Gordon Institute of Business Science
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Leveraging AI to enhance productivity and financial sustainability of black-owned SMEs

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

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DECLARATION

I declare that this research project is my work. It is submitted in partial fulfilment of the Master of Business Administration degree requirements at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination at any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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ABSTRACT

Small and medium enterprises (SMEs) are crucial to any economy and South Africa is no exception. These SMEs drive productivity, innovation, and job creation. However, there remains a high rate of failure of SMEs, particularly amongst Black-owned SMEs which form the majority of SMEs in South Africa. The purpose of the study is to explore how Black-owned SMEs can leverage AI to enhance financial sustainability and productivity.

A qualitative approach was undertaken for the study with primary data being gathered from 15 participants through semi-structured interviews. The interviews aimed to gain insights their financial literacy levels, their ability to access to finance, the adoption of AI in their operations and the extent to which BBBEE ESD objectives could be advanced through AI.

The study found low financial literacy levels amongst the Black-owned SMEs, which impedes their financial reporting capabilities and potential to raise funds for growth prospects. Whilst AI provides potential benefits for SMEs, only a handful of participants have fully adopted AI, therefore there is limited number of Black-owned SMEs that derive benefits and competitive advantage through AI.

The study recommends that financial literacy platforms be developed for SME owners. In addition, BBBEE ESD Codes should be strengthened to drive AI adoption by making funding accessible.

Future studies should focus on AI adoption strategies among Black-owned SMEs and focus on the extent to which financial literacy enables SMEs to raise.

The study was limited to small participant group, this presents an opportunity for a wider study to be undertaken.

Keywords:

AI Adoption, Access to finance, Financial literacy, SME Funding,

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AI	Artificial Intelligence
BASA	Banking Association of South Africa
BBBEE	Broad-Based Black Economic Empowerment
DCT	Dynamic capabilities theory
ESD	Enterprise and Supplier Development
Fintech	financial technology
GDP	Gross Domestic Product
ICT	information communication technology
KBT	Knowledge-based theory
OECD	Organisation for Economic Cooperation and Development
RBT	Resource-based theory
RBV	resource-based view
RDT	Resource dependency theory
SDGs	Sustainable Development Goals
Seda	Small Enterprise Development Agency
SMEs	small and medium enterprises
Stats SA	Statistics South Africa
UET	Upper echelons theory
UN	United Nations
VRINE	valuable, rare, inimitable, non-substitutable, exploitable

CHAPTER 1: RESEARCH PROBLEM

1.1 Purpose statement

The purpose of this research is to understand the role that Artificial Intelligence (AI) plays in the productivity and financial sustainability of small and medium enterprises (SMEs), specifically those that are black-owned. Whilst various factors can influence the growth and viability of SMEs, underpinned by the resource-based theory (RBT) this study focuses on AI as a key resource and stand-alone construct. This qualitative research provides inputs from entrepreneurs and experts in the field on the efficacy of AI use in business operations. The study further seeks to gain insights into how Broad-Based Black Economic Empowerment (BBBEE) Enterprise and Supplier Development (ESD) contributions can be leveraged to help SMEs advance the adoption and use of AI. This study provides those in government and corporate with valuable insights on the effectiveness of ESD contributions in enabling the growth of black-owned SMEs through innovative measures such as AI.

This section introduces the research problem. This is done by reviewing the research background and understanding the academic and business rationale for pursuing this study.

1.2 Background

The role played by SMEs is essential for economic growth, encompassing employment and reducing poverty (Gherghina et al., 2020). The performance of SMEs has been recognised as a key contributor to the economic performance of any nation (Yeboah, 2021). SMEs have also been found to contribute to innovation in an economy as small-scale entrepreneurs are always looking for solutions for day-to-day challenges that face society and the economy in general (Olarewaju & Msomi, 2021). Thus, the failure of SMEs in any given context may have detrimental consequences to any growth in employment and economic prospects of a country and further delay the advancements that innovations by SMEs may drive.

Kalemli-Ozcan et al. (2020) highlight that SMEs with a headcount that is less than 250 in the European Union account for 99.8% of all firms. In the European Union,

further studies have found that SMEs contribute about 85% of jobs created in the private sector of economies (Gherghina et al., 2020). Writing for the World Bank, Faye and Goldblum (2022) emphasise that SMEs comprise an estimated 90% of businesses across the globe and specifically within emerging markets, and SMEs contribute about 40% of the gross domestic product (GDP) as well. In the context of South Africa, SMEs have been noted to contribute to 91% of business in the formal sector, contributing about 60% of jobs (Banking Association of South Africa [BASA], n.d.). This is also echoed by Sibiya et al. (2023), who state that in South Africa, about 60% of the workforce is employed by SMEs. It should be further noted that black-owned SMEs comprise 74% of the total population of SMEs in South Africa (Small Enterprise Development Agency [Seda], 2023). Therefore, the significance of SMEs cannot be downplayed in South Africa or globally.

South Africa's unemployment rate reached 33.5% at the end of June 2024; however, for young people under the age of 35, the unemployment rate sits at 46.6% (Statistics South Africa [Stats SA], 2024). Sibiya et al. (2023) have identified SMEs as having the potential to create employment opportunities and further encourage the government to coordinate the growth of SMEs within the private segment of the economy to promote development and innovation. Therefore, through the requisite support, SMEs have the potential to take part in the creation of employment and driving innovation in the economy of South Africa.

1.3 Problem statement

1.3.1 Current challenges facing SMEs

Although SMEs are key contributors to the growth of economies, they nonetheless face some challenges and constraints (Rao et al., 2023). Rao et al. (2020) highlight access to finance as one such challenge or constraint that inhibits the growth of SMEs. Typically, SMEs cannot provide assets as collateral to raise funding; this then further constrains SMEs' ability to enter markets and create employment opportunities (Brixiová et al., 2020). This is also highlighted by Msomi and Olarewaju (2021), who state that poor financing has led to the declining growth of SMEs and contributes to the general failure of SMEs.

The advent of COVID-19 also aggravated the challenges that confront SMEs, and Sriyono et al. (2021) point out that SMEs saw a decline in performance and ability to compete globally. Sriyono et al. (2021) further highlight that SMEs have difficulty marketing their products in the context of the growing globalisation of various industries. This is due to declining levels of revenues and lack of capital required to undertake activities that SMEs would ordinarily undertake before the dawn of COVID-19. Lastly, Sriyono et al. (2021) indicate that although SMEs require funding, there is an important need for SMEs to enhance their knowledge of making use of innovative digital marketing to drive sales processes and techniques.

With regards to the funding of SMEs, it has been established that access to funding, which encompasses line of credit or loans, has a positive impact on the creation of employment (Brixiová et al., 2020). In this regard, the preliminary indications are that access to funding may lead to good prospects of growth of SMEs. In the context of South Africa, these can also include grants or other forms of contributions received as part of the BBBEE ESD programmes. Having said that, Benton et al. (2020) in their research determined that programmes aimed at developing SMEs do not completely lead to SMEs growing or improved operational performance by such SMEs. The study found that SMEs that benefit from supplier funding schemes perform better with adequate collaboration, dedication and two-pronged communication between the recipients and the organisations that distribute these contributions. While SMEs may benefit from the funding received, they derive greater benefits when they have longer-term relationships with their sponsors.

1.3.2 Opportunities for SMEs leveraging AI

Whilst Okoye et al. (2024) acknowledge that, on average, more than 70% of SMEs in South Africa would have failed between year one and year five, their study found that AI, financial technology (Fintech) and cybersecurity can be leveraged to drive innovation and unlock the full potential of SMEs. Through the use of these three technologies, Okoye et al. (2024) found that SMEs can use fintech to drive access to funding, whilst AI can be used to drive innovation with product and service offerings, efficiencies and cybersecurity can assist with data protection and other threats that can affect adversely affect the operations of SMEs.

In their paper, Husin and Haron (2020) define financial sustainability as a company's ability to generate revenues by satisfying customer demand over a period and, in the process, achieving profits. With this in mind, this study seeks to answer the question of how SMEs can then leverage AI to achieve financial sustainability.

1.4 Significance of the study

1.4.1 Academic rationale

In their paper, Brixiová et al. (2020) highlight the need for further studies to be undertaken to determine to what extent technological advancements and mobile money can improve SMEs' access to funding. To our knowledge, limited literature has sought to explore how AI can be utilised in the implementation of BBBEE in the context of supplier development programmes.

1.4.2 Business rationale

The South African Government promulgated the codes of good practice on BBBEE (ESD Codes) in 2019, and the purpose of these codes was to identify various forms of ESD contributions that larger corporates can dispense to aid the functionality of SMEs that meet the predetermined criteria (Republic of South Africa, 2019). The ESD Codes set out criteria of SMEs that qualify to receive these contributions as those SMEs with minimum 51% Black shareholding and annual revenue not exceeding ZAR50 million (Republic of South Africa, 2019). There is a schedule of potential interventions that can be made to support SMEs, examples of these contributions that can be made to these SMEs is articulated in the ESD Codes and includes amongst other things, non-refundable financial grants, loans with preferential interest rates, investments in equities, human capital capacitation and shorter than normal payment terms (Republic of South Africa, 2019).

Despite the introduction of these BBBEE ESD codes to support SMEs, a high failure rate of SMEs has been observed, and Black industrialists are cannot to access requisite funds for their businesses (Musabayana & Mutambara, 2022). The failure of SMEs is common, as Yeboah (2021) indicates Ghana has a high SME failure rate despite various interventions from the government. Whilst SMEs have a high failure rate, Bhalerao et al. (2022) found that by adopting AI, SMEs can be more competitive

in the market.

1.5 Chapter conclusion

SMEs have been found to be important to the life of any economy. However, businesses face various constraints regarding access to finance, driving innovation and a slow recovery from the impact of COVID-19. An opportunity does exist for SMEs to leverage technology to overcome challenges and drive innovation.

1.6 Outline of the report

Chapter 1 brings to the fore the importance of the research study both from an academic and business point of view. The chapter explores the criticality of SMEs to the South African economy and the impact the success or failure of SMEs has on the economy. There is limited research on the use of AI by black-owned SMEs in South Africa. This research seeks to close this gap by studying to what extent black-owned SMEs leverage artificial intelligence to enhance their productivity and financial sustainability.

The review of existing literature is discussed in Chapter 2 and this sets out insights gained on the role of SMEs in economies, both local and from a global point of view and how these SMEs can grow through the deployment of various resources. The literature review explores AI through the lens of the resource-based theory and how AI as a resource can be leveraged. Through the literature review the research gap is solidified and research questions are extracted.

Chapter 3 outlines the four research questions that have been identified through the review of literature. These research questions are aimed to close the identified research gap. Chapter 4 sets out the methodology and research design of the study utilised by the researcher to gain insights on the four research questions.

Through chapter 5, the findings of the data collection process are articulated and explored in detail in Chapter 6. Through chapter 6, the findings are compared and contrasted with prior studies. New insights gained are detailed in chapter 6. The study is concluded in Chapter 7 where research findings are discussed. Chapter 7 furthers provides recommendations and areas of future studies.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides an analysis of the literature that has been reviewed to obtain an understanding of the role of SMEs in the economy and gain insights into the relationship between SMEs and AI. The chapter commences by demonstrating the importance of SMEs in the performance of an economy and job creation. In addition, the chapter sets out an overview of the existing research on the financial intelligence of SME owners and how this relates to access to funding. The adoption of AI, including related benefits and challenges, is further analysed in the literature. The chapter concludes by identifying the resource base theory as an appropriate theoretical framework that was used as a basis for the research.

2.2 SMEs and their role

The role played by SMEs has been highlighted as being essential for economic growth, and this includes creating employment and reducing poverty (Gherghina et al., 2020). Rao et al. (2023) indicate that across the world, SMEs are a key anchor that drives the growth and prosperity of the world economy. The significant role undertaken by SMEs in driving growth of any economy cannot be underestimated, these SMEs are the heart of the economic activity of countries that are characterised as emerging economies or those that are advanced economies (Erdogan ,2018).

SMEs have been identified as having a significant contribution to the creation of jobs and in tackling unemployment (Sriyono et al., 2021). This principle has been found to be factual in different contexts; Gherghina et al. (2020) in their study highlight that SMEs make a contribution that approximates 85% of newly created jobs in the European Union business sector. In a different context of emerging markets, SMEs have been found to create employment for an average of about 60% of the workforce South Africa, which is more than half of the working population (Sibiya et al., 2023).

SMEs have further been acknowledged as being in a position to have a positive impact on the pursuit of the United Nations (UN) Sustainable Development Goals (SDGs). Rao et al. (2023) elaborate that SMEs are a key ingredient in helping the

world pursue SDG goals by creating jobs and reducing income inequality. In a nutshell, SDG 8 relates to promoting inclusive growth that can be achieved by creating decent jobs (United Nations, n.d.). Specifically, the operations of the SMEs assist in directly pursuing the objectives of SDG 8.2 for labour employment, SDG 8.3 for the support of SMEs, and SDG 9.3 providing access and scope to SMEs (Brixiová et al., 2020). To expand on this, firstly, SDG8.2 pertains to placing a focus on labour-intensive sectors with a view of driving productivity in the economy, and this productivity is to be guided by innovation and or technological improvements (United Nations, n.d.). Secondly, SDG 8.3, although similar to SDG 8.2, focuses on the promotion of policies that specifically foster the growth of SMEs aided by attaining access to funding (United Nations, n.d.). Thirdly, SDG 9.3 focuses on assisting SMEs from developing countries in gaining access to markets and obtaining inexpensive credit. A focus on aiding and abetting SMEs helps countries, including South Africa to further pursue their commitment to the pursuit of the SDGs.

It was noted earlier through Sibiya et al. (2023) and Ghergina et al. (2020) that SMEs create employment for a significant percentage of the population, upwards of 60% to 85%. Therefore, SMEs are key to achieving SDG goals 8 and 9.

In addition to being a driver of economic growth, another key role played by SMEs in the context of emerging markets is that of poverty alleviation within the rural areas, however this type of development of rural areas is dependent on access to funding (Manzoor et al., 2021).

Where SMEs thrive, they are able to be innovative and, in the process, provide consumers with alternative options goods and services invariably leading to heightened competition in the market which will drive down prices for the consumer (Mushtaq et al., 2022). Therefore, the role played by SMEs cannot be downplayed, especially within a context such that of South Africa, characterised by high levels of unemployment and rising costs.

Therefore, given the right level of support, SMEs can help pursue growth in economies which would also include the creation of jobs (Surya et al., 2021). The safeguarding of SMEs would theoretically contribute to innovation, rural development, job creation and pursuit of SDG objectives of various countries, especially within the emerging markets.

2.3 Access to finance

Access to finance or funding of the operations of SMEs has been found to be very key to the growth and expansion of such businesses and where such funding is not accessible, this will result in SMEs not being in a position to invest in technological advancements that would enable such SMEs to remain competitive in the market and achieve growth in the process (Erdogan ,2018). Khan and Anuar (2018) as quoted in Olarewaju and Msomi (2021), describe access to funding at the ability to obtain banking related services which encompass credit, insurance and ability to make payments.

It has been established that SMEs generally encounter challenges in their attempts to raise funding for their operations, be it to fund daily activities or for purposes of capital investment. Mushtaq et al. (2022) highlight that World Bank reports have found that approximately 70% of SMMEs in developing economies face challenges of raising funding. There are various reasons that contribute to this phenomenon and these will be explored in the following paragraphs.

Firstly, this lack of access to funding is linked to the absence of a solid financial standing of the SMEs (Mushtaq et al., 2022).

Secondly the lack of reliable assets to put forward as collateral for the required funding to be acquired has been identified as another reason that prevents SMEs from raising funding for their businesses (Mushtaq et al., 2022). (Erdogan (2018) also makes this point, that financial institutions consider SMEs to be of higher risk due to the inability to produce or put forward collateral for funds to be raised.

This high-risk viewpoint has been validated through a study by Olarewaju and Msomi (2021), a study which specifies that financial institutions view small businesses as high-risk organisations to extend funding to. The so-called high-risk element is also addressed by Erdogan (2018) who states that financial institutions are aware, based on publicly available data which depicts a high rate of failure of SMEs, furthermore the nature of SMEs also makes these highly susceptible to changes in the economic environment. This uncertainty thus raises concerns regarding the long-term financial viability of SMEs thus the reluctance at first glance to extend finance to SMEs.

With this in mind, Mushtaq et al. (2022) this state that lack of financial resources has

the potential to adversely impact the capability of SMEs to be innovative in their approach to business. Due to the inability to raise finances the conventional way, Olarewaju and Msomi (2021) motivate for SMEs to pursue alternate sources of financing.

Thirdly, SMEs are unable to access funding due to the lack of financial awareness of the SME owners (Olarewaju and Msomi, 2021). In this context, financial awareness refers to the ability of the entrepreneur to comprehend good financial management practices which would include investment decisions (Olarewaju and Msomi, 2021),

Another reason forwarded for challenges with accessing funding is the inability of entrepreneurs do not have the requisite skills pertaining to budgeting (Olarewaju and Msomi, 2021); and without this skill set, SME owners are perceived to be unable to be forward looking and plan for near future in terms of cash flow management, or revenue growth opportunities. This is critical for decision making, as good budgeting practices can help identify inefficiencies in the cost structure of the business (Olarewaju and Msomi, 2021).

Having the requisite financial and accounting skills available to the SME has a direct impact on the sustainability of the SMEs (Gamede and Kimzani, 2020). It also been established that having the appropriate accounting skills aids in the potential to access funding, therefore a lack of these skills may impede efforts of the SMEs to raise funding. The inability of the SMEs to produce quality financial records further contributes to the financial institutions being reluctant to avail funding given that these financial institutions are unable to determine the credit worthiness of the small businesses (Erdogan ,2018). Without having access to the requisite financial records that are trustworthy, Erdogan (2018) further argues that the banks are unable to make a determination on the ability of the SMEs to generate adequate cash cashflows to allow for the timely repayment of any financing that would have been advanced to the SME.

With respect to the financial muscle of SMEs, indications are that the ability to raise funding or gain access to funding is deemed a worthy quality in contributing to the financial health of small businesses, and as a result, the inability to access financing contributes to the deteriorating rates of growth and the eventual collapse of SMEs (Olarewaju and Msomi, 2021). As such the SME failures will result in job losses; however, the potential of SME failure can be lessened through focused financial

assistance provided to the SMEs (Kalemli-Ozcan et al., 2020). Mushtaq et al. (2022) found the adoption of information communication technology (ICT) by SMEs to have a positive correlation with the SME's ability to access finance.

2.3.1 Financial intelligence of entrepreneurs

Interestingly, Erdogan (2018) found that access to finance is also dependent on the financial intelligence of the entrepreneur, and this presents challenges, particularly in emerging economies wherein there is limited financial education for business owners of SMEs. This is echoed by Olarewaju and Msomi (2021), who found that banks in South Africa are looking for SME owners with requisite financial skills. Therefore, it is imperative that SME owners in South Africa obtain training, especially in bookkeeping.

Although financial literacy may have various definitions, this is understood to be the existence of financial knowledge amongst various people, in our context this being SME owners (Graña-Alvarez et al., 2024). This definition offered by Graña-Alvarez et al., (2024) further states that financial literacy does not only entail obtaining the knowledge but extends to how that knowledge is applied daily in the ordinary course of doing business.

Financial literacy coupled with technological literacy was found to positively impact the SME's ability to have good enterprise risk management practices and positive performance (Kulathunga et al., 2020). This study by (Kulathunga et al., 2020) brings to the fore the fact that for SMEs to thrive, SME managers or owners need to have sufficient literacy around issues of technology and finances. This positive correlation between financial literacy and increased performance in SMEs was also found to be a key factor by Olarewaju and Msomi (2021)

This technological and financial literacy equips SMEs or their employees with the knowledge to utilise digital tools to identify, assess and mitigate risks pertaining to the general operational environment, financial risks, and budgets. From this, one can deduce that financial institutions may look favourably upon SMEs that demonstrate good adoption of technologies that seek to enhance financial and risk management.

