Assessing the effectiveness of information systems for SMEs growth and failure prevention in Lesotho

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PREFACE AND ACKNOWLEDGEMENTS

In 2020, after the completion of My Post Graduate Diploma in Business Administration, I knew my route could not end there. I had to pursue my Master's degree. I needed a shift in my career, and I truly believed the Master of Business Administration would offer me the opportunity that I required in the corporate world. However, I was not anticipating the experience that I would gain and go through over the course of my studies. For this I am thankful

Firstly, I would like to thank the Almighty God for the strength that he has awarded me over the past two years. I want to thank my Husband, Mokuena Selepe, for his unwavering support throughout this journey, for always believing in me and for his understanding nature. My Mother, Matebello Nkofu, without whom this route would not have been possible. She believed in me and supported me when I needed the support the most. I thank my two sisters and their husbands. I thank my group members; the journey was truly a worthwhile experience within our diverse cultures; we supported one another and this made our work lighter than it would otherwise be. Lifetime friendships were formed.

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ABSTRACT

The majority of the Small and Medium Enterprises (SME's) fail to reach at least five years of operation. Their failure may be attributed to lack of accountability and technological advancement. The study, therefore, aimed to assess how the use of information systems (IS) may improve business profitability and prevent failure among the SMEs in Lesotho. The theoretical framework and literature ascertain that IS improves business growth. The population consisted of all the SME's operating in the Maseru district. Eleven of them were selected through a purposive sampling technique to participate in the study. The study adopted the use of in-depth semi-structured interviews to collect the data which were presented and analysed using the NVivo software which was used in the coding process to select and gather the themes for the thematic analysis. The findings indicate that all the SMEs were aware of the use of IS for the growth of their businesses. The results of the study confirmed that the adoption and use of IS does play a significant role in the businesses growth and failure prevention. For the SMEs to reach their full potential, it is recommended that SME owners use the appropriate IS and acquire the necessary skills and knowledge on how to use the IS for business growth.

Keywords: profitability, competitive advantage, marketing strategies, IS usage, business performance, business management.

LIST OF ABBREVIATIONS AND KEY TERMS

Data: The facts that are used by systems to produce useful information.

Growth: The improved enterprise operations, profit margins of the business and an increased number of customers and goods and services provided by the business.

Failure prevention: The ability of the business to operate in the long run.

Table 1: List of abbreviations

Abbreviation	Meaning
GDP	Gross Domestic Product
GS	Government Support
IAM	Information Adoption Model
ICT	Information and Communications Technology
IS	Information Systems
IT	Information Technology
SME	Small and Medium Enterprise
TOE	Technology, Organization and Environment
UNIDO	The United Nations Industrial Development Organization
MIS	Marketing Information Systems

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CHAPTER 1: BACKGROUND TO THE STUDY

1.1 Introduction

An information system (IS) was defined as an integrated set of components for gathering, storing and processing data, as well as supplying information, knowledge, and digital products (Zwass, 2020:60). Furthermore, Zwass (2020:60) stated that IS can be relied on by commercial businesses and other institutions to conduct and manage their operations, engage with consumers and suppliers as well as compete in the market. This research study looks into IS usage for small-medium businesses and its effectiveness thereof, in driving business profitability and preventing business failure.

Data is regarded as the most valuable asset for businesses in the current era. Enterprises of all sizes around the world, from the largest to the smallest, seek for novel data utilisation methods (Iqbal, 2018:15). This study sought to clarify the importance of using correct and relevant IS for a business in an industry. This research study had the potential to unlock and grow small-medium enterprises to higher lucrative levels. It aimed to determine the relevance of access and use of IS towards African businesses' growth and to recommend and present a researched conclusion on the premise that may enable business growth.

In Africa, new SME’s suffer from a high failure rate (Fatoki, 2014:60). Fatoki further stated that the high failure rate of new SMEs portrays a grim image of the SME sector's capacity to contribute significantly to job creation, economic growth and poverty alleviation. It is important to know the causes of failure and to address them appropriately considering the right contexts in which the SMEs operate. This research study aimed to examine the effectiveness of IS in driving business profitability and in preventing business failure. This may be the solution to failure in businesses due to lack of IS and data usage.

1.2 Problem Statement

Many SMEs are stagnant and therefore not profitable; they tend to fail to affect the livelihoods and the economy positively. Lesotho; classified as a least developed country by the United Nations is not an exception to failing and non-profitable businesses. The cause of failure can be initiated by lack of proper financial records, systems and technology in small businesses; this may be connected to the dread of expense or the unknown associated with technology (Eva Financial Solutions, 2019). Moreover, Eva Financial Solutions (2019) indicated that many organisations that have implemented cloud accounting and other several technologies have gained efficiency in multiple operational aspects of their business. The stagnation and failure of small-medium businesses are alarming; they cause fear and deterring new entrepreneurs to venture into business. Fatoki (2014:86) stated that the high failure rate has a detrimental impact on the potential of new SMEs to contribute substantially to job creation, economic growth, and equitable income distribution.

The study aimed to assess whether the use of IS for decision-making does grow profitability and prevent failure in SMEs. Iqbal (2018:14) stated that previous studies have missed out on exploring the opportunities of big data in businesses, especially in the SMEs. Unemployment and local ownership are issues of concern in Africa and many factors influence these issues. The study gained a better understanding of how IS could curb and mitigate the failure rate of the SMEs to improve the employment rate, economic growth and local ownership.

1.3 Aim and Objectives of the Study

The main objective of this study was to gain a better understanding of how IS can improve business profitability and prevent failure among SMEs in Lesotho. The following are secondary objectives:

- To investigate the role and effects of using an information system to conduct business operations and transactions to achieve the perceived business growth and to prevent failure.

- To determine whether information systems in businesses have the potential to grow SMEs or not in Lesotho.

- To provide the recommendations that may help the SME’s to grow and to succeed.

1.4 Research Questions

The study aims to build theory from the following questions:

- Are information systems and data usage effective for the growth and failure prevention of SMEs?
- What theoretical evidence exists to support or refute the importance, role and effects of using an IS and data to conduct business operations and transactions to achieve the perceived business growth and to prevent failure?
- What does the data sourced from the predetermined SMEs in Lesotho reveal regarding IS and data usage for the improvement of business, profitability and failure prevention for SME’s in Lesotho?

1.5 Rationale and Significance of the Study

This research study may contribute to the body of knowledge in various areas of interest such as the effectiveness of IS for SME's growth and failure prevention. In theory, the level of technical expertise may be assumed and defined for SME owners. This study intended to further enhance the existing understanding of IS usage in today's world which is highly driven by technology. It may clarify the need for data usage and how the data is used. It may highlight the importance of using the right data for the business for its growth. The SME's owners may gain a further insight into the use of IS for business success and hence acknowledge its importance. The study further assisted in understanding the systems analysis and design concepts as a broader research field.

1.6 Limitations of the Study

The study contributed to the available body of knowledge on the effectiveness of IS to drive profitability and to prevent the failure of SMEs. However, there were some limitations. The main limitation of the study is its geographical demarcation. That is, the study results cannot be generalized to environments with totally different contextual situations from those of the study. More collection of data can be made from other districts and from other African countries as future contributions. Furthermore, most of the participants may have limited time to sit for an interview due to the nature of their work (running a business usually takes most of their time).

1.7 Research Design

A qualitative research approach was used due to the exploratory nature of the research. Exploratory research is an examination of a subject in an attempt to gain a further insight (Reiter, 2017:131). Furthermore, the study used purposive sampling. Purposive sampling is a non-probability, non-random form of sampling in which participants are selected strategically, ensuring that those sampled are relevant to the research questions (Bryman, 2014:101). This was chosen with the consideration that the participants with relevant, reliable and accurate information on the topic will be limited. Semi-structured interviews were used to obtain opinions from the interviewees and then an analysis took place through identifying the themes to derive meaning from the data collected to conclude the premise.

1.8 Population/Sampling

The research population included all small-medium enterprise owners in Maseru, Lesotho, who use information systems effectively to run and make decisions in their business.

1.8.1 Inclusion Criteria

- Small-medium enterprises that had been operating for over 12 months
- The staff complement of less than 50 people.
- Enterprises that had operations in Maseru. However, their services could extend to other districts and internationally.

The small-medium enterprises had to be represented by the owner/manager.

1.8.2 Exclusion Criteria

- The staff complement of greater than 50.
- Only being in operation for a period of between 0 and 12 months.

1.9 Data Collection

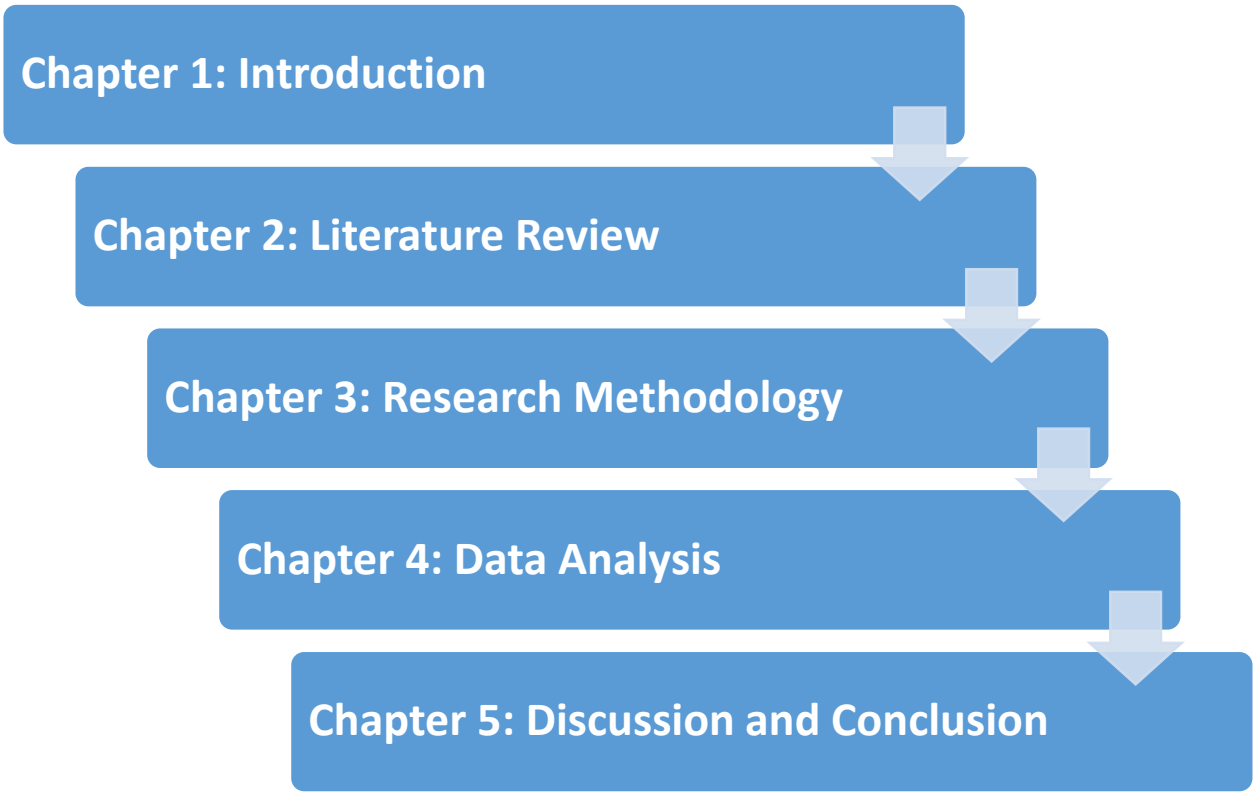
The data was collected through in-depth interviews. Initially, formal request letters were sent to the identified SME potential participants and contact details (email and phone numbers) were requested for, for purposes of follow-up communication. Permission to interview was requested from the manager or owner of the enterprise. An informed consent form was availed to the participants, detailing issues of confidentiality, freedom of participation and withdrawal (if they wished to, at any time during the interview).

