question 10

Code Distribution by Document



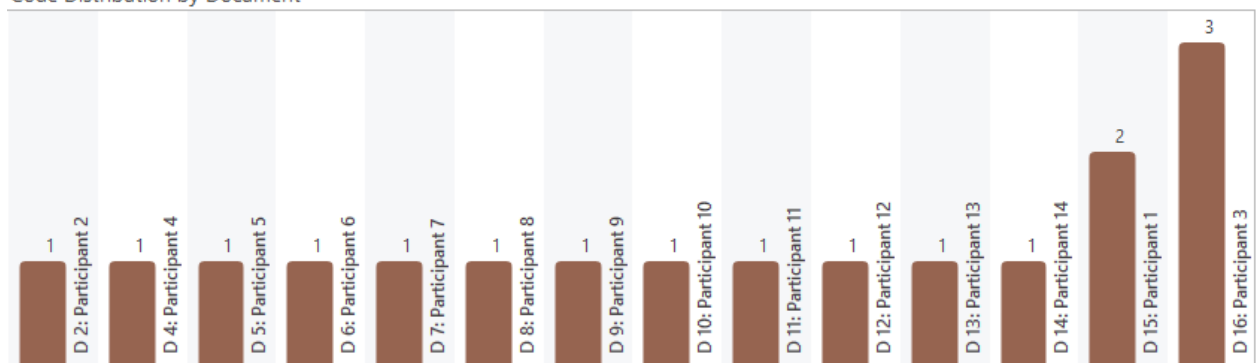
Question 11

Code Distribution by Document

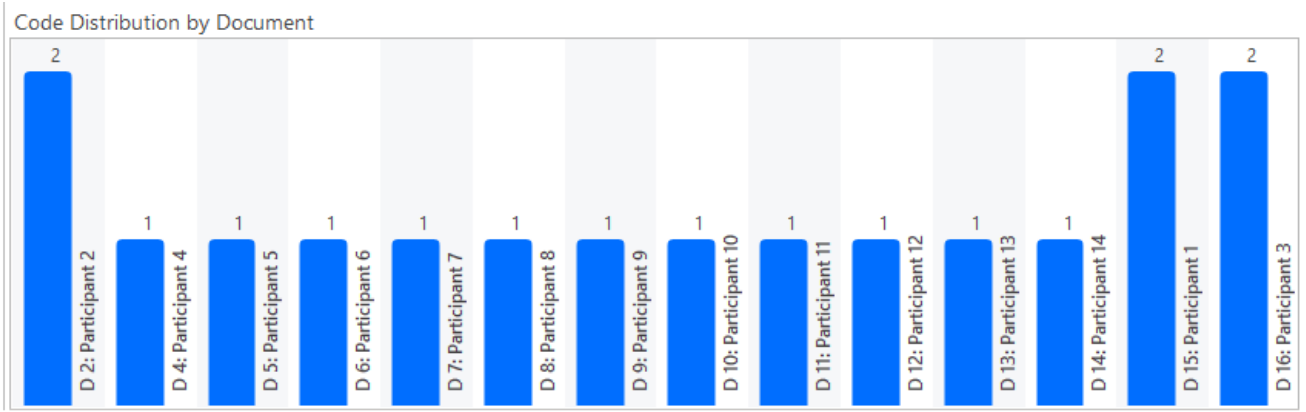