A separate study determined that financial literacy has a noteworthy positive

correlation with monetary growth and the non-financial growth of a small business (Hossain, 2020). Therefore, small firms will struggle to grow where such financial insights or literacy does not exist.

As such, interventions in the form of financial educational training sessions for entrepreneurs are required and will work towards improving the financial education of SME managers (Erdogan, 2018). The findings of Erdogan are also echoed by Msomi and Olarewaju (2021), who found that special training programmes are required to contribute to financial awareness, which in turn will empower SME owners to be better positioned to raise funding for their businesses and exercise financial due diligence in running the affairs of their own businesses.

Financially literate SME owners are in a better position to run their businesses from a financial perspective and influence the growth prospects of a small business. This would thus lead to such SMEs being in a better position to attract funding (Erdogan, 2018).

As mentioned in the preceding paragraphs, the lack of financial literacy has the potential to inhibit the growth of SMEs, affecting the SMEs' ability to compete effectively, a common factor in emerging economies such as South Africa (Oosthuizen et al., 2020). To counter the effects of a lack of adequate financial literacy or financial skills, Oosthuizen et al. (2020) highlight the need for SMEs to outsource certain aspects of the financial management processes of the SME.

2.4 Growth defined and Determinants of growth

Although there are many definitions of growth that have been advanced, the simpler explanation of this being an increase in the size of the business still holds, this being an increase over an extended period of time through different cycles (Salder et al., 2020). Therefore, business growth, is widely accepted to mean an increase in the complete profitability of SMEs, the expansion of its resources or an increase in headcount of the workforce (Yeboah ,2021). A related view is additionally sponsored by Dobbs and Hamilton (2007), who, from an earlier research, stipulated growth to be the means growing the shareholders' earnings.

Salder et al. (2020) found a very diverse list of determinants that are key to SME growth in their system literature review study. Key among the determinants of growth

is the utilisation of internal and external resources. However, there is a need to integrate internal and external resources, which can be aided by networking (Salder et al., 2020). Salder et al. (2020) further argue that the internal resources are also depended on interaction with other internal resources to enhance the growth prospects. In this regard, the are four groups of resources that have been highlighted by Salder et al. (2020) and these are the strategy deployed by the business, followed by the resources available within the environment in which the small business operates, thirdly, it is the assets available for use by the business, and the characteristics of the resources.

The four groupings identified by Salder et al. (2020) are expanded as follows: 1) In strategy component encompasses the development of new products and processes as well as the training and development of people. 2) Secondly, characteristics refers to age and size of the SME and this is coupled with innovation deployed by the business. 3) Thirdly, assets cover the existing knowledge developed within the business aided by the access to funding and the personnel recruited by the business. 4) Lastly, the environmental aspects reference the external regulatory environment and quality of infrastructure within which the SME exists.

As articulated in the preceding paragraph, Matekenya and Moyo (2022) found that innovation has a critical role to play in the growth opportunities of SMEs. Therefore, it is incumbent upon SMEs to search for or seek prospects to introduce new products and services; and secondly for the SMEs to invest in conducting research and development activities. In their study, Surya et al. (2021) state that innovation by means of technology has the potential to contribute to the productivity of businesses. In addition to technological innovation, the capacity of personnel, support from the government, investment of capital and the promotion of products also influence the upward progression of SMEs (Surya et al., 2021).

Hossain (2020) ascertained that access to funding has a positive correlation with the expansion, development and growth of an SME; amongst other things, this encompasses the financial literacy levels of the entrepreneur. This access is a key component of growth in emerging markets and has also been found to drive growth of SMEs in the rural communities as well (Gyimah and Lussier, 2021).

The educational qualifications of entrepreneurs in Ghana were also identified as a key ingredient in determining SME growth (Yeboah, 2021). Education in this context

is not attributable to formal education but a continuous investment by entrepreneurs in themselves. When entrepreneurs identify limitations in their abilities, they should consider insourcing competent people to help pursue the growth of their business (Yeboah, 2021). In addition of educational qualifications, the experience of entrepreneurs has also found to have a positive effect on the growth of the small business, this also being coupled with the entrepreneurs marketing abilities (Gyimah and Lussier, 2021).

2.5 Productivity of SMEs

Owalla et al. (2022) refer to productivity as the ability of an entity to generate certain output given a determined quantity of inputs, inputs which pertain to the workforce, investments and other resources at the disposal of the entity. Through this productivity, economic growth is attained to advance society's wealth and improve living standards (Owalla et al., 2022). Therefore, productive SMEs can be a key tool in advancing the interests of society to improve living conditions and bridge inequality.

The implementation of technology, research, and development, as well as innovation within a business, have proven to positively impact the outcome of the productivity of that entity (Ballestar et al., 2020). Specifically, Ballestar et al. (2020) found that SMEs that implemented technologies such as robotics proved to be more efficient, demonstrating the benefits of technology use within the SMEs. In a separate study on SMEs in the emerging economy of Tanzania, innovation was also found to be a key contributor towards productivity (Timothy, 2022)

As highlighted earlier through the study by Salder et al. (2020), a good quality level of human resources has a positive impact on the growth of small business. further to this, the capability and qualification of managers has been found to contribute to higher levels of productivity of SMEs. This was determined in a study by Timothy (2022) in which the study found that the education level of top managers have a positive correlation with the productivity of the SME.

In a separate study, it was found that a growing economic environment has a positive effect on the productivity of the small businesses (Surya et al., 2021). This viewpoint

concurs with the findings of Salder et al. (2020), as articulated in the preceding paragraphs where their study found the external environment as being part of the four main categories of the determinants of growth. Therefore, a growing economic environment will spur on the productivity of SMEs.

Governmental support has also been found to have a positive effect on the productivity of the SMEs, therefore any support provided either through friendly policies or the provision of subsidies to the aid the procurement of production equipment has the means to positively impact the productivity of the SMEs (Surya et al., 2021). In addition, SMEs could be supported through friendly lending terms such a low finance costs or preferential tax rates for SMEs, these have a positive impact on the productivity of SMEs (Surya et al., 2021).

2.6 Grants as a business funding mechanism

Research undertaken in Hungary found that organisations that receive assistance or subsidies could increase employment by 22% and 24% (Nyikos et al., 2020). Such financial assistance provided in the form of grants, Nyikos et al. (2020) adds, does have a positive effect on increasing income levels of SMEs as well as improving on aspects of productivity. The study further found that where the nature of funding is non-refundable, the employment of staff increases, thereby making organisations to be less efficient (Nyikos et al., 2020). Whilst some funding may be helpful, there are instances where such resources in that take the form of grants, do not necessarily result in SMEs experiencing growth (Srhoj et al., 2020). Instead, the growth prospects depend on the size of the SME receiving the funding and the quantum of the finances received.

Whilst the grants may have some benefits, Dvoulety et al. (2020) draw attention to the need for additional work to be undertaken to seek clarity on the variations between the impact of grants on SMEs both in the short run and in the long run, as most studies undertaken concentrate on the shorter frame of time. There is a further need to establish the appropriate level or quantum of grants that is required to establish how effective are these grants in comparison to the size of the SMEs that receive such grants (Srhoj et al., 2020).

2.7 Enterprise and supplier development

The Broad-Based Black Economic Empowerment Act 53 of 2003 was enacted to promote equality and the inclusion of previously disadvantaged people in the country's economic landscape, aiming for just and equitable distribution of income and the growth of employment (Republic of South Africa, 2003). The main goal of the legislation is to ensure that black people and those who were previously disadvantaged have the opportunity to participate in the economic activities of South Africa (Dreyer et. al., 2021).

In 2019, the South African Government published the Enterprise and Supplier Development (ESD) Codes (Republic of South Africa, 2019) to guide how companies are measured based on their economic activities supporting the growth of SMMEs. These Codes primarily assess company spending on black-owned SMMEs across three categories: preferential procurement, supplier development, and enterprise development (Republic of South Africa, 2019).

Black-owned SMEs benefiting from these contributions are termed ESD beneficiaries. These beneficiaries are entities with annual income levels that are under R50 million and black ownership that exceeds 51% shareholding. The ESD Codes outline 23 various categories of contributions that can be extended to ESD beneficiaries, and these include but are not limited to credit facilities, loans, grants, coaching, mentoring and guidance, and direct costs paid directly by sponsors on behalf beneficiaries (Republic of South Africa, 2019). These Codes also acknowledge that there are many other ways to support ESD beneficiaries, which cannot all be detailed in a single document.

The supplier development process entails larger businesses being encouraged to identify and develop some of their up-and-coming suppliers (van der Westhuizen & Ntshingila, 2020). In the context of ESD, the BBBEE codes of good practice encourage larger companies to seek opportunities to develop both existing suppliers through the supplier development programme and to develop other SMEs that are not their immediate suppliers, and this forms part of enterprise development (Republic of South Africa, 2019). Together, these two types of contributions are referred to as enterprise and supplier development programmes.

2.8 Artificial intelligence and related business benefits

2.8.1 AI defined

In their study, Enholm et al. (2022) found that AI can have many definitions; however, there is consensus that this relates to providing computers with the ability to perform tasks that humans ordinarily would perform.

Arakpogun et al. (2021) offer a further definition, which states that AI is the ability to program or empower machines to simulate human intelligence that is enabled to undertake certain tasks better than humans. This will allow machines to be at the forefront of driving efficiencies that will lead to growth in the economy.

A further view expressed on AI is that it is a piece of technology or culmination of different technologies that firstly allow computers or machines to act at a superior level whilst, in the process, allowing human beings to elevate their expertise in various activities (Kabalisa & Altmann, 2021).

Whilst there are varying definitions, there appears to be a sufficient consensus that points to AI as the development of superior technology that seeks to provide machines with insights, logic or intelligence that would ordinarily be known only to human beings.

2.8.2 AI Adoption

The adoption of AI has been found to be prevalent in the private sector compared to the public sector, and this trend has been identified through extensive research (Kabalisa & Altmann, 2021). AI adoption in emerging countries (including South Africa) is being prioritised as these countries are seeking as their main reason to catch up with mature countries and seek to derive benefits that would make these emerging countries to be as competitive and increase productivity (Kabalisa & Altmann, 2021).

Reasons advanced by some South African-based companies on the need to adopt AI include the fact that there are demands from customers for the adoption of AI, companies adopt AI as an attempt to keep up with competitors and also the risk

appetite to determine what the AI is about and what it can do for you (Matsepe & Van der Lingen, 2022).

2.8.3 AI Benefits

In their paper, Zheng et al. (2024) have found that AI is a critical tool that can assist SMEs in obtaining funding through innovative measures such as crowdfunding. Simply put, AI can be creatively utilised to compile messaging that aids fundraising by attracting crowdfunding contributors.

With respect to businesses, Enholm et al. (2022) further state that AI provides businesses with some benefits, including but not limited to enhancing business process innovation through introducing new products or services and strengthening the process of decision-making. In addition, Enholm et al. (2022) highlight that through the implementation of AI, businesses have realised financial gains through increasing revenues and the lowering of costs, as well as enhanced marketing performances.

2.8.4 AI Challenges

Matekenya and Moyo (2022) found that although innovation is vital for SMEs' development, these entities cannot benefit from this due to inadequate financial resources. Thus, SMEs would be unable to invest in research and development that will enable innovation (Matekenya & Moyo 2022), and larger firms will always have an advantage over small firms. Okoye et al. (2024) further add that AI has the potential to add to innovation and drive economic growth within the African context.

The development and implementation of AI can prove to be challenging to SMEs due to limited financial resources, lack of adequate skills and minimal knowledge regarding the use and benefits of AI (Wei and Pardo, 2022). However, Wei and Pardo (2022) explored and found that leveraging platforms to provide SMEs with access to AI at a fraction of the cost does not require SMEs to have expertise.

2.9 Theory and framework

Various frameworks were analysed in this section, and the most suitable were selected to be utilised in this study.

Hafiz et al. (2022) undertook a literature review to identify theories that focus on the correlation of intangible resources with the upward progression of business entities. The theories considered in this literature review study are as follows: 1) Resource-based theory, 2) Knowledge-based theory, 3) Dynamic capabilities theory, 4) Upper Echelons Theory and 5) Resource dependency theory.

2.9.1 Overview of Resource-based theory (RBT)

Mushtaq et al. (2022) anchored their study on the resource-based theory. The RBT allows firms to assess their resources and identify which of those provides it with a competitive advantage (Barney, 1991) and thus identified computer processing systems to be such resources, provided these are embedded in the processes of a firm in a manner that cannot be easily duplicated, in the process providing the firm with a competitive advantage. The key to this is for the resource to be rare, valuable, not easy to copy and non-substitutable (Hafiz et al., 2022). Therefore, Mushtaq et al. (2022) argue, similar to Barney (1991), that the innovation of SMEs can be viewed as a critical resource of the firm, providing the firm with a competitive advantage over its rivals in accessing finance. Hossain (2020) also uses the RBT and considers the company's financial resources and financial literacy as key resources that enable the growth of the SME.

2.9.2 Overview of Knowledge-based theory (KBT)

This theory is premised on the fact that knowledge is a critical component in the growth of the business. This specifically relates to tacit knowledge (Hafiz et al., 2022), which encompasses knowledge that exists within the organisational culture, systems, processes, and employees. Like RBT, the KBT cannot be easily imitated and thus provides a competitive advantage to the firm (Hafiz et al., 2022).

2.9.3 Overview of Dynamic Capabilities Theory (DCT)

The DCT is viewed as an extension of the RBT, with the main difference being the ability of DCT to be flexible and adjust to the evolving environment (Hafiz et al., 2022). The main dynamic capabilities are three-fold and refer to the ability to sense change ahead of competitors, seizing opportunities in a timely manner prior to competitors. Lastly, DCT encompasses the ability to transform the organisation in line with the changing environment (Schoenmaker et al., 2018). In determining the role of AI, although it may have capabilities to sense, as a stand-alone, AI will be unable to seize opportunities to transform the business as these are actions that require human action.

2.9.4 Overview of Upper echelons theory (UET)

The UET places the organisation's success or growth on the capabilities of its top managers or, in the SMEs, on the capabilities of the SME owner or managers, specifically some personality traits and bricolage tendencies. All these are deemed to provide businesses with an advantage over their competitors (Hafiz et al., 2022). This research, does however, seek to assess the influence of AI on the firm and does not intend to evaluate the owner's ability to pivot or provide direction as conditions change.

2.9.5 Overview of Resource Dependency Theory (RDT)

This theory focuses on the firm's (firm 1) ability to exert control over the resources of another firm and the resultant dependency of the other firm on the first firm (Firm 1) (Hafiz et al., 2022). In the context of the current paper, there is no dependency on another for the use and delivery of AI.

2.9.6 Appropriate selection of a theoretical framework

KBT: Knowledge-based theory has a strong focus on knowledge as the most critical or strategic resource for the success of an organisation. In this regard, a focus on

KBT would reduce the scope of reviewing the capability of non-knowledge resources within the organisation, such as AI. In this regard, KBT is deemed not to be appropriate for this study

UET: The upper echelons theory elevates the key managers or top executives as critical to the success of the organisation. Although SMEs are highly dependent on the efficacy of their owners, this theory is not appropriate for the study as it elevates top executives and disregards the importance of resources available for the entity, such as AI.

RDT: The resource dependency theory concerns itself with understanding the impact of external resources on an organisation's operations; these could be resources of an external entity. In this regard, the current study seeks to understand how AI can be leveraged as a resource of the existing entity and not that of an external entity. Therefore, RDT would not be appropriate for this study.

DCT: Dynamic capabilities theory focuses on ascertaining the organisation's ability to adjust to the changing environment. The DCT, therefore, centres on enabling the organisation to adjust as the environment changes. This theory does not focus on leveraging the organisation's internal resources; instead, it helps position the organisation to be flexible in its approach to dealing with the external changing environment. The DCT is, therefore, not appropriate as it overlooks the existence of the current internal resources.

Having reviewed the various theories that have been considered for this study, the RBT has been identified as an appropriate theory on which to base this study. RBT's main focus is identifying which of its tangible and intangible resources can provide it with the most competitive advantage. As pointed out earlier, Mushtaq et al. (2022) and Barney (1991) found the innovation of SMEs to be a critical resource of the firm, providing the firm with a competitive advantage over its rivals. Therefore, RBT is appropriate in that AI is viewed as a form of innovation that seeks to provide SMEs with a competitive advantage over rivals in the industry.

2.9.7 Exploring RBV

The resource-based view (RBV) emphasises the need to exploit resources (tangible

or intangible) to attain a competitive advantage in the market. Hafiz et al. (2022) set out the following as key components of the RBV, also referred to as VRINE (valuable, rare, inimitable, non-substitutable, exploitable):

1. Relates to resources that are tangible or intangible
2. Valuable resource
3. Rare resource
4. Difficult to imitate
5. Provide competitive advantage

In evaluating the impact of AI against the RBV components, AI is predominantly in the form of software or machines and thus is aligned with being an intangible or tangible resource for SMEs. An earlier review of the literature identified the use of AI as being beneficial to SMEs through various aspects, such as enhancing business processes to be more efficient or driving insights on new products or service offerings (Enholm et al., 2022).

The ability to be efficient has the potential to lead to cost savings and increase profitability at the same time. Furthermore, where AI is able to drive innovation leading to new products or services, this can support the efforts of the SME to drive revenue growth by exploring new markets through new revenue streams. In this respect, AI is aligned to the third component of being a valuable resource.

With respect to AI being a rare resource, the adoption of AI is low due to financial constraints. Therefore, for those SMEs that make use of AI, this will make the technology rare in that particular space. Whilst there are off-the-shelf AI products available, developing AI specific to the needs of the SME will make it a rare and non-imitable resource for the SME.

Regarding AI providing a competitive advantage, Mushtaq et al. (2022) indicate that technology adoption provides SMEs with opportunities to access credit or finance, which on its own is a competitive advantage over those SMEs that have not deployed AI in their operations. The adoption of such technologies has the ability to provide an economy with a competitive advantage, as echoed by Matsepe and Van der Lingen (2022).

In this regard, the use of AI has been adequately aligned with the outline set out by

Hafiz et al. (2022).

2.10 Chapter conclusion

The literature review has provided an understanding to the effect that SMEs are a critical component of any economy globally, particularly within the South and Sub-Saharan African contexts. These SMEs have been identified as key role players that drive economic growth and job creation globally, and research revealed that small businesses employ the higher number of the working population in many economies. With the requisite support, SMEs can contribute towards the pursuit of SDG goals particularly those pertaining to the reduction of inequality and the promotion of inclusive growth. Furthermore, these SMEs have the potential contribute to poverty alleviation. As part of their existence, SMEs drive innovation and enhance competition in the markets with the potential of supplying the consumers with goods and services at competitive rates, reducing prices in the long term.

Whilst SMEs are critical to various economies, they face challenges in maintaining their suitability and enhancing prospects of growth, this is specifically due to a lack of funding. The main contributors of this lack of funding primarily relate to inadequate financial literacy levels and also the lack of collateral offered by SMEs in exchange for funding. With limited or no access to funding, SMEs run the risk of being less innovative and competitive, thus falling behind their rivals. Through the literature review, innovation has been identified as one of the key components of growth. Innovation has been identified as a contributor to the productivity of small business, this coupled with positive government support. To counter the effects limited access to finance, grants have been identified as a potential mechanism to assist SMEs, however the use of these should be circumspect as the grants have been found to reduce efficiencies.

The literature further reveals although the South African government has enacted legislation aimed at promoting ESD programmes to enhance SMES, these contributions have not sufficiently countered the rate at which Black-owned SMEs fail, nor has it boosted access to funding for these entities.