1.10 Data Analysis

The study used a thematic analysis to reach its objectives. The analysis began with planning, data collection and then data analysis. NVivo, a qualitative data analysis software program, was used to assist in data management, storing, organization of files, interview summaries and the coding process.

1.11 Layout of the Study

Figure 1: The layout of the study



1.12 Chapter Summary

The chapter introduced the study to gain familiarity with the subject and to gain a better understanding of the subject (how it applied to the broader context of business operations). The objectives of the study focused on how to address the study problem for the SME's to gain profitability and to prevent failure in the future. The methodology included an inter-positivist approach. Semi-structured interviews were used to collect data only on business owners/managers who used IS in their businesses. A thematic analysis, together with NVivo were used to analyse the data.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Information Systems now develop at an unprecedented speed and they are widely used by organizations and SMEs to promote and sustain their businesses. Today, most SME's cannot expand and thrive without using IS because is essential to the growth and survival of these organisations. IS provides a repository of data that enables SMEs to address their challenges. This also helps them manage the sales and control planning process, resulting in the progress and enhancement of the company's products. IS enhances the efficiency and effectiveness of SME's as a result of its outstanding correlation with the rise in management effectiveness in terms of goal attainment. (Zafar *et al.* (2016:7-8).

SME's can be defined based on three criteria: 1) the number of employees, 2) annual sales and 3) company origins. However, the common definition used by the public/private bodies dealing with SME's is based on the number of employees as the first criterion (Zafar et al., 2015:6). The United Nations Industrial Development Organization (UNIDO) defined an SME as one run by one owner who has full responsibility dimensions and strategies; the number of its employees ranges between 10 and 50.

SMEs play a pivotal role in the economic development of countries. For example, in Saudi Arabia, SMEs represent about 93% of the total enterprises and about 24.7% of the total employment (Zafar *et al.,* 2015:6). Zafar et al. (2015:10) further highlighted that the role of SMEs in the Kingdom of Saudi Arabia is crucial for supporting numerous national initiatives, such as achieving inclusive and balanced economic growth by supporting micro companies at the bottom of the income pyramid. In order to assess the effectiveness of an IS for the SME’s growth and failure prevention in Lesotho, the chapter portrays the empirical literature which discusses the use of IS in dynamic businesses around the world. The chapter is also built on two conceptual frameworks: the Technology, Organization and Environment (TOE) framework and the Information Adoption Model (IAM).

2.2 Empirical Literature

The empirical literature is based on the impact of IS usage in businesses in terms of their technological innovation, competitive advantage, the use of IS in marketing as well as the contribution of IS in SMEs and its limitations.

2.2.1 Data-driven Innovation

An innovation is an idea, practice or object that is perceived as new by an individual or another unit for adoption. Technological innovation has been the subject of extensive theoretical and empirical studies and it is now universally accepted as a crucial factor in sustaining exceptional performance (Hoti, 2015:3). According to Zillner et al. (2016:171), the increasing trend of big data innovation results in the creation of data-driven products and services and can facilitate data-driven planning, data-driven marketing, and data-driven operations across all industries and disciplines.

On the other hand, data connotes the innumerable information including user-generated data from social media platforms, machine, mobile, and GPS data, as well as the internet of things; corporate data including customers, inventory and transactional data sets generated or gathered by government agencies, universities and non-profit organizations (US Chamber of commerce foundation, 2014).

The above information confirms the need to improve the level of system and data-driven business operations for decision-making. Stobierski (2019:166) stated that when making high-impact business choices, the largest and most successful firms of today leverage data to their advantage. With the right technology, expertise and culture in an organization, the growth of small-medium businesses is inevitable. Moreover by beginning on a modest scale, assessing performance, documenting data, and improving progressively, one can become more data-driven and thrive in one's organizational operations and goals. The topic, however, still requires a great deal of research as there is a need to capacitate and educate SME owners on the potential benefits of effectively using IS and appropriate data (Stobierski, 2019:166).

Businesses and governments in different parts of the world use technological innovation to constitute an important resource for driving value creation, fostering new products, processes and markets as well as enabling the creation of new markets. In 2013 alone, the data-driven economy added an estimated $67 million new value to the Australian economy, equivalent to 4.4% of the country's Gross Domestic Product (GDP) (Zillner *et al.,* 2016:170).

Hoti (2015:3) mentioned that there are three stages involved in the uptake of technological innovation: initiation, adoption and implementation. In the initiation stage, information regarding the technology is acquired and reviewed. During the adoption stage, a determination is reached on the adoption of the technological innovation, and in the final stage, if the adoption decision is favourable, the technological IS is implemented in the company. (Hoti, 2015:3).

Based on the above information, Awotayo (2020:11) asserted that customers are more engaged and loyal when business owners use Information Communication Technologies (ICT) for process optimization in their respective industries. It is therefore essential for organizations to recognise the IS' contribution to business effectiveness and its ability to prevent business failure.

Zillner et al. (2016:170) also stated that data may be a source of economic growth and development since it is an infrastructural resource that can be utilised in a number of ways to create various goods and services. Moreover, Jere and Ngidi (2020:2) added that the adoption of ICT may contribute towards the growth of an organization through a) recognition of the organisation, b) providing more information to small businesses, c) organizational exploration of new trade territories and d) enabling the enterprise to undertake business online.

Additionally, Zillner *et al.* (2016:171) asserted that big data chains are at the core of delivering data-driven innovation. The use of data technology delivers data-driven innovation for the organization in at least two categories; the objective of the first category is to provide information on areas of organisational procedures and services to facilitate enhancements.

The second category is external facing (Zillner *et al.*, 2016:171); that is, it involves the exploration of customer data such as search and user logs, transactional records, and other customer-generated content to drive long trail marketing, targeted and personalized recommendations, increased sale and customer satisfaction. In this regard, Zillner *et al.* (2016:171) gave an example of Netflix's collaborative filtering algorithm to predict user movie ratings and Google's use of user search behaviour to target advertising.

Zillner *et al.* (2016,171) advised that before starting to gather and analyse data, a company must implement a well-defined data strategy in order for big data to be successful in generating innovation. In addition, the creation of big data solutions must be connected with business objectives to ensure the effective adoption of technology and the retention of maximum commercial value because business growth leads to overall economic growth and the effective use of information systems, technology and data leads to sustainable growth that is responsive to societal needs.

Cloud computing is another important technological innovation that SME may use. Hoti (2015:8) asserted that by decreasing the cost of ownership for hardware and software, and by reducing the number of IT personnel, cloud computing can reduce the entry prices for robust IT capabilities for SMEs. Through the implementation of metered services, start-up costs for a SMEs may be reduced significantly. Cloud computing has the ability to create a competitive advantage because on-demand flexibility enables quick resource expansion as the SME grows (Hoti, 2015:8).

2.2.2 Competitive Advantage

The definition of competitive advantage according to *Zafar et al.* (2015:10), is an advantage that a firm has over its competitors, allowing it to generate greater sales or margins and/or to retain more customers than its competitors. The dynamics of co-evolution in IT management implies an interactive learning loop between competencies in IT investment and competitive action.

Moreover, competencies in IT investment involve a vast array of domains including the governance of IT resources and an integrated partnership between IT specialists and those responsible for the business process innovation. Such abilities may prompt companies to extend the quantity and scope of competitive actions in their repertoire. (Neirotti & Ragueso, 2017:7).

Neirotti and Ragueso (2017:7) further stated that competitive advantage is no longer optional; it has rather become inevitable for the SMEs that seek to survive and grow. They need to establish IS to meet the globalized challenges and rapid changes in an orderly fashion and error free manner. Therefore, the presence of IS in SMEs helps to build a competitive advantage globally and locally.

Additionally, IS helps SMEs to raise their competitive position as relying on IS can easily compete with the players in the labour market. To support this view, Bharati and Chaudhury (2009:5) stated that research undertaken in San Francisco Bay Area and South Florida revealed that customers evaluate the ICT information offered by SME sales presentations to their pre-existing ICT expectations regarding the nature of ideal sales transactions. IS assists organisations who use the competitive vigilance strategy, which is a stringent and meticulous monitoring of rivals' movements, by gathering information about them (Neirotti & Ragueso, 2017:7).

SME's are more flexible and can adapt to change easily as compared to larger businesses. Their flexibility can be of three kinds: a flexible process that allows freedom, speed and re-employment of resources, a flexible organizational change regulation that is quick and has a low cost and a flexible strategy in the selection and adjustment of goals (Zafar *et al.,* 2015:10). Based on the research conducted on SME's outside the Kingdom of Saudi Arabia, it stated that the existence of IS correlates positively with the competitive advantage of SME's. Information systems are crucial for SME's to attain competitive advantage (Zafar *et al.,* 2015:8).

Competitive advantage can also be manifested by environmental munificence which refers to the extent to which the environment can support firms in their effort to accomplish sustained market growth and to reflect growth in market demand and the abundance of critical resources needed by firms to successfully compete. Such resources may be reflected in reduced pricing rivalry from customers and suppliers and a larger availability of financial resources for stakeholders to invest in the firm. In affluent environments, the likelihood of SME dependency on a few clients and tolerance for innovation may be reduced. (Neitotti & Raguseo, 2017:11).

2.2.3 Marketing

Lippell (2016:246) as well as Ponffyová and Bartková (2016:348) defined marketing as a systematic process consisting of analysis, planning, implementation and monitoring in the marketing field and company as a whole. Lippell (2016:246) suggested that obtaining and maintaining this process should lead to a sustainable competitive advantage.