Question 12

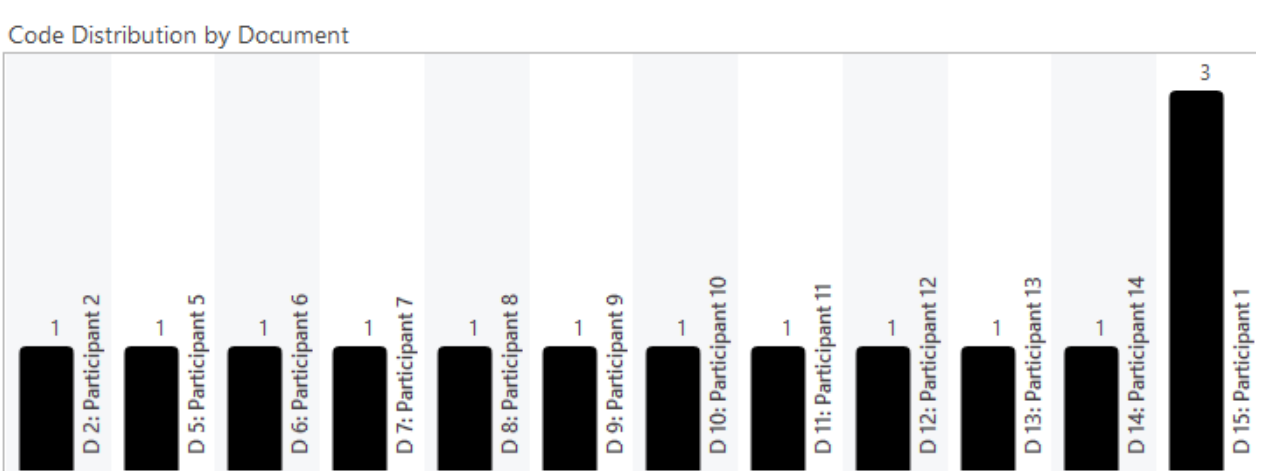
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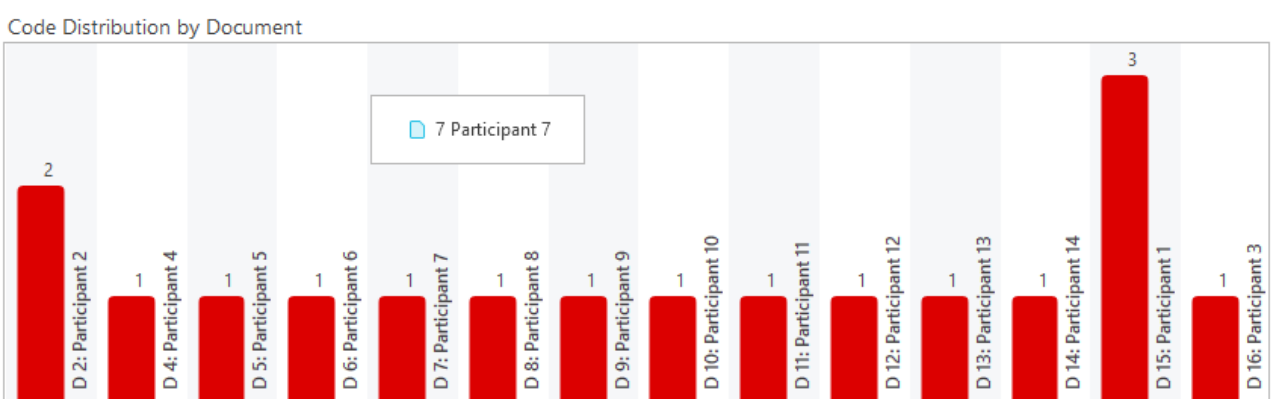
Question 13