The literature review also revealed that AI has the potential to support SMEs' growth

initiatives, this being done through innovating some key businesses processes and the reduction of some costs. The Adoption of AI is on the rise in developing countries and SMEs in this space, including those based in South Africa, are deploying AI as a means to remain competitive and attempt to catch-up with their competitors from advanced economies. Although AI can aid prospects of innovation and growth, AI the adoption therefore remains a challenge in certain quarters due to lack of adequate financial resources to implement such technologies.

In this regard, for the purpose of this study, AI will be reviewed through the lens of the resource-based theory or RBV and explore to what extent as an internal resource is AI providing SMEs with the potential to be more productive, innovative and remain financially sustainable.

CHAPTER 3: RESEARCH QUESTIONS

3.1 Introduction

Through the review of literature presented in chapter 2 specific focus was placed on gaining insights on the determinants of growth of SMEs. From this literature review, the insights gained contributed to the formation of the research questions that underpin this study. This chapter serves to outline the four research questions that have been identified. The research questions have been set out to explore the key enablers of the sustainability and growth of SMEs namely financial literacy, access to finance, and operational efficiency and to understand to what extent these enablers can be enhanced by AI.

3.2 Research question 1

Question 1: *Can AI be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs?*

In the context of small businesses, prior research has identified that financial literacy concerns itself with obtaining financial knowledge and applying it to the day to operations of the SME. Through the application of this knowledge, SMEs have been found to benefit from having financially literate owners of managers and this leads to improved SME performance (Olarewaju and Msomi, 2021).

A study by Nechiporenko (2022) found there is a low number of businesses that utilise AI for the purposes of enhancing financial reporting and instead SMEs opt to outsource this function as there is a lot of uncertainty in terms of what AI can offer. This study by Nechiporenko (2022) was limited to a sample of SMEs based in Finland, and thus the study further recommends that this research be undertaken in other contexts or jurisdictions.

In this regard, research question 1, sought to understand to what extent do SME owners in South African context, specifically black-owned SMEs deploy the use of AI to enhance their financial literacy and financial reporting processes.

3.3 Research question 2

Question 2: *Can the use of AI help improve access to finance for SMEs?*

SMEs have been found to play a critical role in the growth of economies and creation of employment, however, there are various difficulties that inhibit the sustainability and growth of SMEs especially within the African context (Ekechi et. al., 2024).

Access to finance is amongst a number of critical factors in contributing to the SME being financially sustainably (Olarewaju and Msomi, 2021). Ekechi et. al., (2024) in their study indicate that without access to funding, SMEs would have challenges to invest in growth and the adoption of much needed technology.

Whilst access to finance remains a challenge for SMEs, technology adoption and technological innovation has been identified as an enabler in promoting the SME's ability to access funding (Mushtaq et al., 2022). Specifically, this study by (Mushtaq et al., 2022) was based on data gathered across the world through the review of the World Bank Report. Of these, there is an uncertainty on the quantum of SMEs that were included in the study. Therefore, there remains an opportunity to explore this further within the context of South African black-owned SMEs, and it is in this context that research question 2 sought to understand to what extend can innovation play a role in enabling previously disadvantaged black-owned SMEs to gain access to finance.

3.4 Research question 3

Question 3: *Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity?*

Artificial intelligence has been at the forefront of innovation that enables technology to perform certain tasks much faster and much better than the human capabilities, and this invariably drives better efficiency and productivity (Arakpogun et al., 2021). In this regard, there has been an increase in companies adopting this AI technology especially in emerging economies where SMEs are seeking to be competitive and more productive and in the process be in a position to compete with their more advanced counterparts (Kabalisa & Altmann, 2021).

Having understood the potential that AI brings to the table, it has been noted that specifically within the African context, SMEs can harness AI to foster innovation and enhance efficiencies and AI can be instrumental for SMEs in developing new and innovative products or services (Okoye et al., 2024). The study undertaken by Okoye et al., (2024) is overly broad and addresses AI adoption and potential level at a high level within an African context. To date, there are no known studies on the use of AI by Black-owned SMEs, and research question 3 is formulated to explore how Black-owned SMEs leverage AI for operational efficiencies and productivity.

3.5 Research question 4

Question 4: *Do organisations view AI as an enabler to drive BBBEE objectives?*

Supplier development programmes are designed to aid SMEs to improve their capability and performance (van der Westhuizen and Ntshingila, 2020). With this in mind, to aid in the development of SMEs, the South African Government introduced legislation that seeks to promote the development of SMEs. This is done through the implementation of the codes of good practice on BBBEE (Republic of South Africa, 2019).

Dreyer et. al. (2021) point to the fact that the main objective of this legislation is to ensure black people are actively participating in the South African economic activities, this includes the participation of black owned businesses. The South African government and Microsoft signed an agreement that would see a R1.3 billion investment aimed at empowering black-owned businesses through fourth industrial revolution technologies (Department of Trade, Industry and Competition, 2024). Through this initiative, black-owned start-ups entities in both the technology and non-technology space would be encouraged to make use of technologies such as AI (Department of Trade, Industry and Competition, 2024). The programme would also provide you black South African with opportunities to learn and develop skills sets through formal education and training in technologies such as AI, and some data analytics (Department of Trade, Industry and Competition, 2024).

This investment by the South African government and Microsoft contributes to the journey undertaken by many SMEs that attempt to introduce innovation in their

businesses towards being more efficient and productive. This then leads to a question of toward extent do black-owned SMEs view AI as a key enabler towards advancing the objectives of the BBBEE which entail driving the inclusion of black people into South African economy.

3.5.1 Analytical framework

With respect to the current paper, AI has been positioned as an innovative tool that can be utilised to enhance the financial knowledge and financial integrity of SME entrepreneurs and the related financial position of the firms. This critical resource is aligned with the VRINE outline associated with the RBT. AI is considered valuable as it requires capital investment in development or acquisition. Secondly, AI is rare as it will be developed for the unique firm for which it is utilised; thirdly, the specific design will make it difficult to copy; and lastly, AI is non-substitutable in that there would be no other capable.

Figure 3.1 sets out the analytical framework to be pursued by this paper, which seeks to explore the relationship between AI and its possible outcomes, namely, innovation that drives financial sustainability and a competitive advantage.

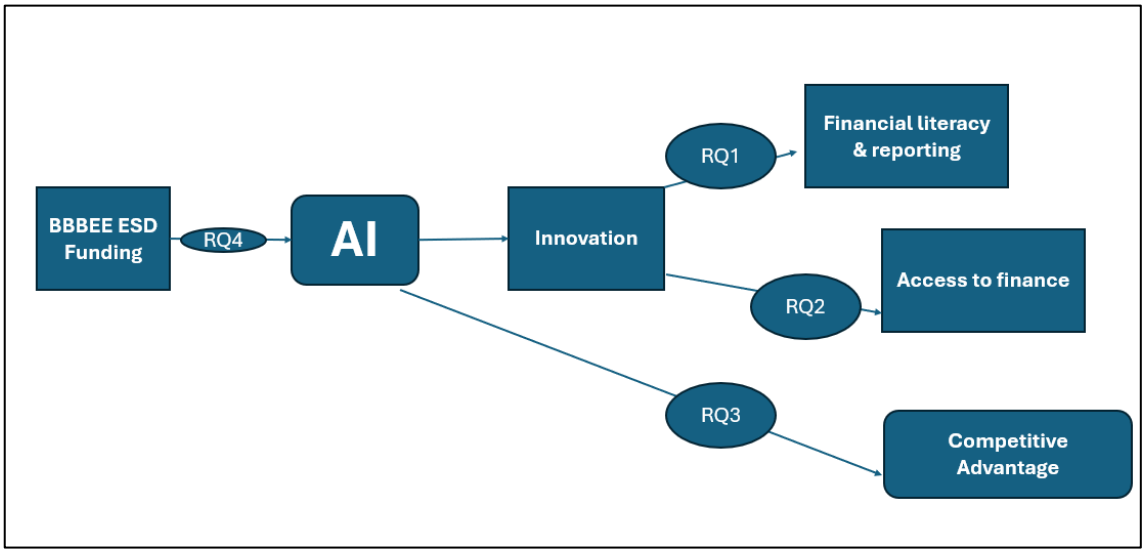

Figure 3.1: Analytical framework of the study

Source: Author's own.

3.6 Chapter conclusion

From the literature review, the following research questions have been derived:

Question 1: Can AI be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs?

Question 2: Can the use of AI help improve access to finance for SMEs?

Question 3: Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity?

Question 4: Do organisations view AI as an enabler to drive BBBEE objectives?

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This chapter sets out the research design and methodology adopted for the study in order to extract insights on the four research questions discussed in chapter three. A qualitative approach was deemed appropriate for this study to provide first hand insights on how AI is leveraged by black-owned SMEs. Included in this chapter are details pertaining to the data collection process which was undertaken by undertaking semi-structured interviews. The chapter further highlights the measurement instrument utilised, sampling method and size, unit of analysis and steps taken to ensure quality control.

4.2 Choice of research design

4.2.1 Purpose of research design

A literature review was undertaken and published by Rao et al. (2021) in which approximately 280 papers were reviewed with a primary focus on the funding of SMEs. This review, highlights that a vast amount of research was conducted within the spectrum of SME funding; nonetheless, as the result of there being limited studies on AI as a resource to support SME development through BBBEE ESD contributions, an exploratory study was deemed appropriate. An explanatory design is considered appropriate when researcher aims to elaborate on the “causal relationship amongst different variables” (Saunders & Lewis, 2018, p. 118). Although this research is underpinned by a desire to establish the existence of any causal link relating to financial sustainability and the productivity of small businesses, due to the limited literature on AI being leveraged by black-owned SMEs, an explanatory study would not offer the required insights to adequately address the research questions (Aspers & Corte, 2019). In this respect, an exploratory design was considered suitable for the purpose of this research.

4.2.2 Philosophy

The primary objective of this research was to attain an insight of the lived experiences of the managers of SMEs as well as the beneficiaries of SME funding; as such, the appropriate philosophical paradigm of this study was determined to be interpretivism (Zukauskas et al., 2018). Ghauri et al. (2020) indicates that interpretivism is fitting for researchers to understand how individuals act when they are in their respective roles as social actors. This would be suitable for the study because the SME owners shared their insights regarding financial literacy, access to finance, the respective uses of funding and adoption of AI. Although a positivist philosophy may provide insight into a causal relationship between financial literacy, access to finance, AI adoption and growth of SMEs, this approach would not yield deep insights from the entrepreneurs on, firstly, the capability and capacity to raise financing for the business and, secondly, the legitimate influence on the life and growth prospects of a SME (Brough, 2019). Consequently, interpretivism provides understandings from the lived experiences of SME owners and managers who have adopted AI programmes and this will support in the understanding and answering of the research questions.

4.2.3 Approach selected

Young (2019) suggests the development of theory can follow two main approaches, namely inductive and deductive, or as an alternative, a third option which is, an abductive approach that combines the inductive and deductive approach. The key distinction of these two approaches is that an inductive approach centers on building theory or insights gained from data collected (Azungah, 2018). Whereas a deductive approach is explaining the relationships between variables using existing theories (Saunders & Lewis, 2017). This study employs an explorative qualitative study to generate insights from black-owned SMEs, thereby contributing new knowledge to the existing body of knowledge. Consequently, an inductive study was determined to be more suitable. In contrast a deductive study relies on pre-existing theory and would thus not be suitable as the study would not be based on existing theories but instead seek to develop new theories from insights gained (Auston & Sutton, 2014).

4.2.4 Methodological choices

With respect to methodological choice, consideration should be given to a suitable data collection technique, this may either a single technique or multi-technique (Saunders and Lewis, 2017). This study was premised on gathering data for a qualitative study. This data was collected through a single technique: semi-constructed interviews with an identified sample. A qualitative mono method was thus selected for this study. Due to time constraints applicable to this study, a mixed method approach is not considered to be desirable.

4.2.5 Strategy

From the review of literature carried out in this paper, there is a lack of clarity that remains with respect to the role of ESD contributions through AI adoption on the growth of SMEs. Therefore, a generic qualitative strategy was determined to be appropriate as this involves gaining an understanding directly from entrepreneurs (Lester et al., 2020). This approach entails using semi-structured interviews to obtain insights from SME participants that participated in the study. An alternative strategy, such as an experiment strategy, would not be suitable as it is premised on studying causal links between certain variables (Saunders & Lewis, 2017).

4.2.6 Time horizon

With regards to the time horizon, two options are available to determine an appropriate time horizon, namely, cross-section and longitudinal study (Brough, 2019). A longitudinal study, which is conducted over an extended period to observe change (Saunders & Lewis, 2017) would not be suitable due to time constraints. Consequently, a cross-sectional study is more appropriate as it involves conducting interviews within a set timeframe, which is often referred to as a snapshot (Ghauri et al., 2020).

4.3 Tools and Techniques

4.3.1 Population

A population in the context of a research study refers to a total number of subjects that are eligible to partake in an interview and which a smaller grouping can be selected for the purpose of testing (Creswell and Poth, 2018). The population identified for this study is made up entrepreneurs or SME owners of qualifying black-owned SME organisations, and these entrepreneurs that form part of this population are primarily based in Gauteng, South Africa. This body of entrepreneurs comprises those that have adopted AI or not adopted AI and those that have formed part of ESD programmes recently. In the South African context, SMEs are defined as organisations with a workforce of not more than 200 employees and annual revenues not exceeding ZAR50 million (Abor & Quartey, 2010).

4.3.2 Unit of analysis

The unit of analysis utilised in this study was the individual entrepreneurs that were interviewed or those responsible for the daily operations of the organisation, such as general managers, managing directors, and chief executive officers. These individuals are key decision-makers with the ability to take decisions that influence the direction that their respective entity takes.

4.3.3 Sampling method and size

A sample is deemed a subsection of a wider population (Rahi, 2017), and thus for this study, the subgroup has been identified as a subsection of SMEs that operate in the province of Gauteng. To determine the appropriate sampling method, due consideration was undertaken to determine if access to the full list of SME owners that operate in Johannesburg could be obtained. The Organisation for Economic Co-operation and Development (OECD) (n.d.) reports that there are an estimated 2.6 million SMEs in South Africa. Compiling a full list of all SMEs in Johannesburg, Gauteng would be time-consuming and impractical. In such instances, Majid (2018) posits that a different sampling method should be considered for use, specifically this

should be a method that does not require a full list of the population size; these would be non-probability methods. In this regard, purposive sampling is deemed to an appropriate method that is most widely used as a non-probability method for qualitative studies (Mujere ,2016).

The purposive sampling technique was therefore pursued for this study; specifically, this was heterogeneous as it provided a variety of participants to partake in the study (Subedi, 2021). Compared to other available methods, such as homogenous, this was a preferred method, which only provides insights regarding one group of participants (Lester et al., 2020).

Sampling techniques such as "extreme case" were found to not be appropriate for the target population. Similar studies were reviewed to gain an understanding regarding how sample sizes were determined. In their qualitative research on understanding financial behaviour, Wong et al. (2018) conducted a study on 11 SME owners and this where semi-structured interviews were undertaken. In separate research on aspects affecting the ability of SMEs to access to financing, about 25 semi-structured interviews were conducted by (Erdogan ,2018). In addition, a study on the competitiveness through non-banking financing in SMEs, a sample size of 25 participants was utilised by Sriyono et al. (2021). This was reinforced with an extra five interviews where financial experts on SMEs were engaged.

in line with these identified above, a sample size for similar studies ranges between 11 and 30 participants (Leedy & Ormrod, 2019). Therefore, a sample size of 15 was pursued by the researcher, however the semi-structured interviews were conducted on 15 SME owners based in Johannesburg, Gauteng Province of South Africa as saturation was reached after the 15th interview.

4.3.4 Measurement Instrument

Semi-structured interviews were conducted for this qualitative study. In this regard, an interview guide has been prepared; refer to Appendix C for the interview questions. Rahi (2017) provides guidance on developing measurement instruments. To start with, individual questions need to be conceptualised, and for this study, these questions were derived from the four research questions asked, namely, 1) Can AI

be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs? 2) Can the use of AI help improve access to finance for SMEs? 3) Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity, and 4) Do organisations view AI as an enabler that drives BBBEE objectives?

Secondly, a set of standardised questions was developed to capture the core contents of the key research questions (Rahi, 2017). These were semi-structured interviews aimed to gain and explore insights into the financial literacy of SME owners and how these impacts on the daily running of the business and financial reporting requirement. Furthermore, the semi-structured questions sought to understand the funding challenges for SMEs and the ability to access finance as black-owned SMEs. The adoption of AI was also a feature of the semi-structured interviews where relevant lack of adoption of AI was also explored. Through the interviews, the willingness of larger entities to provide supplier development financing was also explored, the use of SME funding received, the benefits and shortcomings of receiving supplier development financing, and understanding what long-term impact (if any) such funding provides to the SME business owners. The semi-structured questions provided an opportunity for additional clarity seeking questions to be asked where necessary (Creswell & Poth, 2018).

Prior to the interview taking place, it is encouraged that these interviews and related interview guides be piloted (Saunders & Lewis, 2017). Accordingly, for this study, this pilot interview was conducted with a fellow researcher who in their own respect is a SME business owner that fits the criteria of the population. During this pilot, the researcher tested the ability of the questions to be understood. The researcher further tested the audio recorder and playback, checking for appropriate quality and clarity of audio. This approach highlighted above is consistent with the conclusions of Kallio et al. (2016), which state that semi-structured interviews require a five-phase approach. This five-phase approach encourages the use of pilots, secondly utilising existing body of knowledge, following by the preparation of an interview model or guide, then conducting a thorough analysis of the requirements and ultimately presenting the compiled guide (Kallio et al., 2016).

4.3.5 Data gathering process

During the data collection process, the foremost source of the data collected was primary data; the use of secondary data was utilised for the purpose of strengthening the justification for saturation, this was conducted as part of the data triangulation process. These semi-structured interviews were performed virtually and in person; as such, it was essential the requisite preparation to be undertaken by the researcher (Barrett & Twycross, 2018). This act of preparation included acquiring an understanding of the entrepreneurs to be interviewed, their experience as businesspersons, and selecting a suitable time and location for the participant, preferably at or closer to their place of business. It was essential that a consent form was prepared for the participating entrepreneurs, the contents of which included consent to participate in the interview, secondly an agreement to record of the interview, and lastly to emphasise that the interview remains voluntary (Saunders & Lewis, 2017). All participants duly consented to the interview in writing, with further verbal consent obtained for the recording of the interviews.

During the process of data collection, it was vital to establish at what saturation was reached, and this was for occurrences where further information did provide new insights into the study (Hennick & Kaiser, 2022). Furthermore, Mwita (2022) states that that to reinforce data saturation, there are supplementary factors to be considered, and these factors encompass themes and codes that are predetermined, having an adequate sample size, and triangulation, which can be utilised to supplement data through other sources. With this in mind, an appropriate approach taken for this research was to pursue data triangulation with sample size of 15 to test saturation. The interviews that were conducted were arranged take place over a duration of 45 minutes in total.

4.3.6 Analysis approach

For purposes of analysing this data obtained from semi-structured interviews with the entrepreneurs, the data was partitioned into text and non-text data, including audio, video and still images (Linneberg & Korsgaard, 2019). Primarily for this research, a combination of text and non-text in the form of audio was utilised for the semi-structured questions. Before the data could be analysed, it was important for

the audio data to be transcribed. This data was transcribed by making use of the Otter.ai tool. Following the completion of this transcription, the data was analysed using the Atlas.ti software, the main purpose of which was to identify codes, categories, themes, and linkages to theory (Aspers & Corte, 2019).