This can be achieved through Marketing Information Systems (MIS). This simply means an interactive structure of people, equipment, methods and controls designed to collect, sort, analyse, evaluate and distribute well-timed and exact information to managers for the decision-making process in marketing (Lippell, 2016:246; Salvador & Ikeda, 2014:78).

MIS can be classified into subsystems as the internal registration sub-system, the marketing intelligence sub-system and the marketing research sub-system (Salvador and Ikeda, 2014:78). These researchers suggested that the need for its implementation would derive from points that have not yet changed, including the fact that:

1) The increase in business complexity would demand more information and better performance;
2) The life cycle of products would be shortened, requiring more assertiveness from marketing managers to collect profits in shorter times;
3) Companies would become so large that the lack of effort to create a structured IS would make its management impractical;
4) Businesses would demand rapid decisions and therefore support decision making; an IS would be essential for the marketing area.

According to Salvador and Ikeda (2014:78), the internet and the use of social media have transferred the power of creating content to users, greatly increasing the generation of information on the internet. Through the use of the internet and social media small businesses may expand their existing marketing strategies to strengthen client interactions, boost sales, and enhance their reputations. Social networking is crucial for small firms with limited resources and abilities. (Schaupp, 2014:201).

According to Musiime and Mwaipopo (2019:68), the revolution and paradigm shift in mass communication brought about by new communication channels such as the internet and mobile communication technologies have necessitated a fresh approach to marketing communication in order to reach clients. Schaupp (2014:202) asserted that a key success element for small businesses is their capacity to advertise themselves efficiently and cost-effectively by decreasing or eliminating marketing and sales expenditures, and social media affords them the potential to do so. Musiime and Mwaipopo (2019:80) identified a favourable correlation between social media use and the efficacy of marketing communication.

Despite social media, another way for SMEs to gain a competitive advantage is the need to keep on improving the quality of their products and services so that they may be more appealing to consumers. Quaye and Mensah (2018) asserted that SMEs that frequently introduce new product designs and packaging create product variety, extends product life, and enhance consumer experience as well as pose superior strength over competitors. This study will, therefore, assess the effective use of social media by SMEs and their ability to improve products in order to gain a competitive advantage.

Quaye and Mensah, (2018) undertook a study on marketing innovation and sustained competitive advantage in Ghana based on the concept that design and packaging improvements are fundamental to SME marketing efforts. They compared the premise that there is a strong positive association between product design and packaging innovation against the hypothesis that marketing resources and competencies sustain this relationship. The study revealed that product design innovation had the highest average mean score of 4.45, driven by improvements in product size, shape, colour, and flavour. The lack of online platforms contributed to the innovative retail outlets strategy's mean score of 3.49. The highest mean suggests that Ghanaian SME manufacturers are inventive and driven by product design innovation. In comparison, the lowest mean indicates that manufacturing SME's in Ghana are not very inventive in terms of utilising novel retail channels, such as the internet, to market and sell their products. (Quaye and Mensah, 2018). The use of IS by SMEs may increase their interaction with customers (new and/or existing) and suppliers, thus sustaining their growth.

Furthermore, the use of social media in marketing creates higher consumer value, stronger brand identity and enhanced consumer trust. These occur because people today use social media (Micro-blogs, Twitter, YouTube, social networks, Facebook, LinkedIn, Instagram, and WhatsApp) conversations for longer periods than traditional media (radio, television). Consequently, there is a growing trend in which consumers have more control over media consumption (Musiime & Mwaipopo, 2019:72).

2.2.4 Contributions of IS Towards SME Growth

Iqbal *et al.* (2018) stated that today's corporate organisations, whether small or large, require significant and trustworthy data for decision-making. In addition, data may assist SMEs in anticipating their target market, client preferences, and demands. Simply put, there is an urgent need for SMEs to examine the incorporation of big data technologies in their operations. The study focused on SMEs, the cornerstone of any economy, since they have the capacity and flexibility to adjust more quickly to changes underlying productivity. (Iqbal *et al.,* 2018).

According to Ramaswang (2019:220), small businesses can thrive in an increasingly competitive global marketplace if they are able to utilise information to their advantage. A fundamental requirement for a company's market success is to manufacture and sell what is demanded as well as to give extra services to achieve competitive advantage with the products and services supplied. An enterprise can build a competitive advantage with the internal environment as well as its suppliers and partners (Lippell, 2016:200).

The concept of competitive intelligence is defined by Pomffyová and Bartková (2016:349-350) as an ethical and legal method of collecting and evaluating information about competition and the competitive landscape. Competitive intelligence includes the activities of defining, obtaining, collecting, analysing, contextualising, and disseminating information inside an organisation. It collects information on the competitors from external sources such as historical materials, published works, government records, online competitive databases, and interviews with business executives or industry experts. A competitive intelligence system that is well-designed can aid organisations in their strategic planning and in determining the intentions and capabilities of their competitors. It may also determine the degree to which a company is exposed to risk (Štefánoková *et al.,* 2015:210).

Pomffyová and Bartková (2016:351) undertook a study of the Slovak SMEs in 2015 to test the correlation between information knowledge and enterprise growth. Their study revealed that 85% of micro enterprises with increasing and stagnating growth thought that they had adequate information while 96.4% were actually informed about all the key information topics on partners, competitors, markets and technologies. In addition, 17.9% of the micro enterprises with increasing or stagnating growth admitted that they were not well informed about their customers.

In contrast, enterprises with declining growth were less informed; they had knowledge of partners but less knowledge of markets and consumers, competitors and about technologies. Due to lack of information knowledge and understanding, most entrants fail; the majority of the new firms that survive do not flourish. However, a small proportion of start-up enterprises that survive contribute significantly to job development. (Stone, 2017).

Modern economies have the difficulty of creating an environment conducive to the success of agile, high-growth firms. Ineffective use of IS by SME owners degrades business models, diminishes consumer value, and reduces the likelihood of business stability, profitability, and growth (Stone, 2017). Poor understanding of technology hampered the searching and analysis of information content, as well as the contextualization of information within the proper real-world circumstances. Therefore, it is crucial for SME's to utilise competitive intelligence since it is a potent business tool for the accurate and methodical implementation of competitive intelligence (Pomffyová & Bartková, 2016:353).

2.2.5 Finance and Insurance

According to Hussain and Prieto (2016:211), in response to the increased need for faster transaction execution, the financial markets began to automate their trading activities. The availability of data has improved market trading analysis through sophisticated algorithm-based trading tactics in the financial markets. Market data

from numerous markets and regions, as well as a range of assets, may be combined with other structured or unstructured sources to give a comprehensive and unified perspective of the market condition. This may be used for various purposes, including signal creation, trade execution, profit and loss reporting, and risk measurement. Moreover, big data technologies and analytical approaches can help financial institutions remain ahead of or even catch up with rivals by gaining information from emerging unstructured sources such as social media. (Hussain & Prieto, 2016:210).

Hussain and Prieto (2016:210) stated that the market for big data technology has great potential; with data being the most important asset. This technology is particularly advantageous and distinguishing for financial services. Big data provides an exceptional opportunity for the majority of banking and financial sector institutions to harness their client data, improve their businesses, manage risk, and manage consumer loyalty. (Zillner *et al.,* 2016:173). According to Hussain and Prieto (2016:210), the key vendors dominating well established global players with a generalist profile include Hewlett-Packard, IBM, Microsoft and Oracle.

By leveraging data, banks and financial market organizations may get a thorough grasp of their markets, consumers, channels, goods, laws, competitors, suppliers, and workforce, allowing them to compete more effectively. This favourable market trend is anticipated to boost expansion in the worldwide big data market for the financial services industry. (Hussain & Prieto, 2016:210).

With the digitalization of financial goods and services, the use of data in finance and insurance firms may improve customer insight, engagement, and experience, as well as support the growing trend of customers interacting with brands or organisations in the digital arena. Consequently, there is an opportunity for financial service companies to increase client involvement and proactively enhance the customer experience (Hussain & Prieto, 2016:210).

Hussain and Prieto (2016:210) further stated that financial service institutions have historically been susceptible to fraud. In the past, banks just analysed a limited sample of transactions to detect fraud. However, this allows certain fraudulent activity to sneak through the cracks. Big data enables these organisations to leverage larger datasets to discover trends that suggest fraud, so reducing their exposure to such risks.

The use of IS has led to data growth in financial institutions. According to Hussain and Prieto (2016:213), financial transactions are increasing, thus leading to data growth in financial service organisations. The existence of electronic trading has contributed to a rise in the total number of deals conducted in the capital markets. According to some estimates, the total number of electronic digital payments worldwide is around 260 million, and the percentage increase in emerging economies ranges from 15 to 22 percent.

Advancement in technology within the financial sector has increased online activity. The digitisation of financial products and services facilitated the convenience and affordability of online financial transactions, resulting in the growth and expansion of new markets. This implies that individuals can make more transactions, more frequently, and across more account types since they can do it from the comfort of their own homes with the click of a button. Financial institutions are operating in a market that is substantially different from that of the previous decade (Zillner *et al.,* 2016:173). The adoption of big data analysis is necessary to assist financial institutions in developing business models designed to retain market share in the face of rising competition from other industries.

2.2.6 Health Institutions

The IS designed for hospitals and clinics enables the medical personnel to access and handle vast amounts of information, hence enhancing the quality of work through the coordination and exchange of stored data. Similarly, information systems aim to

manage all healthcare activities, such as planning, monitoring, coordination and decision-making, to ensure the improvement of records and their availability on demand by making the information accessible and decreasing the waiting period prior to obtaining the necessary information (Zafar *et al.,* 2015:8). Iyamu (2020:4) stated that the evaluation of large data sets can assist identify patterns and relationships in medicine; these are usually novel and valuable to health professionals.

Moreover, big data analytics enable the capture of insights derived from information obtained from research, clinical care settings, and operational settings in order to generate evidence for enhanced care delivery. In the case of health care services, big data analytics may be used to address the complexity of IS employed to store and to maintain patient data sets (Iyamu, 2020:3). Zillner and Neururer (2016:182) added that Public Health Analytics is one such application that aims to link the requirement for higher quality with various big data application situations. This application illustrates the potential benefits and the technical requirements that are connected with big data technologies.

In addition, in order to gather and analyse treatment and outcome data, public health applications rely on the management of comprehensive and longitudinal health data, such as chronic diabetes, congestive heart failure, and severe (e.g. cancer) illnesses from specific patient groups. For example, Sweden has continuously invested in public health analytic initiatives since 1970, resulting in 90 registries that currently cover 90% of all Swedish patient data with selected characteristics, resulting in the best healthcare outcomes in Europe with the average healthcare costs of 9% of the GDP (Zillner & Neururer, 2016:182).