Question 14

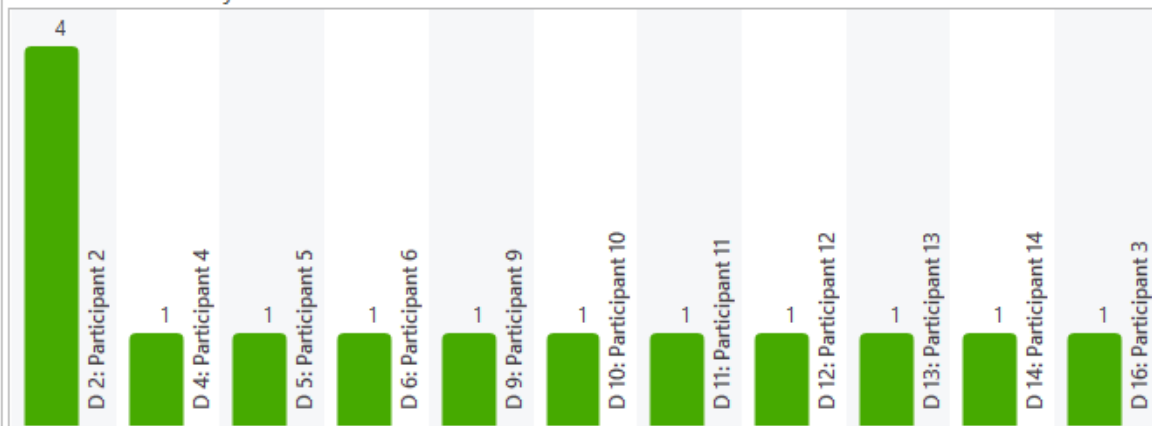


Question 15



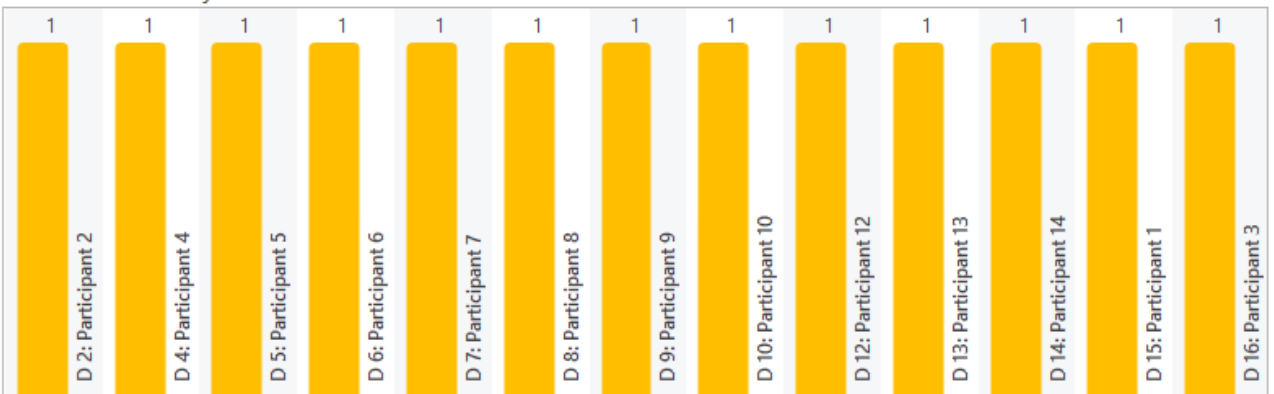
Question 16

Code Distribution by Document



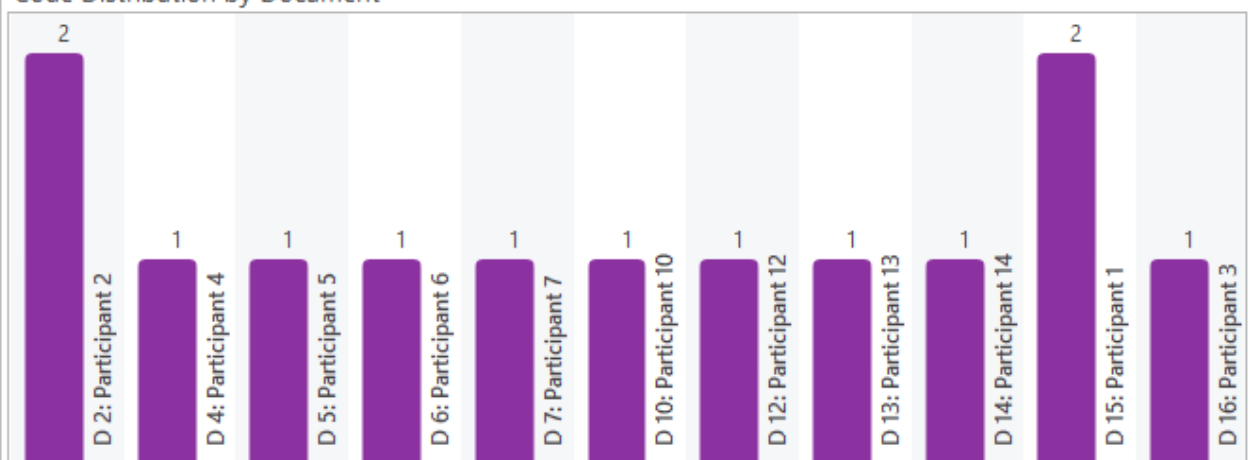
Questions 17

Code Distribution by Document