Subsequent to the interviews being, the analysis of entailed identifying common themes derived from the interviews (Giannoulakis & Tsapatsoulis, 2021). As per the recommendations from Saunders and Lewis (2017), the analysis of data from the interviews was conducted as and when the interviews were concluded. This aided in identifying common themes were emanating from the interviews and this duly aided in the identification of when saturation had been attained (Vasileiou et al., 2018; Zickar & Keith, 2023).

The analysis of the data was conducted using thematic analysis, which is defined as a process of analysing data through the identification of recurring patterns [Braun and Clarke (2006) as cited in Kiger and Varpio (2020)]. The approach to performing thematic analysis is outlined as part of the six steps developed by Braun and Clarke (2006). The process of familiarising oneself with data entails reviewing the data more than once, reading, and re-reading to cement an understanding of the content of the data that has been gathered. The generation of codes was the first attempt to identify items of interest shared during the interviews (Linneberg & Korsgaard, 2019). From this generation of codes, the next step was to identify potential themes through the review of constructs that emanate from codes (Saunders et al., 2019). Once these themes are identified, they were followed by defining and naming themes, which entails identifying themes that are important to the broader study and can facilitate or share an understanding of the research questions (Azungah, 2018). The last step was to compile and document the findings based on the analysis of the identified themes. These steps have been outlined in Figure 4.1 to enable the reader to appreciate the sequential flow.

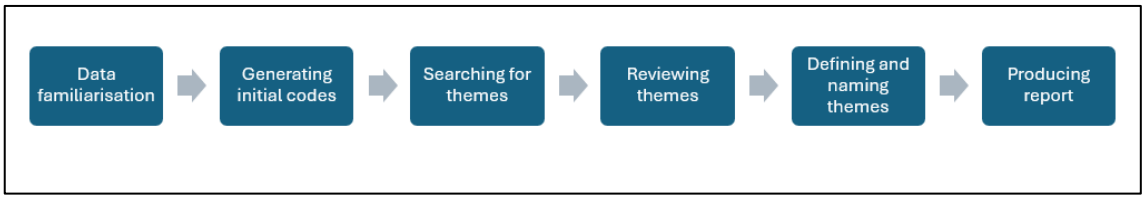

Figure 4.1: Six steps of thematic analysis

Source: Braun and Clarke (2006) as cited in Kiger and Varpio (2020).

4.4 Limitations

As a result of time constraints, this qualitative study focused on black-owned SMEs in Johannesburg instead of the whole of the province of Gauteng or the greater part of South Africa. The sample size represents a small portion of the sum total of owners or executives of black-owned SMEs in Johannesburg; thus, this means the views expressed were somewhat limited in nature. As the research sought to obtain an understanding of the role of AI in leveraging AI for financial sustainability and productivity, possibly a longitudinal study would have been more suitable. Nevertheless, the time constraints necessitated that a cross-sectional study be undertaken instead.

4.5 Quality controls

It has been noted that triangulation can be utilised to provide confidence in the quality of the data used in the study (Saunders and Lewis, 2017). In line with the time constraints, the triangulation of each participant would be impractical as this would require making use of data sources from various locations. Method triangulation entails making use several methods, namely quantitative or mixed methods, to give credence to and validate the findings. However, time constraints render this approach not to be practical. In this regard, data triangulation has been determined to be suitable for purposes of attaining quality control of the processes (Tracy, 2010). Therefore, this process of data validation through the review of supplementary data acquired can thus be in the form of secondary data and the review of literature (Wood et al., 2020).

Johnson et al. (2020) indicates that to enhance quality control, researchers should provide a writing style that empowers the readers to establish the transferability, dependability, credibility and confirmability of data. In this regard, the researcher highlights where biases exist (if any) and how these were addressed, and this seeks to address any concerns pertaining to credibility. Including information on how the sampling was selected promotes the transferability of data (Morse, 2015). The researcher provides adequate information on the research methodology followed. This was already in place and catered for within Chapter 4 of this paper; this action enhances the dependability of data (Noble & Smith, 2015). Conformability was

addressed through triangulation, as mentioned above.

4.6 Ethical implications

The researcher sought ethical clearance before undertaking any interviews, as set out in Appendix D. Once this was obtained, the researcher obtained consent from each participant prior to the interview (Arifin, 2018). Through this consent, the researcher advised the participants of the confidentiality and anonymity of the participants. For the purpose of this research, a transcriber was utilised, and to ensure the confidentiality of the interview participants, the transcriber was required to complete and sign a non-disclosure agreement (Brough, 2019). Once all the interviews were completed and transcribed, these were stored in the data storage facilities provided by GIBS. The storage of the transcripts and the naming convention to be utilised would not include any participant names to ensure that the confidentiality of the participants is maintained at all times (Barrett & Twycross, 2018).

4.7 Chapter conclusion

This chapter outlined the research methodology and design that was undertaken for the study. In the main, the study adopted an inductive, exploratory qualitative study approach underpinned by an interpretivism philosophy. The sampling method that was selected is purposive sampling which would focus on SME owners in the Gauteng Province of South Africa, specifically those based in the city of Johannesburg, Semi-structured interviews were utilised as a means of collecting data. The chapter further discussed the ethical considerations applicable to the study and also covered study limitations.

CHAPTER 5: FINDINGS

5.1 Introduction

This chapter sets out the outcomes of the semi-structured interviews that the researcher conducted.

The study was conducted to explore the impact of AI on the growth and sustainability of small and medium enterprises (SMEs), with a particular focus on black-owned businesses. The research aimed to identify how AI can be harnessed to address key challenges faced by these enterprises, ultimately driving both productivity and financial resilience. This is because a changing world has seen the development and use of AI in business and society at large. To guide the investigation, the following research questions were posed in Chapter 3 and can be recapped as follows:

- Research Question 1: How can AI be utilised to improve financial literacy among small and medium entity (SME) owners and enhance their ability to produce high-quality financial reports?
- Research Question 2: Can AI technologies facilitate improved access to finance for SMEs, helping them overcome traditional barriers to funding?
- Research Question 3: Do entrepreneurs perceive AI as a tool that enhances productivity and provides a competitive edge for SMEs?
- Research Question 4: How do organisations view AI in relation to advancing BBBEE (Broad-Based Black Economic Empowerment) objectives?

The findings of the study are presented in this chapter, starting with the sample overview that highlights the data's relevance and adequacy as well as the alignment of the empirical data to the research questions. This is followed by the presentation of the findings linked to each of the four research questions, and then the chapter is concluded. These findings are discussed in chapter 6.

5.2 Data collection process

The data collection was undertaken between August 2024 and September 2024. Although participants were offered the opportunity to be interviewed in person, all of them preferred to be interviewed virtually. Therefore, all interviews were conducted

virtually through Microsoft Teams, with all participants consenting to the recording of the interviews. The interviews were conducted via video to build rapport with the participants, with two exceptions where video could not be utilised due to poor bandwidth.

Purposeful sampling was employed in this qualitative research to identify and select relevant participants of the investigation (Leedy & Ormrod, 2019). The participants in this study came from a diverse range of industries, primarily based in Johannesburg, with operations and clientele spread across various regions of South Africa. Table 5.1 provides a detailed snapshot of each participant's industry, location, and revenue, highlighting the varied backgrounds and business scales represented in the research.

5.2.1 Profile of participants

The participants were all entrepreneurs of black-owned small and medium enterprises operating within Gauteng. The participants were not categorised and interviewed in one block of those that met the predetermined criteria: location, black shareholding, and revenue range of less than ZAR50 million. The interviewer conducted all the interviews in person, and none of them were outsourced. Although a total of 20 interviews were scheduled to be conducted, the researcher met saturation after 15 interviews.

A predominant feature, however, is that most of these businesses report annual revenue figures of less than ZAR10 million, meaning that they are categorised as small enterprises. There is only a decline in the revenue from the one participant who is in the range of ZAR30 million to ZAR50 million, which is indicative of a medium-sized enterprise.

5.2.2 Industry representation

The participants belonged to different industries, indicating variance and wider relevancy of AI in different industries. The most common business areas occupied by participants were experts in IT services, which included consulting, such as:

IT: Many of the participants are IT consultants with businesses offering network services and software engineering, emphasising technology-based industries.

Human Resource and Secretarial Services: these types of firms provide administrative and personnel functions showcasing the extent to which SMEs use outsourcing non-core functions.

Engineering. Air Conditioning, Heating, Cooling, and Ventilation: Engineering types of companies were observed; such companies provide skills for production and maintenance tools required by businesses.

In addition, there are also companies from more industrial types of activities, such as:

- Food and Beverage.
- Construction and Building.
- Audio/Visual Media and Exhibits.
- Accounting and Tax Consulting
- Learning, Training and Development.

The diversity of industries confirms the versatility of AI in both services-oriented and operations-heavy industries.

5.2.3 Geographic reach

Most of the companies are concentrated in Johannesburg. However, some have further moved out of the city and into other provinces of South Africa, with a customer based in the greater Gauteng, Free State, North-West, Eastern Cape, Western Cape, and Mpumalanga. This geographic spread, especially among IT and engineering companies, suggests further potential market penetration and room for growth without additional market resources, except for the adoption of technology such as AI (Table 5.1).

Table 5.1: Participant profile

Participant (PAT)	Industry	Location	Revenue
Participant 1	Media and Exhibitions	Johannesburg	Less than ZAR10 million
Participant 2	Secretarial services	Based in Johannesburg, with a customer base across South Africa	Less than ZAR10 million
Participant 3	Human resource consulting	Based in Johannesburg with a customer base in Gauteng and Free State provinces of South Africa	Less than ZAR10 million
Participant 4	Food and beverages industry	Based in Johannesburg	Less than ZAR10 million
Participant 5	IT	Based in Johannesburg, the majority of the customer base is in South Africa, and it has recently started expanding beyond Gauteng province.	Less than ZAR10 million
Participant 6	Construction	Based in Johannesburg, with odd projects in the Eastern Cape province of South Africa.	Less than ZAR10 million
Participant 7	Accounting and tax consulting	Based in Johannesburg and client base in Johannesburg	Less than ZAR10 million
Participant 8	Heating Ventilation Air Conditioning	Based in Johannesburg	Less than ZAR10 million

Participant (PAT)	Industry	Location	Revenue
Participant 9	Heating Ventilation Air Conditioning	Based in Johannesburg with a customer base in Gauteng and the North-West province of South Africa	Less than ZAR10 million
Participant 10	IT Software development	Based in Johannesburg	Less than ZAR10 million
Participant 11	Training, learning and development, recruitment, catering	Based in Johannesburg	Less than ZAR10 million
Participant 12	Equipment engineering	Based in Johannesburg and operates in the Gauteng and Mpumalanga provinces of South Africa.	Between ZAR30 million and ZAR50 million
Participant 13	IT Network Consulting	Based in Johannesburg	Less than ZAR10 million
Participant 14	IT Services	Based in Johannesburg, Eastern Cape and Western Cape	Less than ZAR10 million
Participant 15	IT Software development	Based in Johannesburg	Less than ZAR10 million

Source: Author's own.

5.2.4 Revenue distribution

Apart from Participant 12 (engineering equipment worth ZAR30-50 million in revenue), all the other participants' retail is below ZAR10 million. This low revenue range indicates that the businesses are more in their development or growth stages. There is an opportunity to use productivity-enhancing tools such as AI to improve and sustain business profitability.

5.2.5 Adequacy of the sample size

Selecting an appropriate sample size in qualitative research is a subject of theoretical contention and practical ambiguity (Vasileiou et al., 2018; Zickar & Keith, 2023). The development of principles, guidelines, and tools for determining and justifying sample size indicates that this issue is a significant indicator of qualitative research quality (Subedi, 2021). In this study, the design initially determined data adequacy, which recommended a range of nine to 17 interviews and confirmed with saturation analysis post-data collection (Hennink & Kaiser, 2022). The saturation analysis was conducted with 99 final unique codes of the analysis (Figure 5.1). The findings show that saturation was achieved after 13 interviews with no new codes in interviews 14 and 15.

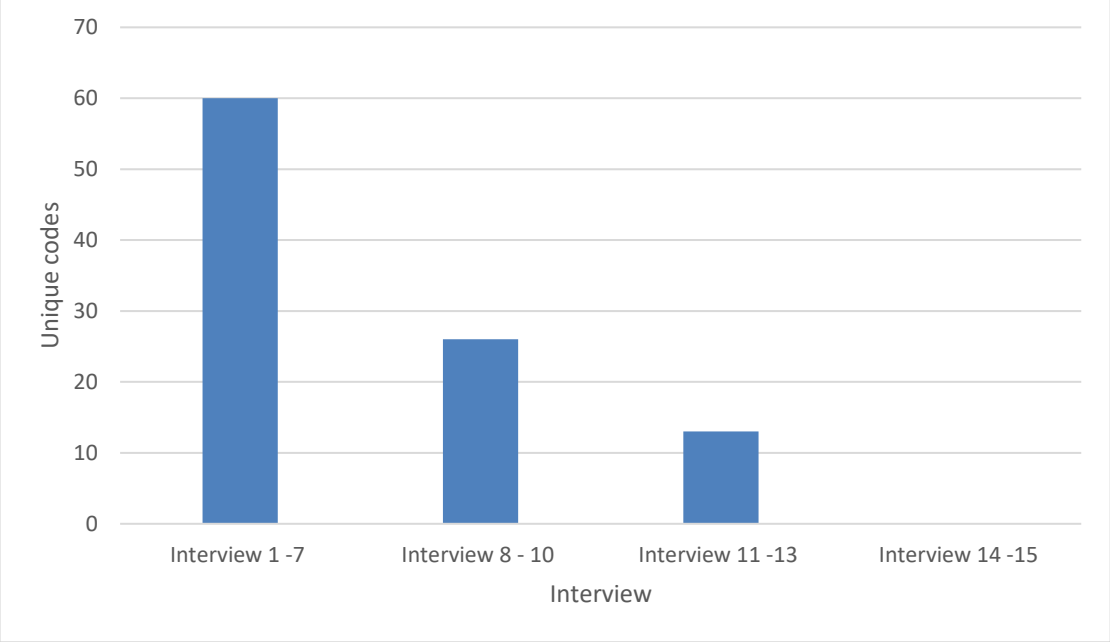

Figure 5.1: Saturation graph of the unique codes

Source: Author's own.

5.2.6 Alignment of the empirical data to the research questions

The empirical data's alignment was assessed using the word cloud, which assists in visualising the data and highlighting the dominant keywords within the data

(Giannoulakis & Tsapatsoulis, 2021). In the word cloud of this study, the dominant words were AI, Financial, funding, and work (Figure 5.2).

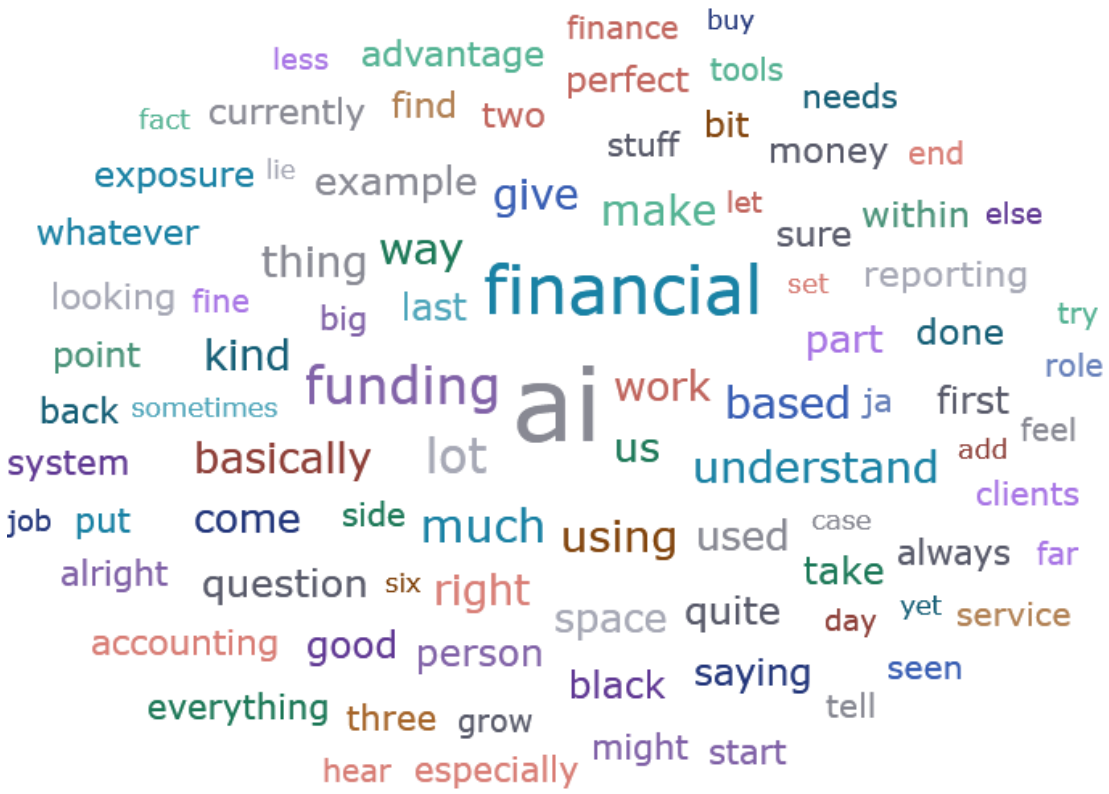

Figure 5.2: Word Cloud depicting the relevance of the sample

Source: Author's own.

5.3 Leveraging artificial intelligence to enhance financial literacy in small and medium enterprises

Research Question 1: How can AI be utilised to improve financial literacy among SMEs? This research question aimed to explore AI's multifaceted roles in transforming financial literacy for SMEs, identifying critical areas where AI interventions can make the most significant impact. Table 5.2 presents the codes, sub-themes and themes for leveraging AI to enhance financial Literacy in SMEs

Table 5.2: Leveraging AI to Enhance Financial Literacy in SMEs

Codes	Sub-themes	Themes
• Lack of formal financial qualifications • Basic accounting certificate • Incomplete accounting qualification	Financial qualifications and experience	Leveraging Artificial Intelligence to Enhance Financial Literacy in Small and Medium Enterprises
• Reliance on external accountants • Limited internal financial expertise • Multiple financial tools • Automation and integration for financial management	Financial reporting practices	
• Need for integrated tax and financial reporting • Need for financial education • Financial management training	Improvements in Financial Reporting for SMEs	
• Limited direct use of AI • Human oversight in financial systems • AI improving operational efficiency • AI as a predictive tool in financial management • Limited awareness of AI's practical application	Exposure to and impact of Artificial Intelligence	

Source: Author's own.

5.3.1 Financial qualifications and experience

The insights reveal a diverse range of financial qualifications and experiences among SME owners. Participant 1 explained that the lack of formal financial education.

"The last time I did accounting was at school. I do not have any accounting qualification" [PAT 1]

Participant 2 shared a different experience, highlighting being part of incubation and gaining knowledge on finance education.

"I had to attend a certain course with service providers, which they were incubators. They were incubating my company to be able to direct me in terms of the finances" [PAT 2]

This indicates that some SMEs seek external training to bridge their knowledge gaps. Participant 11 added, "*I have just certification but not a degree" [PAT 11]*

This shows different levels of financial education, ranging from a lack of training to some having basic financial training, with most lacking advanced qualifications.

5.3.2 Financial reporting practices

SMEs employ various tools and strategies for financial reporting. Several participants used customer relationship management or other financial reporting software solutions to manage different aspects of financial reporting. Some of the participants were also specific, indicating satisfaction with their chosen tools.

"I'm using three CRMs… Zoho, QuickBooks… for payroll, we're using Simple Pay," [PAT 1]

"Express accounts, it gives us almost like every other accounting software" [PAT 2]

"We use Sage for all other things, even our content. They get the reports of activities or whatever revenue, expenses get recorded on Sage, and they just put the reports from there." [PAT 5]

"We've used Omni accounts, and we've used FNB at some point instead of accounting, and we've recently moved into Sage." [PAT 6]

Other participants indicated that they are currently not using financial reporting software internally, as they are using accountants outside their business.