The application of analytics has the ability to improve the delivery of excellent health care and service, the assessment of public health and the reaction to and prevention of illnesses that may harm patients (Iyamu, 2020:3). Numerous technology

businesses that specialise in clinical systems provide key solutions for maintaining complete patient information, electronic medical bills, and clinical data derived from medical records. The emergence of these software businesses has facilitated the simplification of user operations and provided substantial benefits for physicians and nursing departments, receptionists, administrators, and patients (Zafar *et al.,* 2015:8).

Iyamu (2020:4) stated that, in many nations, particularly poor nations, big data is used as a healthcare system solution. According to Zafar et al. (2015:8), many physicians in the Kingdom of Saudi Arabia have simplified their job by switching from paper to electronic health reports. Using traditional paper-based methods has become problematic due to the vast volume of information. For example, medical records on paper often go missing. Thus, medical institutes began to implement information systems to improve the quality of their operation.

Data analytics facilitate the methodical evaluation of existing medical data, informs educated decision-making, and ultimately improves the efficacy of services provided by health professionals and institutions. Through the study of personal data, data analytics may provide patients with much more accurate information that can aid in decision-making from the patient's perspective. The patient also benefits from analytics, based on treatment that is supported by a more timely diagnosis and the administration of the correct medicine (Iyamu, 2020:3).

2.2.7 Media and Entertainment

As content can be generated, created, exchanged, and reproduced by anybody, media players are more engaged than ever before with their consumers and competitors. This indicates that the capacity of big data technologies to consume and analyse multiple data sources is a significant asset in which businesses should be willing to invest (Zillner *et al.,* 2016:174). Media firms may use data to learn about their consumers' interests, profiles, and attitudes, and then use this knowledge to establish more engaged connections. Numerous businesses increasingly integrate

social media analysis into their conventional journalistic operations in order to foster more engaging, interactive ties between customers and new content (Lippell, 2016:246).

2.2.8 Retail

Cavanillas *et al.* (2016:6) stated that interactions between merchants and consumers present enormous prospects for using big data technologies. As people explore, investigate, compare, buy, and receive assistance online, and as the items offered by merchants produce larger data footprints, the importance of data continues to grow.

Moreover, Cavanillas *et al.* (2016:6-7) said that data can impact retail in areas such as marketing (cross-selling, location-based marketing, in-store behaviour analysis, customer micro-segmentation, customer sentiment analysis, and augmentation of multi-channel consumer experience), merchandise sales (assortment optimization, pricing optimization, placement), design optimization (operations, performance transparency, labour inputs optimization), supply chain (inventory management, distribution and logistics optimization, inbound and outbound logistics optimization), and design optimization (operations, performance transparency, labour inputs optimization (price comparison services, web-based markets).

According to Zillner *et al.* (2016:175), the retail industry will rely on the collection of in-store, product, and consumer data. To be successful, merchants must be able to extract the appropriate information from the massive data sets expected in an automated retail environment. This can boost production and efficiency, perhaps leading in a 60% increase in operating profit for merchants (Cavanillas *et al.,* 2016:6).

2.2.9 Limitations of IS Usage by SME's

The adoption and use of IS are not without challenges, especially in developing countries where the adoption of ICT is hindered by many obstacles including lack of

facilities, lack of technological capabilities and lack of legal determinants. This is so, as the mass of emerging economies struggle with funds, which restrict infrastructure development, and a population with inadequate skills to enable growth (Jere & Ngidi, 2020:2). According to Hussain and Prieto (2016:210), the shortage of competent personnel to manage data is a difficulty as some financial organizations may lag behind in pace.

Zafar *et al.* (2015:9) added that, the employees of SMEs follow a defined and predictable pattern of work over a number of years. They are not IT experts, and they resist revising the established work routines that have been in place for years. Non-technical issues, such as employee reluctance to change resulting from a lack of training and comprehension, provide the greatest obstacles to big data analytics, particularly in developing countries (Iyamu, 2020:3). Organisations that are prosperous now but cannot transition to data-driven business strategies may be negatively impacted if the culture and skillsets of their employees are not improved. (Lippell, 2016:247).

Some organisations have acknowledged the value of data and the opportunities it brings. However, they lack the skilled human capital necessary to bridge the gap between the data and the potential opportunity (Hussain & Prieto, 2016:210). Zafar *et al*. (2015:9) stated that large firms have a greater demand for IT personnel and give them higher compensation than SMEs; this makes it challenging for SMEs to recruit and retain IT employees.

Many SMEs lack understanding of the various technologies that might be implemented in their organisations to improve productivity and facilitate decision making. The success of most organizations depends on the managers' skills and their decision making capabilities. However, inefficiencies and discrepancies may develop if managers are not well acquainted in management, leadership, and IT knowledge and skills (Zafar *et al.*, 2015:9). Neirotti and Ragueso (2017:6-7) add that

due to their small size, SME IT expenditures and the associated expenses of creating and modifying IT-based functionalities may be costly.

Furthermore, given the current environmental context, it appears that IT governance is too complicated and necessitates constant modifications to the portfolio of IT resources and business processes. In contrast, Ramaswany (2019:218) asserted that today SMEs can access IS without the need to purchase expensive hardware and software or hiring consultants. This is due to trends such as cloud computing, open source software and data analytics strategies which can aid small businesses whose marketing budgets are limited.

2.3 Theoretical Literature

The two theoretical frameworks are discussed below in relation to their relevance to the study.

2.3.1 TOE Framework

The theoretical framework of the study was based on the Technology, Organization, and Environment (TOE) theoretical framework proposed by Tornatzky & Fleischer (1990). This solid framework consists of variables that are found to be suitable and applicable to the study.

Jere and Ngidi (2020:30) stated that the TOE framework could be used to understand the guidance needed for assessing the effectiveness of IS for SMEs' growth and failure prevention in Lesotho. In the TOE framework, decisions are influenced by three contexts, the organizational context, the technological context and the environmental context.

2.3.1.1 Organizational Context

Organizational context refers to descriptive measurements of the organization's features, such as support from top management, size, financial resources, and employees' IT experience. (Ahmadi *et al.,* 2015; Jere & Ngidi, 2020:30).

- Top Management Support

In SMEs, management is usually undertaken by the owners of the organisation. It is crucial to have managerial support since company owners/managers have a substantial impact on strategy and organisational goals. If the top management in SMEs believes in the use of IS, its potential benefits and the minimum risks at hand, then there is a strong likelihood that new ICTs will be adopted. Top management support is an important factor in assessing the firm's adoption of a new ICT innovation (Jere and Ngidi, 2020:4).

- Organisational Size

With the use of ICTs such as e-commerce, the Internet gives SME's a platform to compete with larger corporations. SMEs are more adapted to implementing new ICTs since they are flexible and capable of adapting fast, in contrast to large companies that are not agile (Jere & Ngidi, 2020:4). According to Zafar *et al.,* (2015:10) the flexibility of SMEs comes in three forms: a system that permits freedom, speed, and re-use of resources; a regulation for organisational change that is rapid and low-cost; and a strategy for selecting and adjusting goals. These characteristics enable SMEs to adjust to rapid changes more quickly than large organisations.

- Financial Resources

Jere and Ngidi (2020:4) stated that due to inefficient organisational governance, lack of financial resources is a prevalent issue for SME's; thus, their ICTs are ineffective.

- Employees' IT Expertise

Only a small percentage of SMEs have suitable ICT platforms and staff personnel with the required ICT competence to enable them implement new ICT developments. The capacity of a company to absorb innovation is contingent on its employees' ICT proficiency (Jere & Ngidi, 2020:4).

2.3.1.2 Technological Context

Hoti (2015:6) stated that the technological context encompasses both internal and external technology that may be beneficial for enhancing corporate efficiency. The term 'technological context' refers to the current technologies in use and emerging technologies pertinent to the business. In this regard, research has demonstrated that factors such as complexity, compatibility, and relative advantage influence the choice to employ IS (Ahmadi *et al.,* 2015:27; Jere & Ngidi, 2020:3). Various theoretical frameworks regard technology as a factor that impacts the acceptance of new technological advancements. Baker (2012) suggested that for the new technology adoption to be successful, the corporation needs to have a solid IT infrastructure, technically savvy employees, and sufficient user time.

- Relative Advantage

The relative advantage of SMEs embracing ICT resides in the advantages derived from the use of ICT. Various kinds of indicators imply that if an invention gives a comparative advantage; measures such as financial gains are vital, but convenience, customer satisfaction, and a high standard are all crucial. (Jere and Ngidi 2020:3).

- Compatibility

If management is confident in the compatibility the new technology with that of the existing systems and business processes, then it is simpler to implement the new technology (Jere and Ngidi 2020:3).

- Complexity

Complex innovations are more inclined to be implemented and accepted slowly, whereas simple innovations are more inclined to be adopted quickly. The complexity of technological innovation may be a determining factor between adopting and not adopting technology; SME owners consider that adopting complex ICTs may be difficult to adopt and that these technologies are more likely to be abandoned. Owners/managers, particularly those of SME's, may believe that sending personnel to expensive and lengthy training sessions would be expensive (Jere & Ngidi 2020:3).

2.3.1.3 Environmental Context

Environmental context refers to the environment in which a business operates, including its industry, competitors, and government relations (Ahmadi et al*.,* 2015:27). Mature and declining industries are less inclined to use new technology, whereas businesses with rapid growth are more likely to acquire new innovative technologies quickly. Rapidly developing industries employ technology to maximise output and reduce costs (Jere & Ngidi, 2020:3). Neirotti and Ragueso (2017:6) stated that significant differences in the strategic decisions and performance of SMEs can be attributed to the industrial environment.

- Government Support

Government support is the most influential factor influencing SME adoption of ICT. Most governments recognise the significance of assisting SME's to grow because the majority of SMEs lack adequate resources to stimulate their growth, so governments need to provide support. Government serves an important function as a support system for SMEs by providing laws, regulations, opportunities, incentives and assistance that steer SMEs to success in many organisations (Jere & Ngidi, 2020:3).

- Competitive Pressure

Competitive pressure plays a role in the adoption of ICTs but it does not factor highly in influencing adoption. In industries with intense rivalry, it is crucial to effectively use ICT to realise the benefits of employing it (Jere & Ngidi, 2020:3). In order to have a competitive advantage over competitors, it is important to be adept with the current trends; the pressure of lacking market share and a desire to grow can become a pull factor to the use of ICTs.

- External Support

External support is the most influential factor in determining the ultimate implementation and use of digital technologies. External help is crucial for SME's, especially when they are unfamiliar with new ICT advancements. SMEs rely on external support for the adoption and maintenance of ICT since in-house IT professionals are costly to maintain. (Jere & Ngidi, 2020:3).