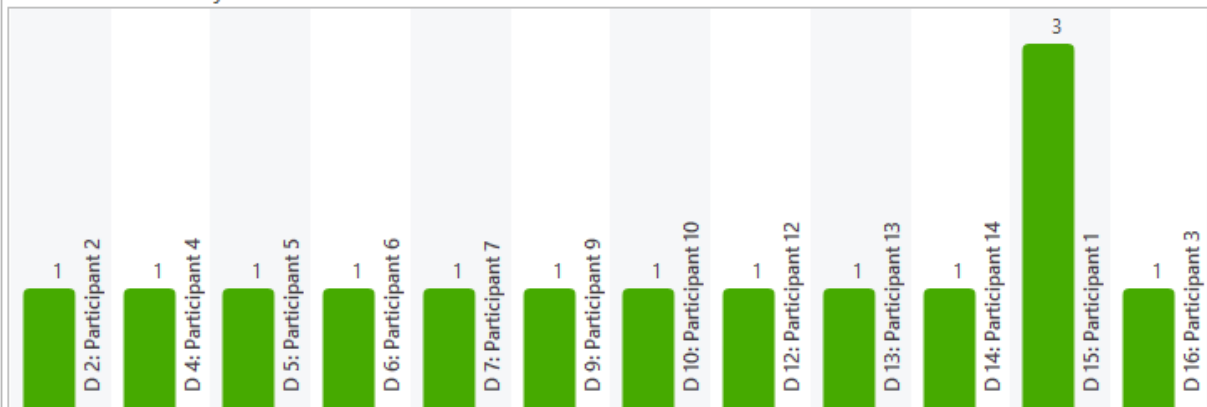
Question 18

Code Distribution by Document



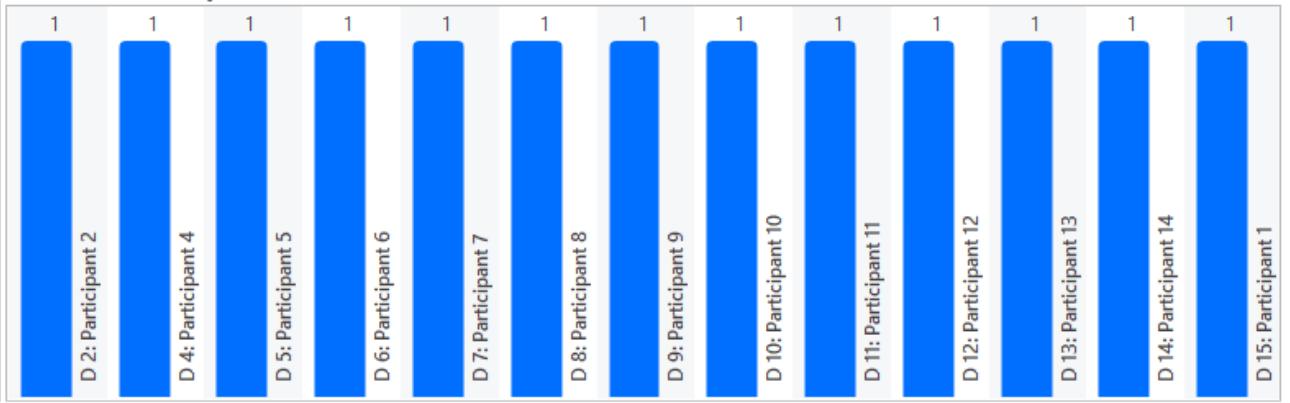
Question 19

Code Distribution by Document



Question 20

Code Distribution by Document



Coding in all documents

Code Distribution by Document