"On that one got all of those things me sending the statements and all things stand by my accountant, so it's the one who does all of those platforms" [PAT 11]

"Then I outsource that thing, that aspect, because, like, maybe saying the official bookkeeping and the official audited or independently reviewed or compiled numbers to a professional accountant, so most of the time" [PAT 8]

5.3.3 Improvements in financial reporting for SMEs

Participants recognise the need for improved financial literacy and reporting practice, suggesting that financial education should be integral to business training. Participant 2 also highlighted the importance of distinguishing between personal and business finances.

"Financial awareness and financial management, that's one thing that in business ethics, it needs to be taught" [PAT 1]

"If we can have the directors given financial literacy to understand the distinction between the business and personal finances, it will be much more important." [PAT 2]

Participant 11 advocates for a centralised financial system:

"As a business, we can have a centralised system that does financials, returns… instead of having different systems." [PAT 11]

5.3.4 Exposure to and impact of artificial intelligence

The role of AI in financial reporting is acknowledged but not fully integrated. Table 5.3 provides information regarding participants' exposure to and use of AI for financial literacy. This suggests that the participants' degree of interaction with AI was quite varied, with some participants using it on a regular basis while others limited or did not use the system at all. Participant 1 noted, "*No, it's only on the applications we use, but not in the delivery of services," indicating limited use of AI*

beyond basic applications." [PAT 1]

Participant 2 recognised potential benefits: *"AI can help improve financial reporting… it will tell you immediately what's missing," suggesting that AI can enhance accuracy and efficiency." [PAT 2]*

However, Participant 11 also warns of potential drawbacks: *"AI can help with cost saving and effectiveness, but there are threats and disadvantages to it," [PAT 11]* highlighting the need for careful consideration of AI's impact.

Participant 8 and 10 explained their perspective below:

> *"The good thing is that at least it's able to enable us to diagnose the faults, and when we go on-site, we already know which system is not working, where." [PAT 8]*

> *"Yes, definitely. What surprised me was that even those who think we know are taken aback. For example, when writing an internal audit report on a specific industry, you can ask AI to analyse the legislative and regulatory environment. It can generate comprehensive insights, including quoting relevant acts." [PAT 10]*

Table 5.3: Participant Exposure and Use of AI for Financial Literacy

Participant (PAT)	Exposure and use of AI	Use for financial literacy	Quotation
Participant 1	Yes	No	"No, it's only on the applications we use, but not in the delivery of services,"
Participant 2	Yes	Yes	"AI can help improve financial reporting."
Participant 3	Yes	Yes	"AI has become my daily bread, and at this point, we are doing a lot of coding projects."

Participant (PAT)	Exposure and use of AI	Use for financial literacy	Quotation
Participant 4	No	No	"No, I've got the mentality that it's for IT people or people who are in IT, or gaming or those kinds of things. But it's that I'm not exposed."
Participant 5	No	No	"Just like any other normal person you use, you're exposed to that. Just don't use phones."
Participant 6	Yes	Yes	"Yes, I have, and it's one area that I'm interested in, actually."
Participant 7	Yes	Yes	"Yes, it does. But those little moments, AI has kind of sped up the process.:
Participant 8	Yes	No	"So far, we don't have much because we're doing mechanical engineering."
Participant 9	Yes	No	"But with also fears of some sort on my side. I think if we involve a lot of computers in doing things, there's a level of risk in exposure to criminal activities."
Participant 10	Yes	No	"Yes, I think very much. So what has actually surprised me is that even for ourselves."
Participant 11	Yes	No	"It can help with cost saving as well as with effectiveness."
Participant 12	Yes	Yes	"Yes, certainly. And it's really such a privilege."
Participant 13	Yes	No	"I'll probably rate it basic."

Participant (PAT)	Exposure and use of AI	Use for financial literacy	Quotation
Participant 14	Yes	Yes	"We are essentially talking to robots. And in terms of financial improvement, well, to improve our financial acumen using AI, I see it as something that is going to be quite used a lot within the accounting industry."
Participant 15	No	No	"I haven't heard much, come to think of it, in the past six months."

Source: Author's own.

In summary, the analysis reveals that while SMEs have varied levels of financial qualifications and experience, there is a common recognition of the need for improved financial literacy and reporting practices (Figure 3). The use of multiple financial tools and outsourcing to professionals is ubiquitous, but there is a desire for more streamlined and centralised systems. AI holds promise for enhancing financial reporting and efficiency, though its adoption is still limited and comes with potential risks. Overall, leveraging AI to enhance financial literacy in SMEs is still in its infancy or non-existent. However, it is important and has the potential to address many of these challenges, providing more accessible and accurate financial management solutions.

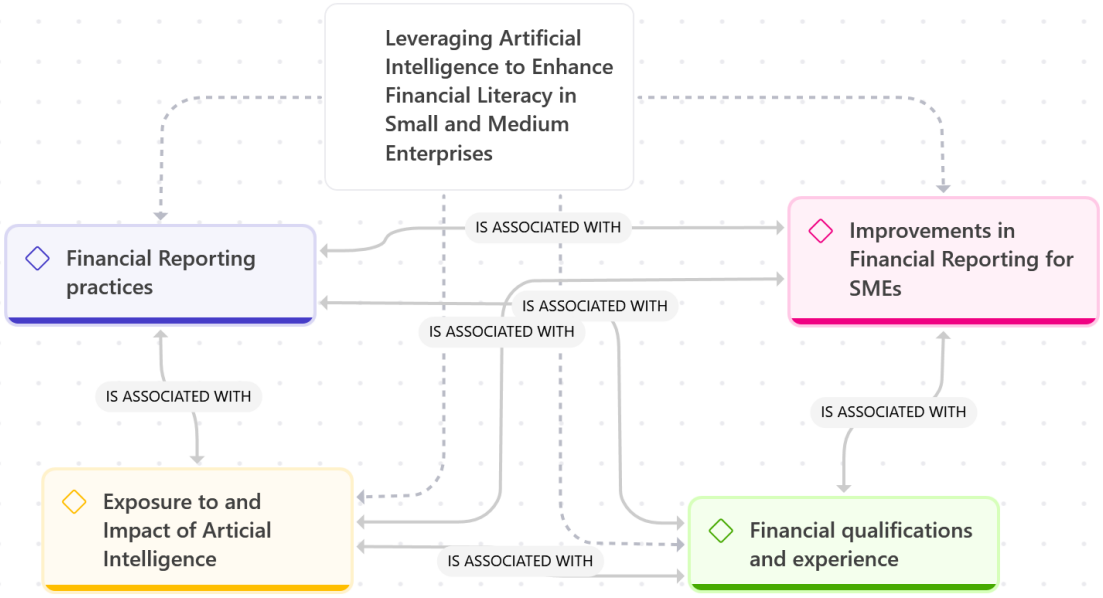

Figure 5.3: Leveraging Artificial Intelligence to Enhance Financial Literacy in SMEs

Source: Author's own.

5.4 Leveraging AI to enhance financial accessibility for SMEs

Research Question 2: Can AI technologies facilitate improved access to finance for SMEs, helping them overcome traditional barriers to funding? This research question delves into how AI can assist SMEs in securing necessary financial resources and enhancing their growth and sustainability. Table 5.4 presents the codes, sub-themes and themes on Leveraging AI to Enhance Financial Accessibility for SMEs.

Table 5.4: Leveraging AI to Enhance Financial Accessibility for SMEs

Codes	Subthemes	Themes
• Self-funded • Private funder • Personal Savings • Business Savings	Funding Sources	Leveraging AI to Enhance Financial Accessibility for SMEs

Codes	Subthemes	Themes
• Seeking advice	Financial Assistance	Leveraging AI to Enhance Financial Accessibility for SMEs
• Lack of experience • No funding challenges experienced	Challenges in Fundraising	
• Time efficient • Cost efficient • Supplementary role • Expanded search capabilities • Conditional role of AI	Role of Technology	

Source: Author's own.

5.4.1 Funding sources

The insights reveal that SMEs often start with self-funding or private investors. This highlights some SMEs' minimal initial capital requirements, with some participants indicating using their personal savings to start their businesses.

> *"Our business is self-funded. Actually, it's just basically because, starting out our business, we didn't really need capital. You just need to have a laptop and a set of skills" [PAT 3]*

> *"This business was initially financed through my savings from my work. Yes, I started this business working for a company. I was working for a communications company. So with my little savings, we managed to start, and then I resigned and got a little bit of money, so I use that money." [PAT 4]*

This approach underscores the importance of self-reliance and careful financial planning in the early stages of business development. On the other hand, Participant 7 pointed out the involvement of a private investor or funder at the initial stage of their business.

> *"So you could say there was a private investor or private funder at the initial*

stage. That's how it started" [PAT 7]

This highlights the significance of external funding sources, which can provide the necessary capital to start a business off the ground. Participant 14 discussed the strategy of setting aside company capital on a monthly basis to finance the business.

> *"The company's capital. We have capital set aside monthly to finance the business" [PAT14]*

This indicates a structured and ongoing approach to funding, ensuring that the business has a steady flow of capital to support its operations and growth.

5.4.2 Financial assistance

The need for financial assistance becomes apparent as businesses grow and their needs evolve. Participant 3 highlighted the importance of financial resources for scaling marketing efforts.

> *"I actually do see a need a lot, especially around the aspect of marketing, because we need, like, quite a high budget to do digital marketing." [PAT 3]*

Similarly, Participant 7 discussed future plans:

> *"In 2025, the plan is to target larger clients, such as hospitals, which will require funding—a process I'm unfamiliar with. My brother-in-law, an accountant and expert in securing funds, will be invaluable in this endeavour." [PAT 7]*

This highlights the necessity of financial expertise and assistance in securing larger contracts.

5.4.3 Challenges in fundraising

A common challenge among SMEs is the lack of fundraising experience. These statements reflect the unfamiliarity and potential difficulties SMEs face when seeking external funding for the first time.

"It's actually the first time. I've never used any sort of funding" [PAT 3]

"I've never had to do it." [PAT 7]

Although participants without financial literacy struggled with the concept of raising funding, participants 8 armed with a financial degree also found some challenges with respect to raising the funding, this despite having received a firm commitment from his customers of secured business.

“Then, when I was raising capital, then that's when I find a blockage” [PAT 8]

5.4.4 Role of technology

Participants expressed the benefit of AI for other business operations and not necessarily for funding purposes. Some of them highlight the time-saving aspect as technology can streamline operations, while others highlight the cost-efficiency and productivity gains achieved through technology.

"First of all, it's [AI] time-saving, something you could do in 10 hours. You could just get it done in about maybe an hour or less." [PAT 3]

"Now, business a month, we pay about 11,000 Rand. And these are like 300 days, 400 days, 500. But what the technology does for you, to some degree, is a job of six people." [PAT 7]

This statement emphasises how AI can dramatically reduce labour costs and increase efficiency, performing the tasks of multiple employees and thus streamlining operations. Participant 13 acknowledges the benefits of AI but also underscores the necessity of foundational knowledge:

"So definitely, yes, you know, I would say yes, but obviously it does not substitute the element of the basic or the foundational knowledge that you want should also have" [PAT 13]

This sentiment indicates that AI can significantly enhance productivity but cannot replace the essential business knowledge and expertise required to effectively utilise such technologies. Participant 6 pointed out AI's ability to expand search capabilities:

"I think that capability would help to widen the search." [PAT 6]

This highlights one of the practical benefits of AI, enabling businesses to access a broader range of information and resources that might otherwise be difficult to locate.

These findings show that participants tend to use their own money to start their businesses, and raising funding is generally challenging. Critically, they see value in technology for improved efficiency, productivity, and cost savings (Figure 4).

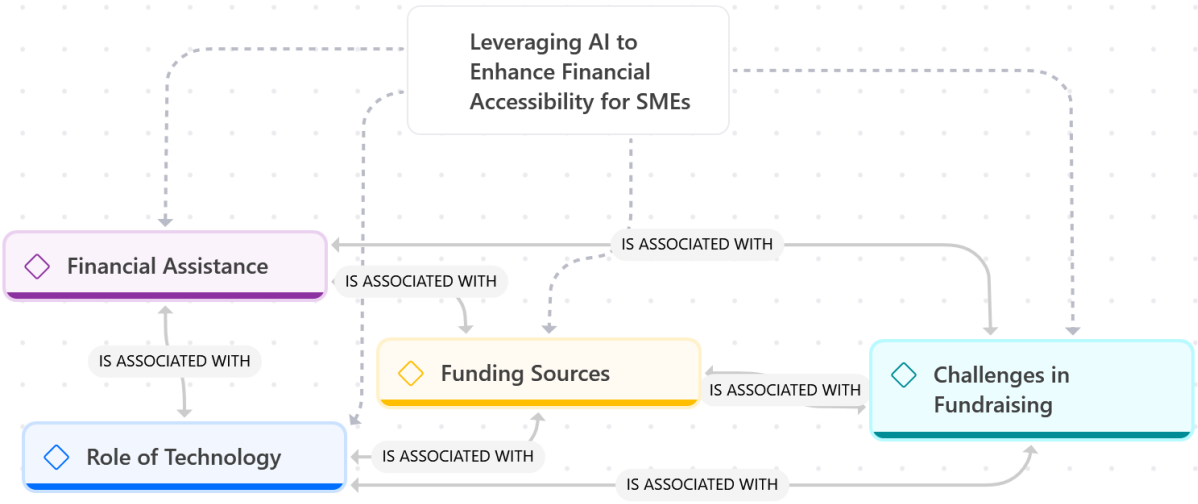

Figure 5.4: Leveraging AI to Enhance Financial Accessibility for SMEs

Source: Author's own.

5.5 Entrepreneurial perspectives on AI: Enhancing productivity and competitive advantage for SMEs

Research Question 3: Do entrepreneurs perceive AI as a tool that enhances productivity and provides a competitive edge for SMEs? This research question investigated how entrepreneurs recognise and value AI's contribution to their business success and the areas where AI is making the most substantial impact. Table 5.5 presents the codes, sub-themes and themes of Entrepreneurial Perspectives on AI: Enhancing Productivity and Competitive Advantage for SMEs.

Table 5.5: Entrepreneurial Perspectives on AI: Enhancing Productivity and Competitive Advantage for SMEs

Codes	Subthemes	Themes
• Business Dependency on AI • Perceived industry relevance • Awareness of AI Capabilities	Adoption of AI in Business	Entrepreneurial Perspectives on AI: Enhancing Productivity and Competitive Advantage for SMEs
• Enhance prominence • Quality output • Definite advantage • Scalability • Fault finding • Creativity and human input • Process improvement • Access to international • information • Creativity enhancement • Self-learning and adaptability • Target market focus	Benefits of AI	
• Improper application • Lack of technical understanding • Systems integration challenges	Challenges in AI Adoption	

Codes	Subthemes	Themes
• Perception of non-professionalism		

Source: Author's own.

5.5.1 Adoption of AI in business

The insights gathered from various participants highlight the varied perspectives on the adoption of AI in businesses, especially for SMEs. For some, AI integration seems limited to specific applications,

> *"It's only on the application. Applications that we use, but more, not." [PAT 1]*

This indicates a partial utilisation of AI's capabilities, perhaps due to a lack of resources or knowledge

Participant 4 pointed out that the degree of AI adoption depends significantly on the nature of the business:

> *"I think it really depends on the business. If you're running a tech company, then maybe you can get more from AI than you are when you're running an exhibition company" [PAT 4]*

This suggests that while tech companies might fully harness AI, other sectors might find its application less beneficial or harder to integrate. The sentiment of limited personal expertise in AI is echoed by Participant 5:

> *"I think, just like any other normal person you use, you're exposed to that just don't do phones, you know, internet, it's not something that I, I would say I have high knowledge of, you know, but I know the capabilities of AI, yeah, all the other software that is available in the market" [PAT 5]*

This indicates a general awareness of AI's potential but also hints at a gap in deeper understanding and hands-on experience among SMEs. Lastly, there is a pragmatic approach to AI use. Participant 2's commented:

> *"We deployed something which is part of AI, which is actually we call it Google*

AdWords" [PAT 2]

This reflects how SMEs leverage AI-driven tools available in the market to enhance their business activities, even if they are not AI in their more complex forms. Overall, while there is recognition of AI's potential, it is also clear that its adoption is varied and influenced by factors such as business type, available knowledge, and specific needs.

5.5.2 Benefits of AI

The benefits of AI adoption in business, particularly for SMEs, are highlighted through various insightful comments. For some, AI is seen as a crucial factor in enhancing credibility and competitiveness. Participant 6 emphasised this, stating,

> *"The field I'm working in is highly competitive, and credibility is crucial. We collaborate with well-known universities and colleges because they bring the reputation and resources we need... Having such capabilities would significantly enhance our standing and help us compete at that level." [PAT 6]*

This illustrates how AI can level the playing field, enabling smaller entities to compete with larger, established institutions. Participants shared a practical perspective on AI investment, indicating the advantages it can bring regarding productivity and quality. A competitive edge is also a notable benefit.

> *"If I was able to invest in that kind of technology, I would have a complete advantage in terms of production output and better quality as well" [PAT 5]*

> *"In my field, AI can definitely provide a competitive advantage. Right now, it already gives me an edge over my competitors because some of them aren't as aware or curious about AI as I am" [PAT 8]*

This demonstrates that early adoption and curiosity about AI can place businesses ahead of their peers, who may be slower to adopt new technologies. Participant 9 echoed this sentiment by acknowledging how businesses leveraging AI gain an advantage:

> *"Absolutely, the business would definitely benefit from AI... we might be missing out on opportunities without it." [PAT 9]*

This highlights a growing awareness of the necessity of integrating AI to remain competitive and seize new opportunities. Moreover, access to global information and continuous learning are other benefits highlighted.

> *"Access to international information isn't all bad. It allows you to ask, 'How can I do this better?' and learn from others." [PAT 12]*

This shows how AI can facilitate learning and improvement by providing access to a wealth of global knowledge. Finally, the transformative potential of AI in education and self-improvement is recognised by Participant 6:

> *"It absolutely does because partly you one can take time to learn what they would take a long time to learn in a classroom, sitting." [PAT 6]*

This suggests that AI can provide accelerated learning opportunities that might otherwise require extensive time and resources in traditional settings. These insights collectively underscore AI's significant advantages in terms of competitive edge, productivity, quality improvement, and continuous learning, making it an essential tool for businesses aiming to thrive in the modern landscape.

5.5.3 Challenges in AI adoption

Adopting AI in business brings its own set of challenges, as highlighted by various participants. One of the prominent concerns is the efficiency of client use.

> *"The downside might be the client if they cannot be able to use it efficiently" [PAT 8]*

This highlights the necessity of ensuring that clients are adequately trained and comfortable using AI tools to avoid potential setbacks. Data security and privacy concerns also emerge as a significant challenge. Participant 11 noted,

> *"Data Security and private concerns. I would say integration with systems and existence" [PAT 11]*

This suggests that integrating AI with existing systems can pose risks if not managed properly, highlighting the need for robust security measures and thoughtful

integration strategies. Technical understanding is another critical issue. Participant 13 mentioned,

> *"The main one is what I've highlighted earlier, which is around where you use something that you don't have a technical understanding of" [PAT 13]*

This underscores the importance of having a solid grasp of AI technology to leverage its benefits fully and avoid misapplication or underutilisation. Time constraints and accuracy are practical challenges for some.

> *"I think one of the challenges, like in my instance time, is what I don't have, and plus, I have to be accurate... one spelling mistake makes a person sound like they didn't even care in their work of writing." [PAT 4]*

This points to the pressure of maintaining precision while managing time effectively, which the complexities of AI tools can exacerbate. To sum up these insights, it is shown that while AI offers substantial benefits, it also requires careful consideration of user training, data security, technical expertise, and practical constraints to harness its potential fully (Figure 5.5).