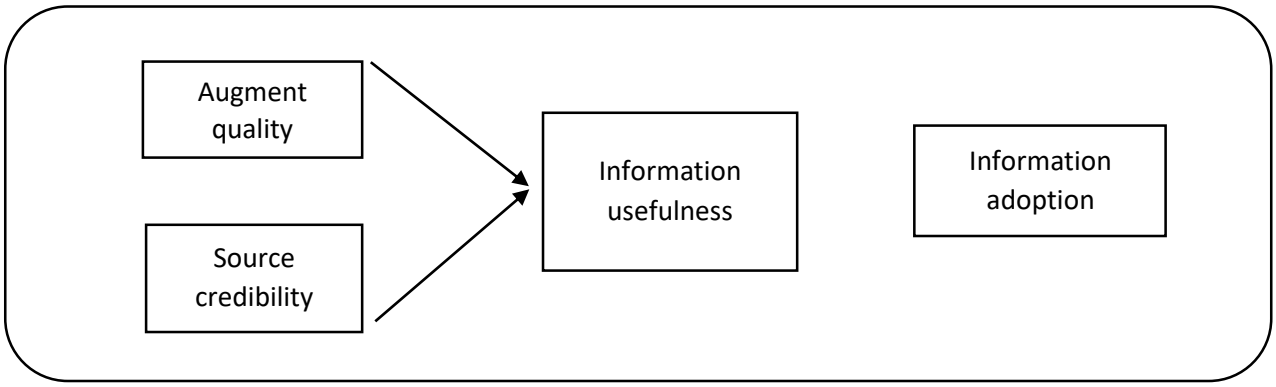
2.4 Information Adoption Model

The study also adopted the Information Acceptance Model (IAM) developed by (Sussman & Siegal, 2003) to better understand how to accept information about specific feelings, actions or technology in individual forms (Gumpo et al., 2020:3). It describes how individuals assimilate knowledge and alter their intents and behaviours as a result of computer-mediated communication systems (Wang, 2016:619).

IAM is based on the behavioural intent of an individual. The possibility that an individual will utilise the application is a measure referred to as behaviour intention. It can be shown by an individual's perceived propensity to engage in the behaviour. In this case, with regard to technology acceptance, the behavioural intention to utilise specific technology seems to be stronger than the actual utilization of that technology (Othman *et al.,* 2017:118).

The theory examines the quality of the argument, the reliability of the source, and the utility of the information as a mediator. (Othman *et al.,* 2017:116 IT and IS are now advancing at a phenomenal rate and becoming essential components of people's lives. With the introduction of online platforms, people are beginning to share various types of information on the web and are searching for fundamental and essential information online (Othman *et al.*, 2017:116). There is a strong positive correlation between information credibility and information utility (Othman *et al.* 2017:116). Figure 2 shows the stages of the adoption of information systems through IAM.

FIGURE 2: The Information Acceptance Model



Source: *Gumpo et.al, 2020. 'Examining the usage of Instagram as a source of information for young consumers when determining tourist destinations' (South African Journal of Information Management 22(1)).*

2.5 Concluding Remarks

SME's are managed by one person either a manager or owner of the business. This makes it flexible by nature. As a result, SME's can adopt and use IS towards growth and failure prevention with ease. Through the use of IS, SME's can offer their services and sell products to consumers online. IS can be used for marketing purposes, risk management and as a tool to gain a competitive advantage. Despite the pros associated with the usage of IS towards the growth of SMEs, managers and employees need to be technologically aware and have the ability to use IS. Lack of knowledge about IS can prohibit SMEs from being competitive and proactive.

Therefore, in order to assess how IS can improve business profitability and prevent failure in SME's in Lesotho, the study adopted the TOE and IAM frameworks to understand the behavioural and environmental impacts towards IS adoption and usage.

2.6 Chapter Summary

The chapter reviewed various literature on the importance of IS on SME's performance and its benefits. Data driven innovation may lead to SME's having a competitive advantage in the market as it can be used for marketing. The contributions of IS in different SME's were clearly articulated. Such sectors are finance and insurance, health, retail, media and entertainment. The IS shortcomings also formed part of this chapter. Finally, the information Acceptance Model was examined with the hope of understanding the theory of how information is adopted and behaviour applied.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The purpose of the study was to assess the effectiveness of information systems for SMEs growth and failure prevention in Lesotho. A qualitative research approach was used, where data was collected, evaluated, and interpreted. The study used semi-structured interviews to get SME owners' opinions on the impact of information systems on business growth and failure prevention; the theories and concepts concluded emerged during the analysis and conclusion on a theory as depicted by the data. This process was described through a research design, the sampling procedure, methods of data collection, and analysis, finally, ethical considerations were also detailed.

3.2 Research Design

This qualitative exploratory study was used in order to explore and interpret the experiences of SME owners and/or managers for using IS and its contributions to the growth and failure prevention of such enterprises. Aljowaidi (2015:87) states that an exploratory study aims to search for themes and possible linkages in the data obtained to describe and model the constructs that can be used to answer research questions.

The explorative study enables the researcher to comprehend and debate the situation and the problem at hand with the use of qualitative data derived from the opinions and experiences of the SME owners (Aljowaidi, 2015:87). The exploratory research aims to gain new knowledge and insight into a phenomenon (Akhar, 2016:76) therefore it is more suitable for this study because There are no prior studies on the uses of IS in SMEs to promote growth and failure prevention in Lesotho.

Previous studies which used this method in the investigation of technology acceptance reveal that meaningful results can be achieved beyond well-known

theories (Vogelsang et al., 2013:6). In addition, a qualitative method gives a deep understanding of the experiences that SME owners, managers and employees encounter during and before the use of information systems in the business. It allows the study to explore the characters, feelings, and understanding of SME owners towards the adoption of IS to improve growth and failure prevention.

3.3 Study Population

The study population included all SMES in Maseru that used IS in their daily business operations.

3.4 Demarcation/Delimitation of the Study

From the population, the sample size of the study was obtained by including all the registered businesses that operated in the Maseru district for more than 12 months and had less than 50 employees. SME's with less than 12 months of operation and with more than 50 employees were not considered as part of the study.

3.5 Research Method

The study adopted a qualitative approach defined as an organized non-numeric approach of describing people's experiences and internal feelings. It provided a thorough and deep overview of the phenomenon under study through data collection; it presents rich descriptive results using a flexible method of research (Naderifar et al., 2017:1). This method was desirable for this study to explicitly explore how SME owners, managers and employees behave towards the adoption and use of information systems to promote SME growth.

A qualitative approach was found to be the best method in this study because of its ability to comprehensively analyse complex relationships such as the interaction between man and technology. Due to its non-generalization, in the nineties, researchers in the field of information systems were recommended to follow it instead

of the quantitative approach (Vogelsang et al., 2013:4) hence this study also chose a qualitative approach.

Previous studies which used this method in the investigation of technology acceptance revealed that meaningful results can be achieved beyond well-known theories (Vogelsang et al., 2013:6). In addition, a qualitative method gives a deep understanding of the experiences that the SME owners, managers, and employees encounter before and during the use of information systems in the business. It allowed the study to explore the characters, feelings, and understanding of SME owners towards the adoption of IS to improve growth and failure prevention.

3.6 Sampling Procedure and Sample Size

The study used a purposive sampling technique defined as a non-random technique that does not use underlying theories or a set of participants for gathering data but rather relies on a deliberate choice of participants due to their qualities based on the knowledge and experience of the subject (Etikan *et al.*, 2016:2).

Due to the selected technique, the exact sample size was not predicted in advance, it was only found definitive during the research study. When the data collected reached a saturation point (a point when adding new participants does not add any new data to the research study), then the data was considered to be adequate for analysis.

The study used quota sampling, where the population was sampled and divided into different categories of size and industry, relevant to the research topic in question. The study population was taken from the records of the registered SMEs in Maseru town, as taken from the Ministry of Trade and Industry and Basotho Enterprises Development Corporation (BEDCO). Initial contact was made from the list of SMEs which met the criteria; that is those who use information systems. They were invited to become participants.

3.7 Methods of Data Collection

The study used In-depth semi-structured interviews to get detailed information and a deep understanding (Showkat & Parveen, 2017) from SME owners, managers, and employees' views on the effectiveness of information systems on the growth and failure prevention of their SMEs. This method provided a relaxed atmosphere where participants were able to speak their minds allowing the interviewer to gather more data (Showkat and Parveen, 2017).

Additionally, Barrett and Twycross (2018:63) stated that a well-designed semi-structured interview ensures that all core elements of the phenomenon under study are explicitly asked. The authors stated that data were captured in the key areas at the same time, allowing respondents to bring their personalities and perspectives to the discussion.

The data was collected through face-to-face interviews using an interview guide because of its flexibility; it does not restrict the pattern of questions. The interviewer was able to adjust the order of questions and wording according to the situation during the interview (Bell & Bryman, 2014:225). In contrast to the use of a questionnaire where there is a printed set of questions that need to be followed in their respective order (Showkat & Parveen, 2017), a digital recording device was used during the interview instead of note taking to prevent time consumption and the inconvenience of missing some important information.

Initially, formal request letters were sent to potential participants to seek contact details (email and phone numbers) for follow-up communication and permission. When permission was granted, interview sessions were set for the participants. The interviews took place at a convenient place for each participant in a quiet and amicable place in Maseru. To obtain financial information, the ranges of profitability increases were used as opposed to exact values.

Permission to interview was requested from the manager or the owner of the enterprise and asked that they avail themselves. However, this proved to be problematic as running a business keeps people generally busy.

3.8 Data Analysis

This qualitative study explored an analytic induction together with a thematic data analysis. Analytic induction is a method whereby the researcher seeks universal explanations of a phenomenon by pursuing the collection of data until no deviant or negative cases or the cases that are inconsistent with the hypothetical explanation of the phenomenon are found (Bell & Bryman, 201:342).

A thematic analysis identifies and describes the recurring themes in a data set (Bell & Bryman, 2014:350). The themes were generated from the transcribed interviews and checked for consistency. All the themes in a given data set that emerge several times in each interview are identified for further examination (Riger & Sigurvinsdottir, 2016:34). They are used to capture important data relating to the use of information systems by SMEs in order to promote growth and prevent failure.

The themes from the data created a pattern for interpretation and narration to give organized information about the use of information systems for the improvement of business profitability and failure prevention for the SME's in Lesotho.

The themes were derived from open coding, selective coding and theoretical coding. Open coding is the initial line-by-line coding of all data whereby concepts and key phrases are identified and compared. Similar codes are grouped, moved into subcategories then into categories (Wiesche *et al.*, 2017:688; Noble & Motchell, 2016:1). Bell and Bryman (2014:346) stated that the open coding process is largely descriptive and yields concepts.