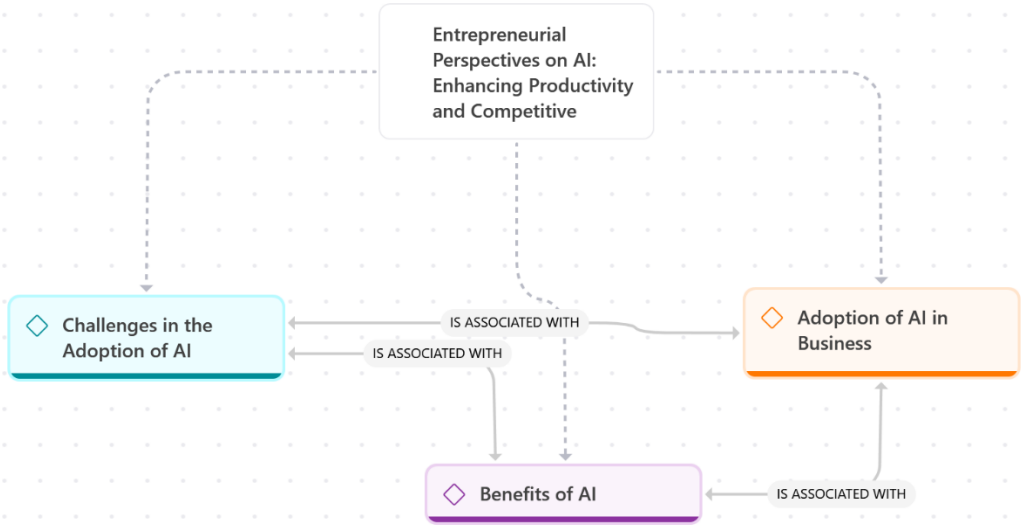

Figure 5.5: Entrepreneurial Perspectives on AI

Source: Author's own.

5.6 Organisational perspectives on AI in advancing BBBEE objectives

Research Question 4: How do organisations view AI in relation to advancing BBBEE objectives? The codes, sub-themes and themes on the Organisational Perspectives on AI in Advancing BBBEE Objectives are highlighted in Table 5.6.

Table 5.6: Organisational Perspectives on AI in Advancing BBBEE Objectives

Codes	Subthemes	Themes
• Not familiar • Familiar • Purpose and understanding • Abuse of BBBEE	Familiarity with BBBEE Enterprise Supplier Development Objectives	Organisational Perspectives on AI in Advancing BBBEE Objectives
• Lack of Awareness • Curiosity and interest	Awareness of AI in Supporting BBBEE Objectives	
• Experience and frustration • Scepticism • Conditional optimism • Practical application and security evolution • Data management	Perceptions of AI for BBBEE Purposes	

Source: Author's own.

5.6.1 Familiarity with the BBBEE ESD objectives

The participants' familiarity with the BBBEE shows a blend of awareness, understanding, and criticism of its current implementation and impact. Participants expressed clear awareness and compliance requirements. The participants acknowledge that the BBBEE is important to their main relationship with the client

and also a social justice issue to improve economic equality in the country.

> *"Yes, we are very much aware of that. For example, some of our [customers] prefer that we provide them with a current BBBEE certificate every single annual financial year" [PAT 2]*

> *"It's trying to level the field obviously between black and white people as well as the previously disadvantaged people, which are people from the township, small business and stuff" [PAT 3]*

This reflects the BBBEE's intended goals of addressing historic disparities and promoting inclusivity and growth. Despite this, participants also raised critical points about the effectiveness and misuse of the BBBEE policies.

> *"We are told to have this kind of BBBEE certificate in order to qualify to actually operate within a certain aspect of business, but now the BBBEE is abused in such a way that it only benefits a certain portion of people. It does not serve its purpose: to grow the black-owned businesses." [PAT 3]*

This suggests that while the objectives are understood, there are concerns about the actual outcomes and fairness in the implementation of these policies. Participant 10 indicated a contextual familiarity with BBBEE objectives, influenced by interactions with various governmental bodies:

> *"We are familiar with this because we engage with MFMA and the PFMA. They've got their objectives in various ways, depending on how you are engaging with them." [PAT 10]*

This highlights that familiarity with BBBEE objectives can vary based on the nature of engagements with different institutions. In summary, the insights gathered reveal that although there is widespread knowledge regarding the goals of BBBEE Enterprise Supplier Development, the participants note some barriers and difficulties regarding the practice in small businesses. The quotations reveal a hierarchy of knowledge from possessing knowledge of the requirements for certification to policy stances such as efficiency and fairness.

5.6.2 Awareness of AI in supporting BBBEE objectives

The awareness of AI in supporting BBBEE objectives among participants appears to be limited. Participant 9 candidly admits to a lack of awareness, saying, "*Not really, not really." [PAT 9]*

This straightforward response underscores a gap in knowledge regarding AI's potential role in BBBEE. Participant 12 reflected curiosity and newfound interest:

> *"It's an interesting thought. I hadn't considered it before." [PAT 12]*

This indicates that while the concept is novel to them, it sparks intrigue about the possibilities AI might offer. Participant 10 highlights a perception that the public sector isn't utilising AI for BBBEE purposes:

> *"I haven't heard of AI being used to support that side of the industry, the public sector. They don't go that deep." [PAT 10]*

This suggests a belief that AI applications in this context are not widespread or well-publicised. Overall, these quotations illustrate varying degrees of awareness and interest, with some participants completely unaware, others curious, and some sceptical about AI's current use in supporting BBBEE objectives. This indicates a need for greater education and communication about AI's potential benefits and applications in this area.

5.6.3 Perceptions of AI for BBBEE purposes

Perceptions on the use of AI for BBBEE purposes vary significantly among participants, showcasing a spectrum of scepticism, conditional optimism, and practical considerations. Participant 9 expressed outright scepticism, questioning AI's usefulness in this context:

> *"I don't see really. How will it be useful." [PAT 9]*

This viewpoint reflects doubt about AI's relevance or potential impact on BBBEE objectives. In contrast, Participant 3 displays conditional optimism. Although not deeply familiar with BBBEE specifics, they believe in AI's general benefits:

"I think it can... I believe that with AI, anywhere, anywhere where it can go, it can always make a difference, especially with productivity." [PAT 3]

This reflects a cautious hope that AI can enhance efficiency and productivity, even if the exact applications for BBBEE are unclear. Participant 12 shares practical insights based on their experience, noting the evolution of AI capabilities and applications:

"My use of AI has mostly been for finding hard-to-locate information on Google, like suppliers... Back in those days, you could easily find out where to stock items and their prices. However, I never thought about using AI for funding assistance" [PAT 12].

This highlights that while AI has been useful for information retrieval and logistical tasks, its potential for funding assistance is not widely leveraged. Participant 10 provides a specific example of AI use within a related framework:

"I see it because they've got what they tried to do... which is the CSD, which is the central supply database." [PAT 10]

This indicates recognition of existing AI-driven systems like the CSD that manage supplier information, suggesting that similar applications could support BBBEE objectives. These insights collectively illustrate that while there is a mix of scepticism and optimism about AI's role in BBBEE, practical applications and examples are starting to emerge. Participants acknowledge the potential for AI to improve productivity, enhance data management, and support operational efficiencies, though its full potential in the BBBEE context remains underexplored and uncertain (Figure 5.6).

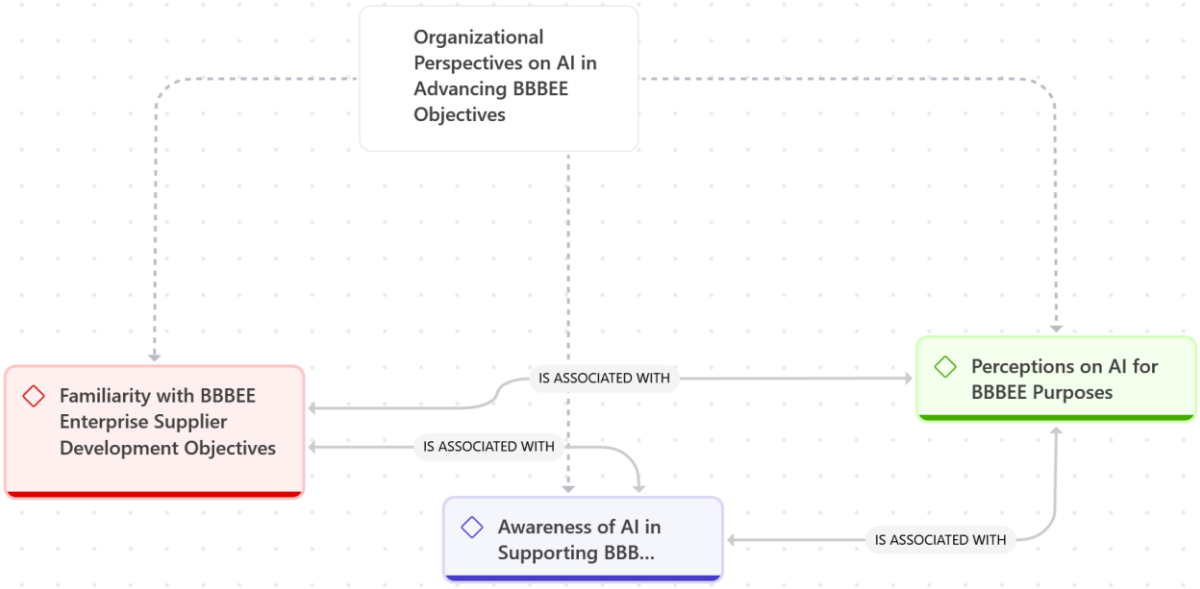

Figure 5.6: Organisational Perspectives on AI in Advancing BBBEE

Source: Author's own.

5.7 Chapter conclusion

In this chapter, the findings from the 15 interviews are presented. The first question investigated how AI can be utilised to improve financial literacy among SMEs. This research question aimed to explore AI's multifaceted roles in transforming financial literacy for SMEs, identifying critical areas where AI interventions can make the most significant impact. Though AI can be leveraged to enhance financial literacy in SMEs, it is still in its infancy or non-existent, though it is in use for other aspects of the business. What is evident is that it is important and has the potential to address many of these challenges, providing more accessible and accurate financial management solutions. The second research question investigated whether AI technologies can facilitate improved access to finance for SMEs, helping them overcome traditional barriers to funding. SMEs tend to use their own money to start their businesses, and raising funding is generally challenging. However, these SMEs see value in technology for improved efficiency, productivity, and cost savings.

The third question is whether entrepreneurs perceive AI as a tool that enhances productivity and provides a competitive edge for SMEs. The SMEs acknowledge that it helps with productivity and competitive advantage; despite this, some challenges

are associated with the implementation of AI, such as data security and privacy concerns, complicated requiring a lot of training, and effective integration into the business systems. The last question investigates how organisations view AI in relation to advancing BBBEE objectives. The findings revealed that while there is a mix of scepticism and optimism about AI's role in BBBEE, practical applications and examples are starting to emerge.

CHAPTER 6: DISCUSSION OF FINDINGS

6.1 Introduction

This chapter provides a discussion of the findings as articulated in the previous chapter on the use of AI by small businesses. Chapter 6 juxtaposes the findings from Chapter 5 with the literature review outcomes set out in Chapter 2. The discussions in this chapter provided an analysis of the four research questions to determine to what extent the findings correlate with existing knowledge and which new insights have been gained. The chapter has been structured to follow the sequence of the four research studies that were asked.

This chapter mainly explores the financial literacy alignment of SMEs, the access to finance, and the adoption of AI. It also evaluates the implementation of BBBEE ESD imperatives.

The discussion of the findings evaluates the extent to which the findings align with the literature review that has been undertaken. The findings are further evaluated against the resource-based view theoretical framework underpinning this study.

6.2 Discussion on research question 1 (RQ1)

RQ1: Can Artificial Intelligence (AI) be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs?

The purpose of this research question was to obtain an understanding of the financial literacy levels of entrepreneurs and to understand if the use of AI has the potential to improve the financial knowledge of business owners.

The literature review identified that an entrepreneur's financial literacy has a positive effect on the growth of an SME business (Hossain, 2020). This view was further supported by Yeboah (2021), who indicated that educational qualifications played a pivotal role in the growth of entrepreneurs in Ghana. Therefore, if small business owners can increase their knowledge through AI, this could set them on a trajectory of business growth.

6.2.1 Financial literacy

The findings show that most of the participants do not have formal financial education. The only exceptions are those that have previously studied accounting or those already rendering services in the financial reporting space. The majority of the participants who did not possess financial literacy qualifications often started their businesses by finding a gap in the market where their skills were required. It took advantage of the gap to pursue a business in that space. For the businesses that they run, in-depth financial knowledge is not a key priority in taking advantage of market opportunities. As such, most of the participants have a basic working knowledge of financial literacy.

In line with the views shared by Hossain (2020), this lack of knowledge will inhibit the growth of the business. The views expressed by Erdogan (2018) also found that access to funding for SMEs is highly dependent on the financial intelligence of the entrepreneur. Therefore, the findings suggest most of our participants would struggle with raising funding for their respective businesses, given their limited financial knowledge. In the context of South Africa, the growth of SMEs is important to drive the country's economic growth and employment. Based on the findings, this also poses a risk that black-owned businesses in Johannesburg, Gauteng, may face challenges in raising funding and growing due to the lack of financial literacy.

Contrary to literature, one participant with a financial degree indicated in the findings that they were unable to secure funding for their business, despite also having a financial commitment from a customer that the customer will pay for the goods once funding was secured.

6.2.2 Financial reporting practices

The lack of financial literacy also results in SMEs outsourcing their businesses' financial recording and reporting aspects. From the findings, it is noted that some participants use online tools or software packages to record and report financial transactions, while others outsource the entire process. It is worth nothing; even those who make use of online financial tools still rely on external accountants to formalise the reporting process on their behalf. These finding are consistent with the

study undertaken by Nechiporenko (2022) which found that despite the use of or the availability of AI, the SMEs still prefer to outsource the financial reporting process. Although the study was undertaken Nechiporenko (2022) in Finland, the findings are consistent even in the emerging market context of South Africa.

Based on the findings, which indicate that the participants outsource basic financial reporting or financial processing aspects of the business, the majority of the financial reporting requirements would, in the main, be fulfilled by bookkeepers or accountants. This outsourcing comes at a cost, whereby resources are being redirected outside of the organisation instead of being invested in the operations or growth prospects of the business.

Outsourcing the financial reporting process creates a further gap in business finances where business owners may miss key and critical business decisions, such as working capital management, capital investment, and expansions. These are decisions that bookkeepers are not well-versed in.

6.2.3 Improvements in financial reporting for SMEs

The majority of the participants acknowledge that financial literacy is an important skill to have as an entrepreneur. Therefore, the participants advanced the concept of financial education as something that should be integral for any businessperson. The participants further highlighted the need for financial education to teach business owners the separation between business finances and personal finance. The views expressed indicate that owner-managed businesses often have difficulty separating the business's financial affairs from that of the owner. This may lead to adverse tax consequences where this distinction is not handled appropriately.

The participants further indicated that there is a need for a centralised system or tool that will house all financial reporting requirements. Through this, the participants acknowledge that different facets of financial reporting compliance exist, and such requirements are not always known or understood. There is, therefore, a desire from the participants to have such a centralised tool that will ease the burden of having to access multiple systems, some of which are known and some of which are known.

6.2.4 Exposure to AI and its impact on financial literacy

The majority of the participants acknowledged that they do have some exposure to AI in various forms. This use of AI varied, with some participants making use of AI as part of the general operations and others using it as a tool for learning. There is a varied use of AI amongst the participants.

The interactions with participants showed varied experiences of using AI in the business space for financial literacy or financial reporting purposes. Some see the use of AI as an enabler to enhance business operations rather than enhancing financial reporting requirements. Some participants have seen the need for AI to be incorporated into the financial reporting or financial literacy space.

6.2.5 Discussion

The findings have revealed a gap in the financial literacy of entrepreneurs of black-owned businesses in Gauteng, South Africa. There is a limited number of participants who saw the need to enhance their financial education outside of other formal qualifications that they possess. With this in mind, financial reporting is outsourced to external parties, making use of financial resources that could instead be reinvested into the business. Unless this literacy gap is closed, as Yeboah (2021) highlighted, black-owned businesses in Gauteng will have limited growth potential. They will also be unlikely to be able to raise the funding required to sustain or grow operations.

The findings are consistent with the engagements with the literature. The participants highlighted the need for entrepreneurs to take financial literacy seriously, as entrepreneurs often struggle with separating personal finances from those of the business. Where business finances are utilised to support the personal lifestyle of the SME owner, this will negatively affect the business's growth prospects. Where funds are clearly separated, the SME owner has the ability to ring-fence funds, and any excess funds can be reinvested in the business and pioneer growth, as articulated by Hossain.

The discussions with participants and literature show that black-owned businesses in South Africa will require improved financial literacy among entrepreneurs. There is over-reliance on external accountants, even for the basic processing of

transactions. Whilst it is good to outsource the work to individuals with the know-how, the funds spent on outsourcing could be a better investment in trying to grow the business. Outsourcing should be limited to processing complex transactions where specialist accounting of finance knowledge will be required.

The SME owners are very aware of the shortcomings in financial literacy. There is also an awareness of the need to maintain appropriate and accurate financial records hence approach taken is to outsource to remain compliant with external banking and tax compliance requirements.

This gap in financial literacy has the potential to be closed by AI, with some participants expressing a view or an interest in enhancing financial literacy through AI. There, however, some participants remain sceptical regarding the benefits that can be derived from AI; some participants have limited trust in AI and often doubt the fairness of data that is extracted through the use of AI.

Whilst the findings are predominantly in line with existing literature, there remains a need to further explore to what extent does financial literacy support access to finance within a South African context.

6.3 Discussion on research question 2 (RQ2)

RQ2: Can the use of AI help improve access to finance for SMEs

Access to finance has been identified as an important factor that has the potential to inhibit the growth of SMEs (Rao et al., 2020). This access to finance is a key enabler in SMEs entering new markets or creating jobs. The second research question seeks to understand if AI has the ability to improve access to finance for SMEs.

6.3.1 Funding sources

The insights gained from the interactions with participants reveal that SME owners often self-fund the start of the operations. These funds would be derived mainly from personal funds. There are no participants who had started the business by raising external funding. Of the participants interviewed, only one had approached a private

investor for funding, which resulted in joint funding between themselves and a private funder. As such, the participant's personal funds continued to be utilised to start the business.

Therefore, the majority of participants used their own funds, and based on this selected sample, there were no participants who sought to use financial institutions to raise funds for starting their businesses. This is consistent with the views expressed by Rao et al. (2023) that in the early stages, many SMEs are funded through personal funds; however, this tends to change as the SMEs go through a growth cycle.

The participants also highlighted that the preferred method of financing the business or growth prospects is through reinvesting profits back into the business operations. From this, some participants highlight that continuous funding requirements for the business would therefore be funded through cash generated from operations, and to the extent additional cash is required, it will be obtained from their personal savings. This seems to be the norm among participants who were interviewed.

6.3.2 The need for external financial assistance

To echo the sentiments of Rao et al. (2023), the participants acknowledge that as their respective businesses experience growth, so will the need to raise external funding to finance such growth. One participant indicated that as the business grows, there has been a need for more rigorous marketing. This requirement for marketing comes at a cost. The participant indicated that digital marketing specifically requires a higher budget. Such requirements may often be difficult to fund through existing cash from the operations, and it may also be a challenge to fund from personal or private funds.