Selective coding was used to identify instances that relate to the core category (Wiesche *et al.*, 2017:688). It leads to the formation of core themes that operate as an umbrella category (Akiko, 2018:51). Qureshi and Unlu (2020:6) stated that theoretical coding aims at selecting possible explanations for the connections of themes and their properties in order to develop a theory.

- NVivo Software

The audios from the recorded interviews together with the transcribed data were analysed with the use of NVivo to create themes/codes from the data through a process called coding, which involves (Halil & Alabri, 2013:181) pursuing related words, sentences or phrases from the collected data. NVivo was able to manage data from interviews, surveys and published documents. It managed ideas to understand the conceptual and theoretical data generated from the course of the study (Halil & Alabri, 2013:182).

3.9 Trustworthiness

- Credibility

For each participant interviewed, an account of what they said to the interviewer during the interview was provided to them and any general impression noted from the received data. All the interviews were used to derive the themes that are used to develop a theory for this study.

- Confirmability

All the interviews were transcribed and coded independently to avoid bias. The themes and categories found from coding the data were then compared to reach the analysis stage. Although complete objectivity is impossible in business research, the study conclusions were based only on the data received from the research participants.

- Dependability

In this study, dependability was ensured by keeping the records of all the phases of this research. Selection of research participants, interview notes and data analysis decisions were made available when requested by the supervisor or module makers.

- Transferability

The research intention was to find out whether it is helpful for SMEs to use information systems to ensure growth and failure prevention. This provided an insight and understanding to the research question, while also providing a description that could be used in the future in different settings (other districts and countries).

3.10 Ethical Considerations

The topic selected was non-intrusive to the business operations and sought merely to gain a deeper understanding of the general improvement of the SME business environment. No harm in all forms was inflicted during or after the research undertaking. The study ensured not to ask personal and stressful questions so that participants might feel comfortable throughout the interview.

An informed consent form was availed to the participants, detailing issues of confidentiality and freedom of participation and withdrawal at any time during the study, if necessary. No SME was identified in the report by its original name, only details of information system and data use for profitability and failure prevention were of intrinsic interest. The participants were not forced to share the information that they felt uncomfortable with. The information received was not translated to reveal individual businesses that participated in the research study.

Participation to take part in the study was voluntary and without compensation. Permission to undertake the interview was sought from the manager or owner of the enterprise who was also asked to avail him/herself for the interview. The participants were informed that interviews were recorded and that an account of the interview would be sent to them after completion for credibility and verification.

The data obtained was stored as a soft copy on the researcher's laptop in a folder known only to the researcher. The data was also stored on Cloud so that the researcher could access it anywhere even without a laptop. All the folders were protected by a password known only by the researcher to avoid unauthorized access. Documented data such as the copies of business records were kept in a safe place at the researcher's place of residence and were returned to the respective SMEs after the presentation of the study.

The participants were informed in the letter requesting their participation that the research data was for a Master's Degree research study. The research was presented for what it is and the purpose that it was to serve, namely gaining a deeper understanding of the effectiveness of information systems to drive profitability and failure prevention. No deception was used.

3.11 Chapter Summary

The goal of this chapter was to outline the qualitative research method and its uses to answer the research questions. The sampling procedure, study participants, and methods of data collection discussed in the chapter outlined how the study was conducted and, through the coding of themes, to form categories that were compared and analysed.

CHAPTER 4: DATA ANALYSIS

4.1 Introduction

The chapter presents the analysis of data gathered through in-depth semi-interviews guided by an interview guide. Data were gathered from eleven SME owners from various business ventures: retail, logistics, IT services, farming and infrastructure, operating in the Maseru district. This qualitative study adopted the thematic analysis and NVivo to gather and organise codes to build meaning from the descriptive data to assess the effectiveness of the use of IS towards the growth of SMEs and failure prevention in Lesotho.

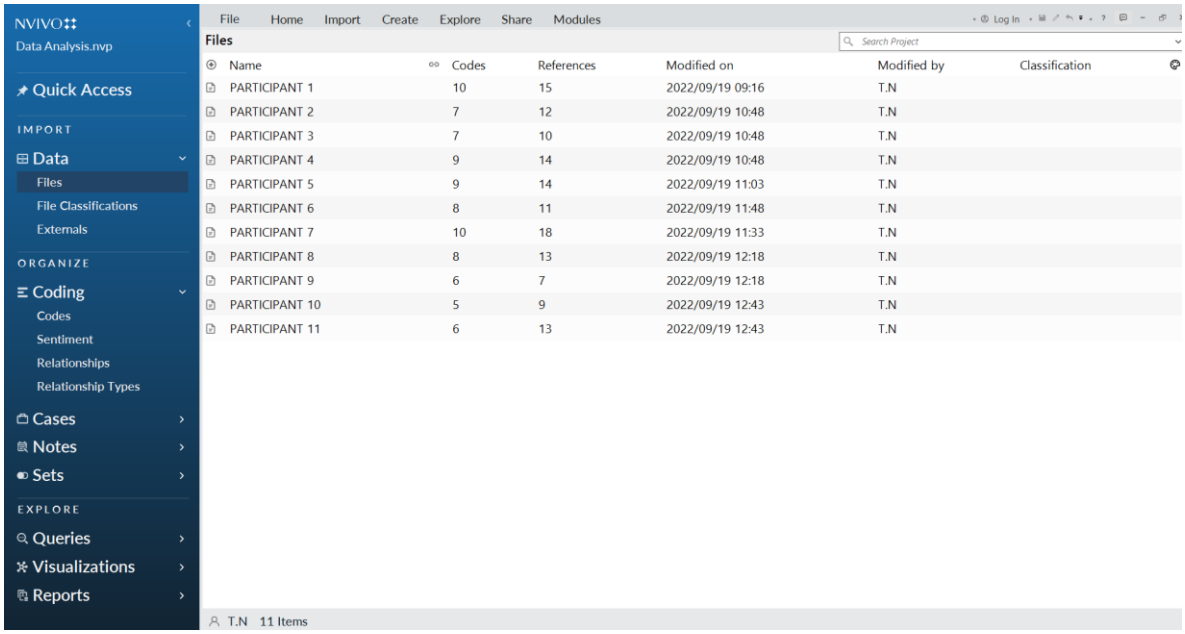
4.2 The Use of NVivo in Data Analysis

Data in this study were recorded and then transcribed to text, thus requiring the coding process to analyse it (Hilal & Alabri, 2013: 181). Due to the large data collected from the participants, the study required coding in order to put data into meaningful categories to be analysed and interpreted (Blair, 2015; 16).

NVivo QRS International in this study was used to create participant files where data were imported from MS Word for transcription. It was used to create codes through open and axial coding processes. It was also used to gather word frequency. Open coding was the first stage used to code the data which were gathered from the transcribed interviews where the codes derived from transcriptions were applied (Blair, 2015:17). The second phase of coding was through the process of axial coding which was used to relate the codes or categories from their sub-text categories (Qureshi, 2016). This is where the main themes: 1) access to business performance, 2) operational efficiency, 3) competitive advantage, and 4) profitability were arrived at. Figures 3, 4, 5 and 6 show participant files created in NVivo after transcription. The codes developed from the interviews for analysis and the final four codes emerged from merging all the similar codes and words that appeared frequently from the data.

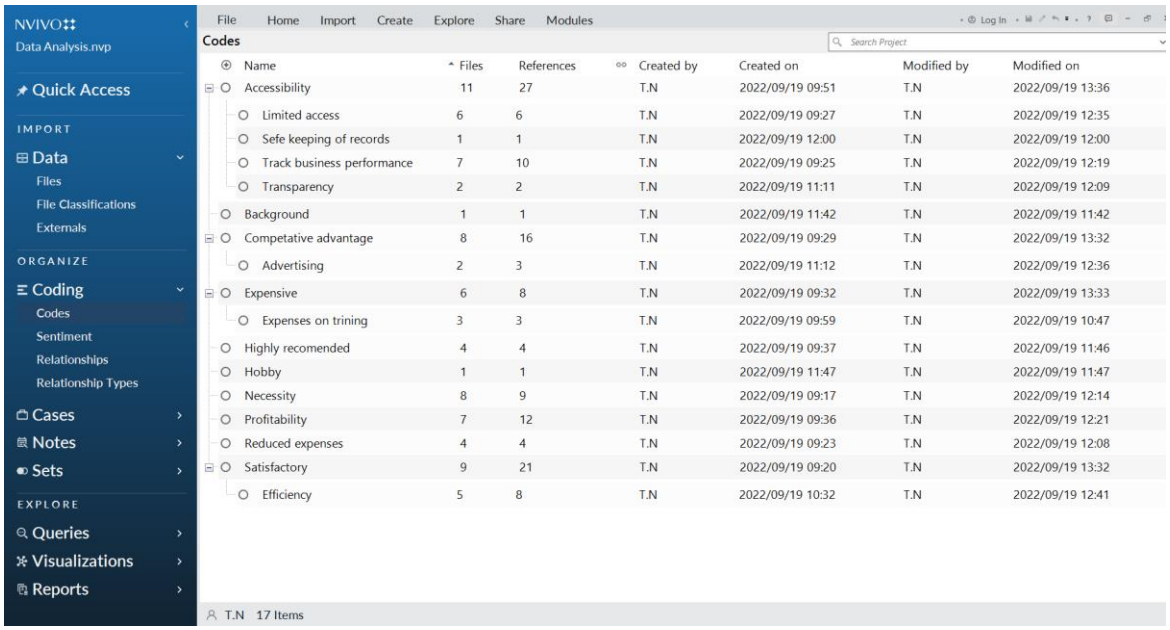
Presented are the participants' files during transcription. There were 11 interviews in total, named participant 1 to 11 to protect participant identity:

Figure 3: The participants' files during transcription



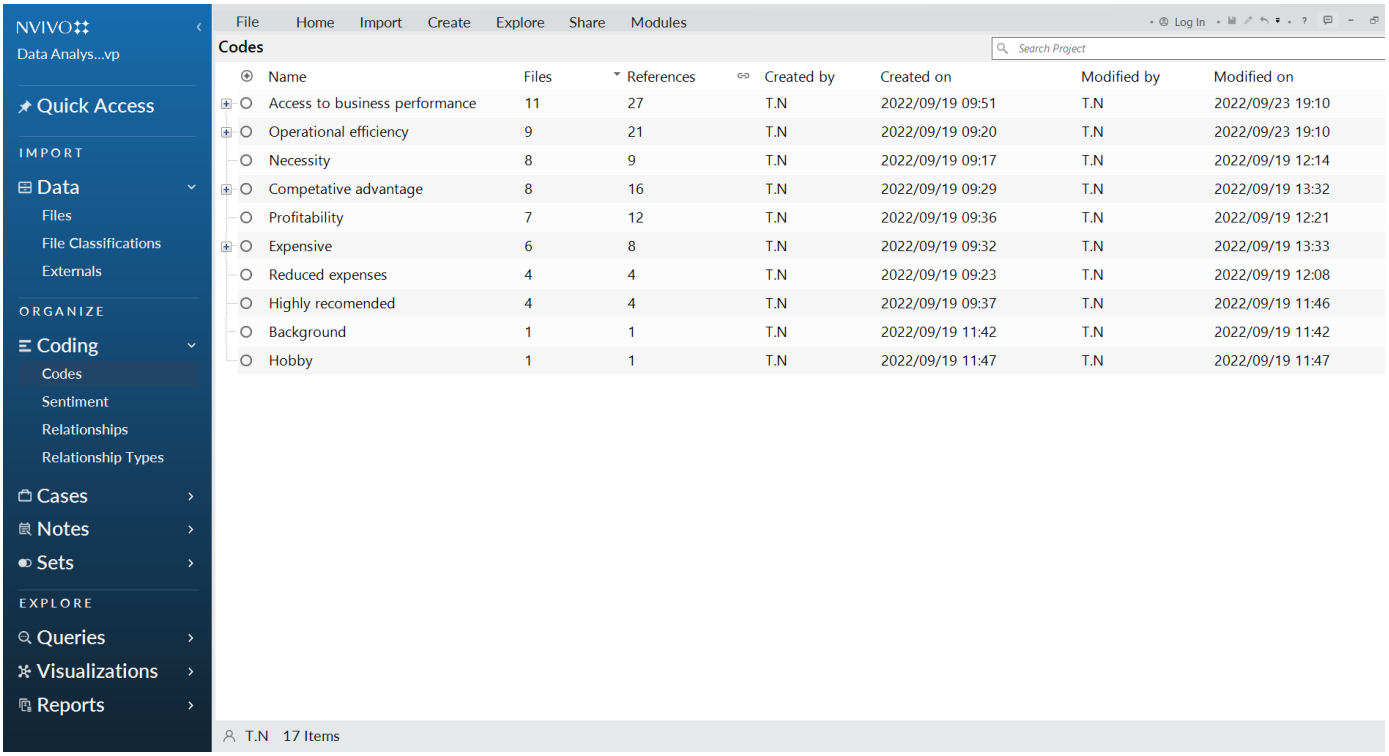
Presented are the codes derived from the interviews. The codes were developed from the transcribed interviews:

Figure 4: The codes developed from the data for analysis.



The figure below presents the final merged and renamed codes which are used for the data analysis:

Figure 5: Merged and renamed codes



The figure presents the word frequency from all the interviews:

Figure 6: Word frequency

4.3 Data Presentation and Analysis

The data are presented, analysed and interpreted according to the themes that emerged from the in-depth semi-structured interviews.

4.3.1 Theme One: Accessibility

SME owners explained that the use of IS in their businesses has provided them with the ability to access all the business operations adequately in order to keep track of how the business is progressing. The flexibility, reliability, and consistency which are common features of IS (Tvrdikova, 2016:485) have made it easy for SME owners to work on their businesses and track their performance without being confined to the business itself. Participant 2 said;

> *"It has a lot of features that are beneficial to us, it gives me a lot of accessibility on how the business is performing, like when I am away I can look at any place. I don't have to be in the office to use it.*"

Participant 10 said;

> *"It has helped me a lot because it's not every day that I am at the store but I am still able to track business activities*."

To add to this, the data revealed that with the use of IS, there are no time restrictions to access and track the business. Participant 4 said;

> "*The fun part about it is that I am able to access it anywhere at any time using a mobile phone or any sort of device I have; in that regard it is helpful."*

Even though the study found that SMEs used different types of IS, the data revealed that all types of IS used by the SME's in this study assisted them in tracking their product performance to meet their consumer preferences and their client base. It also gave them the ability to compile reports on things such as stock, expenditure and sales in order to get a clearer picture of how the business is operating. Aladejebi and Oladimeji (2019:30) ascertain that every business requirement should have a record that is efficient to reflect the business income, expenses, assets and liabilities. To show this, participant 1 stated;

> *“It’s a good experience because I am able to track my customers, the payments, the system sends me e-mails notifications if the client has not paid the balance due and also gives me the report of my expenses, profits; the entire financial report*.”

Participant 4 said:

> *"It helps us to track some of the stock in order to know its quantity and availability. We are able to access which items are fast sellers so we want to keep those kinds of items always available in stock*.”

Participant 6 said:

> “*It has quarterly and yearly reports of sales and a list of the least performing products that I am not selling much*.”

Running an SME can be a demanding task that may be challenging when run on its own. This study found out that SME's are run in partnerships, with more than one owner in a business requiring transparency; the use of IS gives business partners just that. Transparency encourages reliability and resilience in a business (Kundeliene & Leitoniene, 2015:341) for the smooth running of the business and to prevent failure. Regarding this, participant 7 stated:

> *"I have a business partner and for every transaction that I do my partner has to see it in real time and I also have to see what they are selling on the other side. For that purpose, I use Google One Drive where we use MS Excel so that when I am updating on my side it also shows on my partner's side*.”

Participant 9 added:

> “*The system is sufficient because even when my partner is not around, I am able to share the Excel sheet where she can also see the business transactions and be able to keep up with the business operations*.”

Conversely, the study found that there is no type of IS without setbacks. SME owners claimed that the IS that they used lacked in terms of automation which restricts them to gain full access to the systems. Participants also complained about the high data

bundle charges that they need to purchase in order to assess the internet. In this regard, participant 7 illustrated:

> "*So far it has been working for me but I wish it would have been more automated so that I don't have to implement the functions myself because if I did not have the knowledge to implement the functions myself I would not be able to reap the benefits*."

4.3.2 Theme Two: Operational Efficiency

Operational efficiency occurs when the appropriate and right people, processes, and technology are combined to deliver products and services in a business (Espino, 2017:123). The participants were asked to describe their experience with regard to the use of IS in their SMEs. The data revealed that SME owners were satisfied with the uses of IS. The participants disclosed that the IS that they put in place assisted them in certain areas of expertise while running their business which they fell short of. SME owners claim that the use of IS has become beneficial in the day to day running of the SMEs as it performs tasks such as the calculations to make their job easier. Participant 6, said:

> "*I was looking for something simple that can run my accounts, invoices, codes and sales, basically everything that has to do with finances. So I am using E-invoice*."

Participant 1, added:

> *"The IS on my side is very satisfactory because I did not do commerce or accounting and because I don't have an accountant yet. It has helped me a lot."*

Participant 7, also indicated:

> "*I am able to calculate my sales and expenses, all I have to do is to implement the functions and add on the sales and it automatically calculates*."

The participants in this study were pleased with how efficient the IS that they use has proven to be. They said that it has positively affected them; it is convenient, quicker to use and saves stationery as they do not have to record transactions manually. IS results in improved quality and speed and decreased the cost of production due to its components and functionalities employed (Adallah, Phan & Matsui, 2016:163). To ascertain this, participant 1, said:

> *"It has been very effective because before I used to write everything down in my book then after that calculate using a calculator, sometimes I made mistakes which cost me to not calculate everything appropriately. Ever since I started using Excel I can say that it runs smoothly and saves more time."*

Participant 4, added;

> "*Two years ago, I was just writing things down with pen and paper, had I found the system earlier, it could have helped us to track things and grow faster rather than when we did everything manually*."

The participants further revealed that they have seen growth in their businesses, this is attributable to the IS that they are using as it has proven to be flexible and accurate in terms of stock taking and file storage. Participant 5 said:

> *"It has improved a lot. For example, it has improved on sales, on stock taking as it is a platform where we are now able to count our stock and identify what kind of stock we had and what kind we sold*."

Participant 11 also indicated:

> "*We decided to go with WhatsApp for Business basically because of operational reasons; Order accuracy is one of them because with it, it is not easy to miss an order and it has also helped us to upsell some of our products that were selling slowly*."

4.3.3 Theme Three: Competitive Advantage

The data shows that the SMEs in this study have become significantly competitive over their competitors in the market; this contributes positively to SME growth and development (Chege, Wang & Suntu, 2019: 8). The participants showed that the IS allows them from advertising their products adequately on social media platforms. They claimed that this is where most of their customers can be reached, to assist customers, share specials and interact with customers (He *et al,* 2015). They also use social media to attract new customers. They explained that the IS makes it easy for them and their customers to communicate. Participant 11 said that they use WhatsApp for marketing purposes and further said:

> "*It helps us especially in terms of marketing because one can set out a catalogue which is easier to share; the link for the catalogue gives us good leads*."

Participant 1 added:

> "*I am also able to keep clients' contact numbers, whenever I need any information such as age, residential address and level of education on the clients. Whenever I need to track my clients I do it with ease. I am able to call and know my clients on a personal level*."

The study found that communication between SME owners and their customers assists them to make informed decisions on business performance and on how to improve or maintain their services and products in the future to prevent failure of the business. Chege, Wang, and Suntu (2019:20) asserted that access to data enables SME's to obtain market information which helps them in their planning. For these reasons participant 8 revealed that they are able to make informed decisions based on the data they have, regarding what the customer wants or needs.

Participant 3 said;

> "*We get feedback from clients about services and that reassures us that we are doing a good job, which is something our competitors do not do*."

Likewise, participant 11 revealed;

> "*The information that we get informs our decisions. We are able to see our return customers. When the customer does not return, we make attempts for them to buy again. We can also see the customers who bought once and we can do follow-up contacts to check their reasons for not coming back, to know whether the service that they received was not good enough or whether they have other reasons for not coming back*."

The participants recognised the usefulness of IS in running their enterprises in terms of tracking their product activity. They said that through the system, they are able to detect and tell which goods are high in demand, by analysing the period that the stock takes before sales. Participant 4, indicated;

> "*I am able to track items that mostly sell, this means that I'm able to make sure that those items are always in stock. I am therefore ahead of my competitors because when they run out of stock I still have it; so it sets me apart from my competitors*."

Participant 7, added;

> "*The system helps me to track the number of chickens which are still in stock; this means that I do not run out of stock and I can therefore advertise accordingly*."

4.3.4 Theme Four: Profitability

Profitability was a core component to use in order to assess how the use of IS contributes to SME growth and failure prevention. Boadi, Antwi, and Lartey (2013:43) assert that profitability is one of the financial analyses ratios popularly used to determine a company's growth. The collected data showed that the use of IS has affected SMEs positively in terms of increased profit margins.

SME owners are adamant that the use of IS has improved their business profitability, because they use it for marketing to attract more customers and they are able to

order more stock that is in demand resulting in increased sales. Benites *et al.* (2018:125) have shown that advertising can improve and affect operational competency impact on business profitability. The SMEs are able to reduce expenses, thus, money that was used for stationery purchases before the use of IS has now become part of the monthly profits. Participant 3, stated:

> "*It has improved our profitability in terms of walk-ins; we get more clients from using WhatsApp for Business*."