Another participant indicated that they plan to expand operations the following year and target larger customers such as hospitals. The participant is fully aware that this type of expansion would require additional funding, which poses a challenge for the participant as they are unfamiliar with the process of raising funds externally. The participant did, however, highlight that there is a family member who is an accountant and knowledgeable in the aspect of raising funds, and perhaps this family member

may be able to close the gap.

Whilst the participants acknowledge the importance of raising funds, the sentiments they shared indicate that there is a lack of experience amongst the participants when it comes to raising funding for their businesses. Some feedback indicated that the participants do not have the know-how to create a plan to raise external funding. This would thus require the participants to source external advice on how to approach the business's funding requirements or how to close the gaps where there are financial shortfalls.

6.3.3 Challenges in raising funds

Through engagements with the participants, they did raise some challenges around the raising for external funding and, in the main, specifically called out their lack of experience in raising funds and other challenges. One participant specifically called out that they had never raised funds before, and if they were to attempt, it would be their first time; thus, they do not know where to start. Another participant acknowledged that the business has been self-sustainable to date, and there has not been a requirement to raise funding.

One participant indicated that although they have tried to raise funding before, his lack of experience was not well received by the financial institutions. Therefore, the participants are of the view that financial institutions are not designed to provide SMEs with the requisite assistance to sustain and grow operations. An example provided by the participant was that they received a large order from a customer; however, they did not have adequate financial resources to fulfil this order. Armed with the financial commitment received from their customer, the participants approached a financial institution to access the funds. However, his attempts at raising funds fell flat, and the financial institution refused to grant funding despite the existence of a financial commitment from the end customer. This experience left the participant with the impression that perhaps financial institutions do not want to see black-owned businesses thriving.

As discussed in the preceding paragraphs, there is need to further explore to what extent does financial literacy support access to finance within a South African

context.

6.3.4 The benefit of AI in access to finance

Although the participants appreciated the need to raise funding for growth, the majority were not immediately clear on how AI could assist them with access to funding. Instead, the participants highlighted other potential benefits of AI, more operational benefits in nature, other than deriving assistance to raise funding.

One participant indicated that AI could help provide a structure for constructing an application for finance. Another participant presented a futuristic view where AI could be used to link the SME's financial reporting systems to those of the financial institutions to provide real-time information on the financial affairs of the SME and speed up the process of financial applications.

The picture that emerges is that whilst AI could provide some advantages for SMEs, these advantages are not immediately clear to the participants. AI is viewed as a tool to help with other aspects of the business and does not necessarily provide SMEs with an advantage with respect to raising funding for operations.

6.3.5 RQ2: literature

In their paper, Zheng et al. (2024) found that AI can be utilised to enhance initiatives that seek to raise funds for SMEs. A case in point is the improved quality of crowdfunding initiatives whereby AI has been deployed (Zheng et al., 2024). This study, performed amongst SMEs in the United States of America, found that using AI in crowdfunding initiatives increased their chances of receiving funding by just under 12%. This is achieved through employing AI to improve the language used to attract funders or, alternatively, AI being used to structure campaign messaging.

A second factor to be considered regarding access to finance is that some financial institutions are likely to grant funding to SMEs that have a higher adoption of technology or those deemed to be innovative (Mushtaq et al., 2022). AI has been found to provide SMEs with innovation to enhance business processes (Enholm et al., 2022). From the above and in line with the findings of (Mushtaq et al., 2022), it is

noted that AI, as a means of technological advancement and also as a means of innovation, has the potential to be a critical factor in assisting SMEs with their prospects to gaining access to funding.

6.3.6 Discussion

The findings show that the owners themselves fund the majority of the SMEs. There are a lot of personal funds being invested into the business. This is consistent with findings from literature where Rao et al. (2023) pointed out that SMEs are funded through personal funds. However, these personal funds are limited in how far they can drive business growth.

Therefore, Rao et al. (2023) highlights the important fact that external funding will be required to facilitate or enable SME growth. The findings of this paper reveal that participants are cognisant that, at some point, their business may require financial funding. Therefore, the findings from this paper do not vary from those set out in existing literature with respect to the need to raise funding where the business operations require such funding.

Based on the findings, the SME owners highlighted various challenges with respect to raising external funding. These challenges include a lack of knowledge of how to compile an application for funding or compile a request for funding. How do you package it, and what documentation is required? In line with discussions with the participants, although they appreciate that AI can bring about the requisite enhancements, efficiencies or predictivity in their businesses, they could not immediately highlight how AI can support their prospects of raising funding.

Having established the need to raise funding and the financial literacy limitation of SME owners, the question remains if AI can close this gap and empower SME owners with the knowledge to be conscious of the changing financial needs of the business. The literature presented by Zheng et al. (2024) highlights the benefits of using AI to better present or better articulate messaging that is being used for crowdfunding purposes. Therefore, there remains an opportunity for SME owners to use AI to enhance the language they use in their business proposals and funding proposals.

Zheng et al. (2024) further stated that AI was found to be effective in structuring crowdfunding campaigns. Therefore, AI can be utilised to assist entrepreneurs in identifying a structure that can be utilised as part of a business plan.

The use of technology in business operations has been found to be a key enabler in unlocking funding opportunities, and it has been found that financial institutions look favourably upon businesses that are technologically included and drive innovation (Mushtaq et al., 2022).

From engagements with participants, none of them viewed innovation, technology, or AI as a key enabler to enhance their image with the financial institutions. Although some participants considered using AI to save time when writing business plans, the use of AI to derive a competitive advantage was not identified as an enabler in assisting SMEs in gaining funding.

Based on the profile of the participants interviewed, a small number of them have not had exposure to AI. Thus, it may be difficult for financial institutions to perceive such businesses positively. Most of the participants are aware of AI and are using AI to innovate their business practices. However, they have not seen the need to position themselves as technology-savvy businesses worthy of receiving funding.

6.4 Discussion on research question 3 (RQ3)

RQ3: Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity?

It has been noted that SMEs can leverage AI to drive innovation and efficiencies, a key finding of Okoye et al. (2024), who further stated that SMEs can utilise AI to further develop innovative product or service offerings. In a separate paper, Enholm et al. (2022) agree that SMEs can leverage AI to realise financial gains by generating more income or reducing costs. AI is also considered to be a key resource that can provide SMEs with a competitive advantage over rivals (Mushtaq et al., 2022).

6.4.1 Adoption of AI in business

From the findings, it has been noted that the participants have various experiences regarding the adoption of AI in their businesses. The majority of the participants have come across AI in different forms, from the simple ChatGPT to other complex forms of AI or generative AI. Except for three participants, most are aware of AI and its related capabilities.

The participant feedback indicated that SMEs operating in the technology space seem to embrace AI more. All the participants working in the technology space have a better understanding of AI and can use AI directly as part of their service offerings. There is also a perception from non-technology participants that AI is a tool that can only be utilised by technology businesses. This perception has led some participants to refuse to adopt AI in their respective organisations as they deem AI not relevant in their chosen field of expertise.

Some participants expressed the potential complexity of the use of AI as a factor contributing to the lack of adoption of the technology. Due to limited resources, the participants indicate that the deployment of AI will require people with the right know-how to operate and maintain the AI. Therefore, financial resources have been identified as a reason for the lack of adoption.

The participants that make use of AI in their operations have alluded to the fact that there is now an increased dependency on the use of AI in their respective operations.

The lack of skills, financial resources, and company size contribute to the non-adoption of AI (Bhalerao et al., 2022). Therefore, the findings of this study are consistent with those set out in the literature.

6.4.2 Benefits of AI adoption

The insights received from participants indicate there is an awareness amongst the majority of the participants that there are benefits to be derived from the use of AI as SMEs. Participants indicated that AI has provided SMEs with the potential to be competitive in an already highly competitive environment. Particularly, the participants within the technology space have indicated that to remain competitive,

their businesses need to invest in AI technology as there was an expectation from the customer base as well for such investments to be made. For technology companies, using AI also enabled collaboration with other like-minded businesses, so investments in AI were considered non-negotiable to remain relevant.

The use of AI further enabled the SMEs to level the playing field and compete at the same level as their larger counterparts. Without this investment in AI, participants felt they would be left behind and run the risk of losing their customer base. Therefore, AI has also been a key enabler for some participants to gain new customers, as customers are typically attracted to companies that use the latest technology. So, AI has enabled revenue growth for some of the participants.

The participants further highlighted that AI adoption has enabled efficient production activities and enhanced the quality of the output for the final product or service. Through the use of AI, participants further highlighted that this AI provided opportunities to access new information that can be utilised to gain insights on new production techniques or new service offerings.

The SMEs that had gone for early adoption of AI within their respective industries indicated that being a step ahead of their peers enabled them to be more efficient and achieve higher cost savings compared to their peers.

Another benefit highlighted by the participants is the continuous learning capabilities, which allow the SME owners and their employees to have access to information that allows them to be better versions of themselves. With this additional knowledge, the employee base is able to enhance skills that would otherwise take much longer if obtained in the traditional method of classroom learning.

The study by Bhalerao et al. (2022) states that the benefits of AI adoption by SMEs include easier customer engagement. This further includes human resources, whereby personnel recruitment is simplified through the use of AI. The ease of recruitment was not strongly highlighted by the participants as a benefit, except for the participant who operates in the human resources consultancy space. Except for the human resources aspect, most of the responses received from the participants align with the literature.

6.4.3 Challenges in Adopting AI

Whilst some positives were mentioned regarding the adoption of AI, the participants shared some challenges with the use of AI in their respective businesses. The first such challenge highlighted relates to concerns around data security. Whilst there are positives to be taken through the use of AI, this very same act of using AI exposes the business to cybersecurity threats. Therefore, those using AI are aware of the threats being faced by unauthorised access or data leaks.

This threat of cybersecurity breaches also necessitates the business to invest in robust security measures in order to protect data and provide customers with confidence that their data is safe. This investment in data security measures requires additional funds from the businesses. Thus, the need for additional resources to be expended on enforcing data security measures serves as a deterrent for some participants to the totality of the use of AI.

Another factor highlighted as a challenge to the adoption of AI is the fact that those who need to use it do not have the requisite technical understanding of how the AI is to work. As highlighted by one participant, this may expose the business to the misuse or misapplication of the technology or even underutilisation.

Although AI can be utilised to help deliver outputs in a short space of time, the output is not always accurate. Additional checks and balances are required to ensure the final output is of the requisite quality. The participant highlights that being too trusting of AI may make one appear unprofessional.

6.4.4 Summary of discussion of findings

The review of the literature and the findings from the interviews are all fairly consistent. The participants identified similar benefits and challenges associated with AI adoption. The is a case to be made that for those SMEs that have adopted AI, the feedback provided is that their businesses have been able to leverage AI to enhance their operations and, in the process, attain a competitive advantage over their rivals. This means those who have not yet adopted AI are falling behind the curve and may lose the ability to be competitive should their competitors move towards adoption.

6.5 Discussion on research question 4 (RQ4)

RQ4: Do organisations view AI as an enabler to drive BBBEE objectives?

6.5.1 Familiarity with BBBEE enterprise supplier development objectives

In determining the understanding of or awareness of the BBBEE ESD objectives, it was noted that not all participants were familiar with the ESD objectives. All the participants are aware of the existence of BBBEE as a concept; however, this awareness does not extend to ESD programmes. Some participants highlighted that they are aware of the need to provide BEE certificates to some of their customers; however, that's where the knowledge ended.

There was a strong sense of the need for BEE to be utilised to help South Africa overcome the challenge of inequality. Furthermore, a participant reflected that, based on their knowledge, BEE programmes were designed to help level the playing field between previously disadvantaged people and those who had privileges. So, the effective use or implementation of such programmes had the potential to elevate people from townships and small businesses.

Interestingly, one participant indicated they had previously participated in an ESD programme. Therefore, as beneficiaries of such a programme, they could share insights into the ESD programmes.

While reflecting on BEE, some participants indicated their experience showed that the BEE programmes are not designed to benefit everyone. However, these programmes only benefit a few and do not lead to the overall growth of black-owned businesses. One participant expressed frustration that to obtain business in some spaces, their businesses must meet certain prerequisites, including having a BEE certificate. However, despite meeting these requirements, their business gets overlooked, and instead, the process is abused to favour other businesses.

6.5.2 Awareness of AI in supporting BBBEE objectives

In trying to determine the extent to which participants knew of AI being utilised to advance BBBEE objectives, most participants stated they were unaware of AI being used for such a purpose. The immediate thought is that perhaps AI might be used for BBEEE programmes in other industries outside of their own industry. When posed with this question, the participants did, however, acknowledge that they had not thought of AI and BBBEE objectives intersecting in any particular way.

6.5.3 Perceptions of AI for BBBEE purposes

In trying to establish linkages between AI and its use to advance BEE objectives, participants were asked to explore possibilities of how AI could be leveraged to advance BEE objectives. The responses varied across participants. Some views indicated that AI could not be of any use for BEE objectives.

One participant, however, remained open-minded, indicating that based on AI's potential to bring about enhancements in various spaces, this could easily be extended to the BEE space. Although the participants could not specifically state what these enhancements or synergies could be, they remained optimistic that there was potential.

Two participants shared practical insights on how AI could be utilised to promote or advance BEE objectives. The first indicated that AI could be used to identify a specific type of supplier, especially those with niche characteristics. For example, AI could be utilised to extract a shortlist of suppliers that met prerequisite BEE-specific criteria, enabling potential customers to easily identify suppliers with whom they can do business.

A second suggestion, the participant highlighted the need for AI to be used to create pathways for SMEs to seek funding assistance. With its capabilities, AI could close this gap by linking SMEs and finance providers to suppliers meeting specific BEE criteria.

6.5.4 Summary and discussion of findings

In their study, Sibiya and Barnard (2020) found that SMEs that participate in ESD programmes derive value from such initiatives, which helps contribute to their growth. From engagements with the participants in this study, a very limited number of participants have an awareness of ESD programmes, and a lower number have benefited from such programmes. Therefore, the participants would not have experienced benefits that are typically derived from those who have been exposed to such programmes. There is however, one participant who has successfully completed such an ESD programme, and feedback from this participant points to benefits that were derived, which include funding, access to new markets that

Although ESD programmes are being run, a high number of black entrepreneurs do not have access to funding (Musabayana & Mutambara, 2022). From engagements with the participants, most of the participants confirmed that they had not taken part in ESD programmes, thus limiting their ability to access funds provided through such programmes.

6.6 Discussing the findings against the RBV

As stipulated in Chapter 2, the RBV is the chosen theoretical framework to be used as a basis for this study. In line with the components Hafiz et al. (2022), the findings from the participant's interviews were analysed in line with the VRINE, which set out the following as key components of the RBV: the VRINE components.

Tangible or intangible resources: Interactions with SME owners revealed that most of them know this is an intangible resource deployed as a software tool.

Valuable resource: The views expressed by the majority of the participants are that AI is a valuable resource that SMEs can exploit to enhance their service offerings. Although the SME owners did not have high levels of literacy, they acknowledged that AI can be a tool that can be utilised to enhance their knowledge regarding financial literacy. The SME owners acknowledge the importance of financial literacy in understanding the processing of financial transactions and tax compliance requirements, and such have further identified AI as a tool that could help streamline the compliance and reporting requirements of SMEs to be easily understood by non-

financial experts.

Rare resource: The discussions with the SME owners showed that not all of them had fully adopted and embedded AI into their operations. The participants that have adopted AI indicated their competitors have not yet adopted it; therefore, the adoption and use of AI are still rare in black-owned businesses' spaces. Their participants share insights that they have developed AI with unique functionality specific to their environment, such as equipment maintenance troubleshooting chatbots for first-level support query resolution.

Difficult to imitate: In engaging with the SME owners, this question was not adequately explored and perhaps can be a subject of future studies.

Provide competitive advantage: All participants who were interviewed indicated that they were aware that AI does provide a competitive advantage over rivals in the market. Specifically, those who have already adopted AI highlighted how AI is helping reduce the amount of time spent on certain routine tasks across the board. Those in the technology space stated that AI enables them to better support their customers and share new products. One specific example was the building of chatbots by an SME in software development that allowed customers to first engage with the chatbot for query resolution. This query resolution approach through the chatbot allowed customers to self-correct easy routine challenges, which were available to them at any time. Such continuous access sets apart the SME business, where customers appreciate the turnaround time of query resolution.

In general, the interviews conducted confirmed that AI fits into the realm of RBV.

6.7 Chapter summary

The findings from this study are that the levels of financial literacy of SME owners are fairly low. While this is expected, this lack of financial literacy exposes entrepreneurs to financial mismanagement, especially when business and personal finances are not clearly separated. This further inhibits their potential to raise funds as financial literacy is a key factor in the financial institutions allocating funding.

Entrepreneurs' lack of financial literacy pushes them to outsource their financial reporting obligations, including tax compliance. Therefore, the entrepreneurs are not always in tune with the state of affairs of the business and are at the mercy of external parties. Outsourcing the financial reporting process also comes at a cost for small businesses. The funds spent on outsourcing could be reinvested into the business to sustain operations and drive growth.

The entrepreneurs themselves have identified the need for comprehensive financial education to be provided to all business owners as a means to improve financial literacy. Furthermore, entrepreneurs have stated that the financial reporting process is complex and encompasses various parts that need to work together, such as banking, tax filing, and financial reporting standards. Therefore, simplifying the financial reporting process highlighted the need for the introduction of an integrated workspace or platform that provides all the requisite tools needed for financial reporting and tax compliance.

Part of the capabilities of AI that have been highlighted through literature include the ability to use AI as a learning mechanism. This can then be leveraged to provide SMEs with sufficient insights into the financial literacy and financial reporting requirements of SMEs. AI has been found to be able to integrate data from various streams and present it in one platform. Therefore, AI can play a critical role in helping SME owners improve their financial literacy and better understand the financial reporting requirements.

This study has revealed that personal funds are being used to fund the operations of SMEs, which is consistent with findings from previous studies. From the study, it has been established that, whilst entrepreneurs acknowledge that as the business grows, a need will arise where external funds will be required to finance the operations, the entrepreneurs are not confident in their own abilities to raise funds as they have limited knowledge on how to raise funds. There is also a gap in understanding AI's role in helping entrepreneurs raise finances.

The adoption of AI amongst black-owned SMEs varies. The lack of full adoption has been identified as being due to a lack of resources, both monetary and skills. There is also a perception that AI is only suitable for companies that operate in the technology space; this is a misconception that needs to be addressed. However, there are positive sentiments shared by those SMEs that have adopted AI and

derived benefits such as improved marketing, access to new markets, efficiencies in operations and access to information used for learning and development.

Literature brings forth the possibility of financial institutions being more likely to fund innovative SMEs that have invested in technology adoption. Therefore, whilst the entrepreneurs are not aware of how AI can benefit them in terms of raising funds, those SMEs that have adopted SMEs that have adopted AI do stand a better chance of being considered for funding. This message has not been widely understood.

Therefore, a concerted effort is required to share knowledge about AI and its benefits to black-owned SMEs. Access to resources to enable the use of AI will continue to remain a challenge for SMEs, and an intervention is also required in that space.

The study has also revealed that there are varied perceptions and attitudes towards BBBEE and the BBBEE ESD programmes. There remains a gap in awareness amongst some SMEs of the support that they can receive through ESD programmes. ESD programmes can provide financial grants, loans, equity investments, human resource capacity and shorter payment periods (Republic of South Africa, 2019). Therefore, SMEs that form part of these programmes stand a good chance of obtaining resources that can be utilised to advance their knowledge, funding requirements, or access to resources that can bring innovation to their businesses.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The role played by SMEs in an economy is quite significant, contributing to a country's employment and economic well-being (Yeboah, 2021). Whilst SMEs are key in the life of an economy, there is a considerably high failure rate of SMEs (Okoye et al., 2024) in South Africa. Bearing in mind that SMEs employ about 64% of the South African working population (Sibiya et al., 2023), the failure of SMEs in South Africa would have a detrimental effect on the already high unemployment rate of about 33% (Statistic. South Africa, 2024). Although there is a high failure rate among SMEs, (Musabayana & Mutambara, 2022) found that 90% of SMEs owned by white people are successful, starkly contrasting to those owned by their black counterparts.

Whilst SMEs have a high failure rate, Bhalerao et al. (2022) found that by adopting AI, SMEs can be more competitive in the market.

This study aimed to explore the role that AI plays in the productivity and financial sustainability of SMEs, particularly focusing on black-owned SMEs. Black-owned SMEs constitute about 74% of the total population of SMEs in South Africa (Seda, 2023) and, therefore, stand to benefit the most through leveraging AI to enhance productivity and attain financial sustainability.

A qualitative study was conducted to answer four research questions: 1) Can AI be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs? 2) Can the use of AI help improve access to finance for SMEs? 3) Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity 4) Do organisations view AI as an enabler to drive BBBEE objectives?

7.2 Main findings

7.2.1 RQ1: Financial literacy

The findings from this study revealed that most black entrepreneurs do not have the financial literacy skills required to run a business. The literature review has revealed that financial literacy has a positive correlation with the growth of SMEs (Hossain, 2020). The study noted that black entrepreneurs with formal qualifications from different fields did not invest in pursuing financial literacy studies. Although most of the participants in this study have been exposed to AI, there has been no push to use AI to improve financial literacy levels.

Through literature, the study has revealed that financial literacy is a key enabler in securing funding for a business as financial institutions look favourably upon financially literate SME owners (Olarewaju & Msomi, 2021). Participants in the study noted future plans to grow their businesses wherein external funding will be required. There should, therefore, be a concerted effort by SME owners to improve financial literacy levels as a means to enhance the opportunities for raising funding.

Despite not having the requisite financial literacy, SME owners do make means to utilise external accountants to ensure the integrity of the financial reporting process. This was found to be consistent with the findings from the literature.

There is an opportunity for SME owners to make use of AI to gain insights into financial literacy. The findings highlight that the majority of SME owners are aware of the use and capability of AI and further acknowledge that there is some benefit to leveraging AI to gain insights into financial literacy.

7.2.2 RQ2: Access to funding

From the study, it has been established that participants make use of personal funds to kick-start their businesses, and this trend continues during the life of the SME. Personal funds are augmented by any excess funds or profits the business generates. The participants do acknowledge that external funds will be required to support the growth of the business. The study has identified that the participants do have the requisite knowledge or expertise to raise funding. The participants that have

raised funds externally have done so through the assistance of others.

The study also revealed challenges SME owners have faced in raising funding when financial institutions have not been forthcoming. This challenge is consistent with findings from the literature. Most of the SME owners indicated they were unaware of how AI could be utilised to support their efforts to raise funding.

The literature review revealed that financial institutions are more likely to grant funding to SMEs that have financially literate owners. Furthermore, the literature highlighted innovation and technology adoption as motivators for financial institutions to grant funding. There is, therefore, an opportunity for SMEs to utilise AI adoption as a means to project the business in a way that is innovative enough to be favourably considered for funding. There is literature which highlights AI being used to help with crowdfunding. These are opportunities that locally based SMEs can explore to enhance the possibility of raising funds.

7.2.3 RQ3: Adoption of AI

The study revealed that most of the participants had fully embraced AI and duly adopted it into their business operations. SMEs operating in the technology space had a higher understanding and adoption of AI and its related capabilities.

Participants who do not make use of AI in their businesses identified concerns such as lack of financial resources, lack of adequate knowledge and cyber or data security threats as factors that are delaying their adoption of AI. These findings are in line with expectations from existing literature.

7.2.4 RQ4: ESD and use of AI

The study further explored the extent to which SME owners are aware of BBBEE ESD programmes and the possibility of AI playing a role in this space. Surprisingly, most of the participants were not aware of the existence of BBBEE ESD programmes. Furthermore, the majority of participants did not share immediate insights on how AI could be utilised to advance ESD objectives.

The recent public, private partnerships engagement between the South African government and Microsoft, presents an opportunity for AI to be adopted by black-owned SMEs. The Microsoft partnership is driven as part of the provisions of the BBBEE legislation; therefore, this provides various industries with an opportunity to strengthen ESD programmes to be inclusive of AI related initiatives.

7.3 Recommendations

Previous studies have highlighted the importance of financial literacy in the financial wellbeing of SMEs and further highlighted that SME owners have limited understanding of financial concepts or insights into financial reporting. Through this study it has been established that SME owners have an awareness of their shortcoming and are of the view that AI can help close the financial literacy gap. The SME owners further highlight the need for AI to integrate all financial literacy and financial reporting requirements into a single platform.

The first key recommendation from this study is for financial institutions and financial reporting bodies to develop AI driven financial literacy platforms where SME owners can, at their own leisure train themselves on. Such literacy programmes can serve as pre-requisite for registering businesses or opening bank accounts.

The study has identified that there is need for SMEs to adopt AI as there is a desire to keep with the trends that have already been adopted by bigger, more mature customers (Kabalisa & Altmann, 2021). Therefore, unless black-owned SMEs have access to AI or adopt AI in their operations, the black-owned SMEs run the risk continuing to be left behind by their competitors thus continue to widen the inequality gap. The study revealed the majority of SME owners self-funded their respective businesses, however there is a general understanding that for growth to be achieved, the SMEs would need to seek external funding. This will likely be a challenge as the majority of SME owners do not have the capability to raise fund externally from financial institutions. Where the SMEs do not have the ability to raise funds, this creates a risk that the SMEs will unlikely be able to have sufficient funds to implement AI that can enhance their business processes. Through the study it was further found that organisations receiving assistance or subsidies could increase employment by 22% and 24% (Nyikos et. al., 2020).

Therefore, the second key recommendation for from this, is that policymakers to amend the BBBEE ESD codes to include a focus on grants being issued specifically for AI adoption, and this should attract bonus points. The partnership between government and Microsoft is a good start to help embed AI within the SME space, however, to motivate countrywide adoption, the objectives of AI should be encouraged through the ESD codes.

In the same breath, a key recommendation for SME owners, managers or entrepreneurs in general is for them to invest in the adoption of AI. From engagements with the participants in the study, the adoption was not pervasive, there are some SME owners that have not adopted AI at all, some are making use of AI for administrative tasks. The review of literature has demonstrated that innovative businesses are more likely to receive funding from banks, furthermore, organisations that adopt AI are more likely to attain a competitive advantage in the market. A failure to fully adopt AI may result in those SMEs remaining further behind compared to their more affluent competitors.

7.4 Areas for future research

It would be important to obtain an understanding of how AI adopted across the broader SME spectrum without isolating a particular racial group. This would begin to paint a picture of the extent of AI adoption throughout the South African landscape of the SMEs.

This study did not delve into how those SMEs that adopted AI went about adopting it. Therefore, future study could focus on obtaining an understanding perhaps through a case study of the antecedents required for black-owned SMEs to fully adopt AI that can provide a competitive advantage in the market.

Within the context of South Africa, further studies should be undertaken to determine to what extent financial literacy enhance the opportunities of access funds.

7.5 Study limitations

The study was limited to a fraction of the SME population based in the economic hub of South Africa, Johannesburg. Therefore, AI adoption, financial literacy levels, access to finance may look different outside the major cities. Therefore, the current study is limited in its purview, and views from SMEs in smaller towns or rural areas have not been considered.

The study was primarily based on ascertaining the relationship that black-owned businesses have with AI and the extent to which this AI is being leveraged to attain efficiencies and financial sustainability. The findings derived from this study are from one section of the population of South Africa and cannot at this stage be extrapolated.

7.6 Study conclusion

This study sought to gain insights on the extent to which black-owned SMEs are leveraging AI to attain financial sustainability and productivity. This was done through unpacking the key drivers of financial sustainability and productivity.

Thus, to explore financial sustainability, the study delved into financial literacy of SMEs and access to finance. Financial literacy remains a key foundation for the financial success of the SMEs, this was supported through literature and the findings of the study. Through the study, the findings indicated the potential for AI being leveraged to assist the SME owners with financial literacy and also simplifying the financial reporting process.

To aid financial sustainability, the SMEs are required to have access to finance. This relationship was confirmed through literature and also validated by the findings of the current study. It is very common for SMEs to be funded through personal funds of the owner; however, any significant growth will likely require external funding. The findings indicated SME owners do not have the requisite knowledge and expertise to raise the requisite funds. This presented an opportunity to explore to what extent AI could bridge this gap. The study revealed, technology adoption in itself was a key enabler to raising finance for the business. Furthermore, AI was found to have a role

in helping to facilitate the financial raising process by providing guidance on compilation of key documentation, motivation, or even budgets.

The study found the SME owners understood AI to only be a tool to be utilised by businesses that operate in the technology space. Therefore, AI adoption specifically to aid in the operational efficiencies and productivity was found to be lacking, presenting an opportunity for future studies to focus on embedding AI adoption strategies for SMEs, particularly amongst the black owned SMEs. The study also presents an opportunity for BBBEE ESD policies and programmes to be strengthened to provide financial access to SMEs to obtain funding and adopt AI.

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LIST OF APPENDICES

APPENDIX A: PARTICIPANT EMAIL INVITING THEM TO PARTICIPATE IN THE STUDY

Template of the message shared with participants inviting them to participate in the study.

Dear Participant

Thank you for agreeing to meet with me and to take part in my research interview. This then serves as a formal meeting invitation for us to meet and go over the interview. Attached herewith are the interview questions and interview consent form.

Please go through the interview questions to familiarise yourself with the contents thereof. Where uncertain, I will provide clarity of those questions during the interview. Can you please also complete and sign the attached consent form as well.

Looking forward to our engagement

Thanks

Kind regards
Lebogang

APPENDIX B: INFORMED CONSENT FORM

To whom it may concern

Consent for Participation in Research Interview

I am currently a student at the University of Pretoria's Gordon Institute of Business Science and completing my research in partial fulfilment of an MBA.

I am conducting research on Leveraging Artificial Intelligence to enhance productivity and financial sustainability of black-owned Small and Medium Enterprises. Through this research I am trying to find out more regarding the use of Artificial Intelligence amongst small businesses. Our interview is expected to last between 45 minutes and an hour and will help us how understand to what extent black-owned enterprises make use of AI.

Your participation is voluntary, and you can withdraw at any time without penalty. All data will be reported in a strictly confidential manner without identifiers.

If you have any concerns, please contact my supervisor or me. Our details are provided below.

Research name: Lebogang Madibo	Supervisor name: Prof. Motshedisi Mathibe
Email Address:	Email Address:
Phone:	Phone:

Name of participant: _____

Signature of participant: _____

Date: _____

Signature of researcher: _____

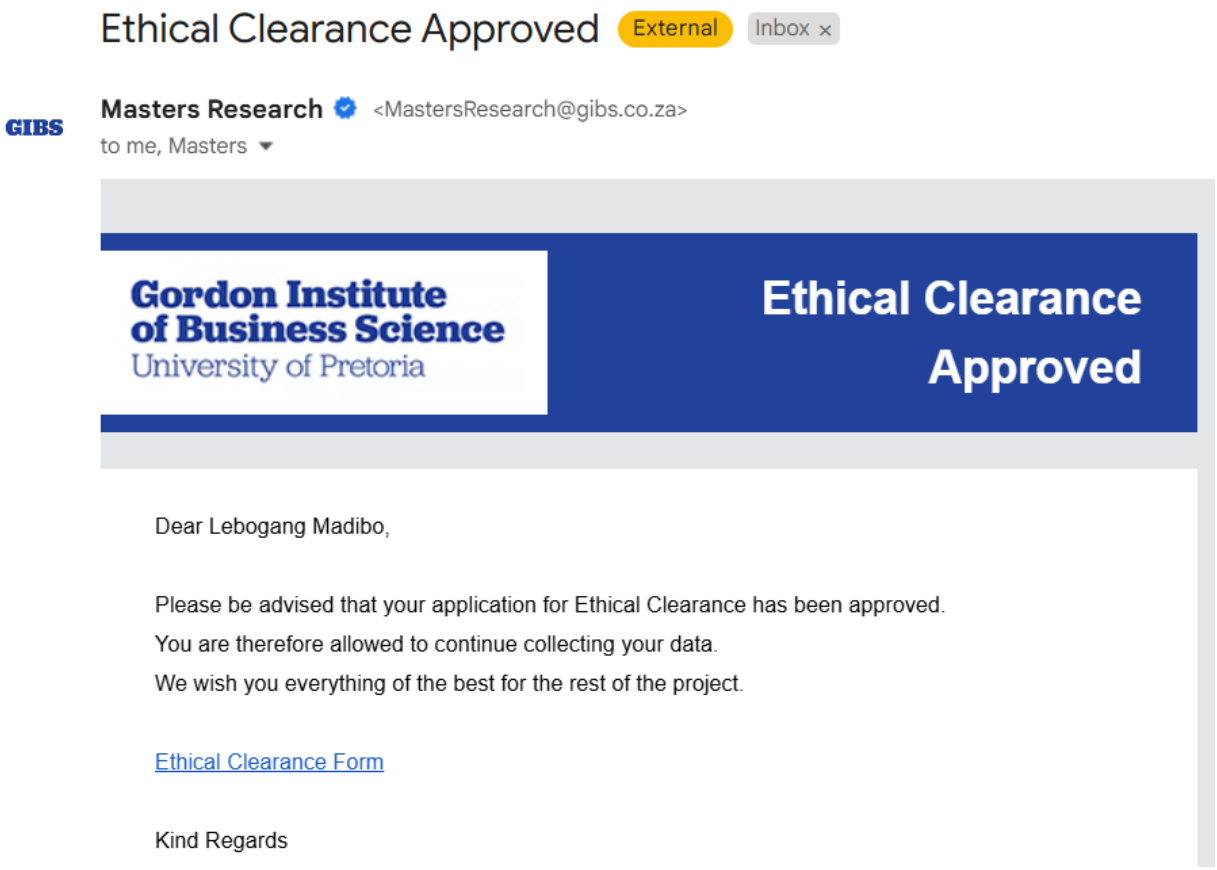
Date: _____

APPENDIX C: INSTRUMENT (SEMI-STRUCTURED INTERVIEW GUIDE)

RQs		Interview Questions
Question 1:	Can AI be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs?	1. Do you have financial or accountancy qualifications? 2. What has been your exposure to financial statement preparation? 3. Do you prepare your own financial reports as a business, or is this outsourced? 4. Do you use any online platforms to generate financial reports? 5. What aspects of financial reporting do you think can be improved for SMEs? 6. What has been your exposure to AI 7. Do you think AI could help improve your understanding of financial concepts and financial reporting?
Question 2:	Can the use of AI help improve access to finance for SMEs?	1. How are you currently funding the SME 2. What assistance have you received to raise finances 3. What kind of challenges (if any) have you experienced when raising funding for your SME 4. What role do you think AI can play in improving access to finance

RQs		Interview Questions
Question 3:	Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity?	1. Have you made use of AI in your business? If so, what are the benefits or challenges? 2. Do you think AI can provide an added competitive advantage to your business? 3. Do you believe AI can provide a competitive advantage for SMEs? Why or why not?
Question 4:	Do organisations view AI as an enabler to drive BBBEE objectives?	1. Are you familiar with the BBBEE ESD objectives? 2. Have you heard of AI being used to support BBBEE objectives? 3. What are your thoughts on using AI for BBBEE purposes?

APPENDIX E: ETHICS APPROVAL



Ethical Clearance Approved External Inbox ×

GIBS **Masters Research** <MastersResearch@gibs.co.za>
to me, Masters

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Lebogang Madibo,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

APPENDIX F: LIST OF CODES

1.	CRM and Financial tools	2.	AI simplifying financial processes	3.	Business Dependency on AI	4.	Seeking advice
5.	Lack of formal accounting qualification	6.	Mitigate threats	7.	Perceived industry relevance	8.	Prudent financial management
9.	Limited internal financial expertise	10.	AI as a predictive tool in financial management	11.	Creativity enhancement	12.	No prior experience raising external funding
13.	Automation and integration for financial management	14.	Self-funded	15.	Problem-solving	16.	Cost-cutting and efficiency
17.	Importance of human oversight in financial systems	18.	Google Adwords for AI programming	19.	Self-funded	20.	Target market focus
21.	Need for financial education	22.	Familiarity of ESD objectives	23.	Quality output	24.	Outsourced accounting services
25.	Challenges of financial management in SMEs	26.	Compliance requirements	27.	Limited direct use of AI	28.	Fault finding
29.	Improving financial awareness and ethics	30.	Abuse of BBBEE	31.	Awareness of AI Capabilities	32.	Improper application
33.	Limited direct use of AI	34.	Frustration	35.	Quality output	36.	Potential loss
37.	AI's potential to streamline financial reporting	38.	Self-funded	39.	Market saturation	40.	Definite advantage
41.	Human oversight is still necessary despite the AI	42.	Funding for marketing	43.	Importance of credibility	44.	Personal savings
45.	Familiarity of ESD objectives	46.	No prior experience with external funding	47.	Self-learning and adaptability	48.	Familiarity with AI in ESD

49.	Incomplete formal financial studies	50.	Seeking assistance through research and external platforms	51.	Balancing learning methods	52.	Potential loss
53.	Basic financial management understanding	54.	The complexity of preparing for funding	55.	Expanded Search Capabilities	56.	Awareness of ESD
57.	Self-learning through incubation programs	58.	Time efficient	59.	A private funder initially supported the business	60.	Lack of awareness of AI support
61.	Self-reliance on financial reporting	62.	Quick response	63.	Self-funded business operations	64.	Opportunity for AI
65.	Financial Software	66.	Challenges with Chatbot	67.	Considering future funding for larger projects	68.	Basic accounting certification
69.	Financial management training	70.	Purpose and understanding	71.	Curiosity and Discovery	72.	Outsourced accounting services
73.	AI Improving efficiency	74.	Uncertainty and optimism	75.	Access and Information Retrieval	76.	Reliance on an accountant for all financial management
77.	Limited knowledge about the value of AI	78.	Application of AI	79.	Technical understanding	80.	The desire for an integrated financial system
81.	Professional accountant	82.	No Funding Challenges Experienced	83.	Supplementary role	84.	Challenges with financial management tools
85.	Potential benefits AI benefits	86.	Time efficient	87.	Professional accountant	88.	Outsourcing increases complexity and cost
89.	System integration challenges	90.	Creative	91.	Outsourced accounting services	92.	Perception of non-professionalism
93.	Access to international information	94.	Versatile	95.	Elementary exposure to AI	96.	Conditional Role of AI
97.	Business Savings						

APPENDIX G: CONSISTENCY MATRIX

Research questions	Literature review	Data collection tools	Analysis technique
Can AI be utilised to improve the financial literacy levels of owners and their ability to produce quality financial reporting for SMEs?	Enholm et al. (2022) Hossain (2020) Yeboah (2021) Olarewaju and Msomi (2021). Nechiporenko (2022)	Semi-structured interview	Thematic analysis was used
Can the use of AI help improve access to finance for SMEs?	Mushtaq et al. (2022) Zheng et al (2024) Ekechi et. al. (2024) Olarewaju and Msomi, (2021)	Semi-structured interview	Thematic analysis was used
Do entrepreneurs view AI as a resource that provides SMEs with a competitive advantage through productivity?	Okoye et al. (2024) Enholm et al. (2022) Mushtaq et al. (2022) Owalla et al. (2022) Ballestar et al. (2020) Arakpogun et al., 2021) Kabalisa & Altmann (2021)	Semi-structured interview	Thematic analysis was used
Do organisations view AI as an enabler that drives BBBEE objectives?	Wei & Pardo (2022) van der Westhuizen and Ntshingila (2020) Department of Trade, Industry and Competition (2024) Dreyer et. al. (2021)	Semi-structured interview	Thematic analysis was used