Participant 9 also stated;

> "*It is more profitable because we no longer spend the money from the business to buy stationery*."

4.4 Chapter Summary

The chapter analysed the data collected by employing in-depth semi-structured interviews with eleven interview participants. The findings were presented in line with the themes that emerged from the data using the NVivo software.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

5.1 Introduction

The chapter presents a discussion of the study findings. The discussion is based on the themes that emerged from chapter 4. The chapter also outlines the study limitations and offers recommendations for future research. Finally, the recommendations arising from the finding and conclusions form part of this chapter.

5.2 Access to Business Performance

Running a business requires someone with the right state of mind and the tools to do so. SMEs try to address issues such as high levels of unemployment and low economic activity by creating jobs. The rate of unemployment, according to the *Lesotho Review (2002-2022),* is 24.6% (*Lesotho Review*, 2022). The ability to use IS to access business information remotely and to track its performance helps SMEs to operate effectively.

Information Systems are beneficial to SMEs in terms of keeping good relations with their consumers and knowing their targeted market demands in order to meet them. The knowledge of consumer demands builds the business because the business will not sell products that are not in demand to avoid loss. SME owners need to have the flexibility to adapt to their consumer demands. The IS used in the SMEs has also been shown to be impactful in terms of keeping business records as a reference for SME growth. This is a counterpart to the (Aladejebi & Oladimeji, 2019:30) assertion that record keeping is essential for a business to determine its success or failure.

Even though the participants showed satisfaction regarding the ease of use to access and run their businesses, they also showed that it lacked some functions. Some of these functions restrict them from running their businesses efficiently as they have to implement them themselves or do the work manually.

5.3 Operational Efficiency

The findings from this study illustrate that the IS has improved the operations within the SMEs from manual to electronic calculations, stock taking and effective storage of business reports. These results are at par with the findings of Adallah, Phan & Matsui (2016:170) which showed that technological innovation was significantly associated with the overall operational performance, cost performance, delivery performance and flexibility performance of businesses. This has proven to increase the growth rate of SMEs with respect to the accuracy of financial reports and safe keeping of business records. IS has proven to be necessary to provide accurate, complete and timely information for managers (Le, 2020:567).

5.4 Competitive Advantage

The findings of this study indicated that the use of social media plays a significant role in the growth of SMEs through advertising. This corresponds with the finding from (He *et at.,* 2015) which shows that small businesses adopt social media for purposes of marketing (product or service promotion) and consumer relations management (building consumer relationships and retaining existing customers). Different social media platforms offer unlimited connectivity to users worldwide, thus making it crucial for SMEs to take advantage of social media to reach a wider range of consumers for advertising purposes, as Tarkan (2014:239) deliberates that advertising is a competitive tool for companies among their rivals.

SME's can improve their productivity by making informed decisions. This can be achieved through a thorough examination of feedback communicated to them by consumers about their products and services. In this way, SMEs operate through customer preferences to sustain business growth. The SMEs ability to undertake calculated risks and thorough environmental screening is a necessity to address the ever-evolving customers' preferences (Chege, Wang & Suntu, 2019:21).

5.5 Profitability

The SMEs in this study achieved growth through increased profitability with the use of IS compared to the previous years before they could adopt the IS. These results support a previous study which found that using IT professional skills and marketing skills increases profitability, as opposed to not utilizing such skills (Pollack & Adler, 2016). The SMEs in this study increased profitability by advertising their products and services using the IS that they have. The literature shows that advertising presents the most persuasive message to the right prospects of the product or service at the lowest possible cost. This in turn persuades the consumers to purchase goods and services (Tarkan, 2014:240).

Moreover, through advertising, SMEs attract more consumers to their business, thus making more money for the business and leading to an increase in profits. Advertising helps the managers to selling more goods and services (Terkan, 2014:240).

This study has revealed that the use of IS has significantly reduced SME expenditure. SMEs no longer require stationery because now they use IS to record business transactions instead of recording them manually. The cost of operational merchandise is reduced resulting in higher profits. Incorporating technology into running and managing a business results in profit increase (Shin & Eksioglu, 2014: 634).

5.6 Research Questions Revisited

- Are information systems and data usage effective for the growth and failure prevention of SME's?

The data showed that business operations have become easy to handle and to manage with the use of IS in SMEs. This has allowed the owners to draw more focus on other ways in order to improve their services and to expand their businesses for the long term benefits.

- What theoretical evidence exists to support or refute the importance, role, and effects of using an IS and data to conduct business operations and transactions to achieve perceived business growth and to prevent failure?

The literature showed that IS plays a pivotal role in business growth and failure prevention in terms of marketing as advertising messages and effectiveness of marketing activities facilitate consumer segregation and targeting (Veleva & Tsvetanova, 2020:6). It also helped SMEs to attain a competitive advantage over competitors. The data sourced from the study confirm the literature as all of the SMEs claimed that the use of IS in marketing their businesses has been fruitful in expanding their business by attracting more customers.

- What does the data sourced from the predetermined SME's in Lesotho reveal regarding IS and data usage for the improvement of business, profitability and failure prevention for the SMEs in Lesotho?

The study finds that the use of IS has a limited role in the growth of SMEs in this study. The SME's have shown little improvement in business growth in terms of profitability due to the high cost of internet services in the country. Akomea-Bonsu & Sampong (2012:157) asserted that business profits are likely to drop due to the cost associated with ICT adoption. However, they have shown a great effect on business functionality and accessibility. Bharadwaj et al. (2013) stated that technology allows businesses to speed up decisions in running a business that otherwise might be slowed down due to lack of technology which aligns with the results of the study that decisions essential for business efficiency may be made quickly and trends easily tracked.

5.7 Limitations

The study was limited to getting accurate financial reports that support profitability because most of the SMEs that took part in this study were only at a learning curve regarding the use of IS. This was due to the fact that SME owners lacked the skills and the means to attain the appropriate IS for their businesses. The second limitation is that the study only focused on small and medium businesses and excluded large

businesses. The third limitation is the fact that data and information that can properly be referenced is lacking Lesotho, making it difficult to have research theories based and built with specific reference to the country's status.

5.8 Recommendations

The following are the recommendations to achieve profitability and to maintain effective and efficient IS in SMEs:

- SME owners need to acquire the necessary skills and knowledge on how to use the IS for their businesses.
- SME owners need to adopt appropriate IS that have the necessary functions and are fully automated and suitable for the day to day operation of their particular businesses.
- Telecommunications companies also need to reconsider their data bundle charges concerning SMEs to aid the growth, success and sustainability of SMEs.
- Start-up costs need to be budgeted for by SME owners when venturing into the usage of IS in order to ensure that full benefits are acquired from the employed systems.

5.9 Future Work

The purpose of the study was to find out whether IS may be used by SMEs to increase growth and prevent business failure in Lesotho. However, the study, does not draw the prediction that the use of IS is the only factor that may lead to SME growth, failure prevention and sustainability. Future research may focus on the factors such as proper business planning, managerial skills and proper marketing skills which have not been considered in this research study. The current findings may be used for further research into this topic. Future research may also focus on a strict time frame for accessing business growth with and prior to the use of IS. Moreover, in order to extensively assess the impact of IS on business growth, future studies may explore the impact of IS on firms and cooperatives performance.

5.10 Conclusion

The assessment provided a detailed description of how the use of IS affects SME growth and/or failure prevention. The study sought to understand the history of selected SME's in Lesotho, Maseru district. It described insightful experiences of SME's before the use of selected IS in their processes and for decision-making purposes; these experiences were compared to the current times when they use IS to determine any change in effectiveness and decision-making reliability. The study proves that the use of IS in SMEs promotes growth within the businesses in terms of improved profitability of SME's and a visible expansion in the business operations such as increased and improved services. The SMEs further use IS to market their businesses; this move has increased their clientele. In this way, SMEs have an opportunity towards sustainability.

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APPENDICES

Appendix A

Data collection Tool

Concept interview questions

Hello and thank you for taking the time to talk to me today. I would like to know a little bit about you and your business operations background. The questions I will ask will focus on your perception in relation to the operations of your business, how and why you decided to use information systems in your business and how it has affected your operations and profitability. The questions will also cover any challenges that you came across and recommendations with regard to the use of information systems and data in SMEs.

1. **Tell me about your business, how did it begin?**
2. **How would you describe the current information system that you have in place?**
    a. Probe: What functions does it perform?
    b. Probe: Are there transactions and operations that you still perform manually?
    c. Probe: Is the information system expandable?
3. **How would you describe your experience with the use of this information system?**
4. **Is the information received from the information system sufficient to inform all business operations and decisions?**
    a. Probe: How do you supplement any information that the information system falls short of?
5. **How has the use of information system affected your business effectiveness?**
    a. Probe: Your business profitability?

b. Probe: Your decision making?

c. Probe: Your efficiency and effectiveness?

6. Is there **any competitive advantage that you feel is attributable to the use of an information system and data?**

7. **What are the major challenges that you come across with the use of the information system and reliance on data for business operations?**

8. **What advice could you give to other SME owners operating in Lesotho regarding the use of information systems and data to achieve profitability?**

9. Is there anything else that you might want to discuss regarding SMEs and information systems and data usage?

Thank you very much for your participation in the interview. I will get back to you with an account of the interview after coding and analysis completion for credibility and verification.

Appendix B

Consent Form

Name and Surname: Tebello Nkofu

Student Number: 38452154

TITLE OF THE RESEARCH STUDY: Assessing the effectiveness of information systems for SMEs growth and failure prevention in Lesotho

ETHICS REFERENCE NUMBER: orcid.org/0000-0001-8562-6798

Supervisor: Dr K Ndlovu

ADDRESS: P.O.Box 8113, Maseru, Lesotho

CONTACT NUMBER: (266) 58665372/ 63925045

Research Details

Please note that this interview is aimed at collecting data for research that is part of the requirements for me to complete a Master's degree. The purpose of the research is to gain a deeper understanding on the effectiveness of information systems and data use to drive profitability and failure prevention. Participant identifiers will be removed at the data analysis phase to maintain confidentiality and anonymity. Participation to the research is voluntary and without compensation and participants are free to participate and withdraw as deemed appropriate.

Declaration by participant

I declare that:

I have read the above information and it has been clearly explained to me by the researcher, and all questions clarified.

The research and its purpose were clearly explained to me.

I understand that taking part in this study is voluntary and I am free to choose not to be part of the interview at any point if I may choose so.

Name and Surname: ……Signature: ……..

Date: …….

Appendix C

Language Editor Letter

Tebello Nkofu's letter to supervisor.pdf

Appendix D

Ethics Clearance Certificate

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