

**APPLYING PROJECT RISK MANAGEMENT
PRINCIPLES TO MANAGE BUSINESS START-UP
RISK – A PROPOSED TRAINING TOOL**

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DECLARATION

I, the undersigned, Ratoeba Piet Ntema, declare that the work entitled, Applying project risk management principles to manage business start-up risk – a proposed training tool, is my own work and that all the sources that I have quoted have been indicated and acknowledged by means of complete reference.

Signature:

Date:

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ABSTRACT

APPLYING PROJECT RISK MANAGEMENT PRINCIPLES TO MANAGE BUSINESS START-UP RISK – A PROPOSED TRAINING TOOL

Keywords: start-ups; small business; small and medium enterprises, SME; project risk management; project risk mitigation; serious games; training tool; risk

Generally, it is accepted that small businesses are becoming increasingly important in terms of employment, wealth creation, and the development of innovation in the global economy. Unfortunately, many small businesses fail before reaching maturity, mainly due to inadequate entrepreneurial skills to establish and grow their businesses. It is, therefore, vital to understand the management abilities that are required to enable start-up businesses to survive.

This study's main aim is to propose a risk management training tool to assist business start-ups to mitigate their risks. This is expected to allow for increased business start-up success rates. The aim of the proposed risk mitigation tool will be to provide training to allow small business owners to deal with challenges they face. The tool should assist with minimising the risk of failure and therefore support increased growth and survival of small businesses.

The research questions aimed at achieving the primary objective deal with:

- The typical risks per start-up phase for small businesses
- How to mitigate the risk per business start-up phase
- How best to teach entrepreneurs to identify and manage business start-up risk per phase.

The research was conducted by means of a literature and empirical study. The literature study reviewed business start-up phases, challenges facing start-up businesses, project life cycle phases, critical factors leading to project failure, project risk management, and principles of serious games design. The challenges facing start-up businesses were tested empirically in practice by means of a measurement

instrument, and subsequently evaluated. The size of the sample used was 58 entrepreneurs from start-up businesses.

The results from this study show a need for improvements in the following skills for start-up owners/managers: risk management skills, entrepreneurial skills, people management skill, business management skill, and financial management skill. This study proposed a tool to teach entrepreneurs to identify and manage start-up risks per phase. The tool is proposed to be a blended model tool. Thus, the tool consists of the workshop part; whereby, the facilitator is face-to-face with the trainee, and post-training application-based support.

OPSOMMING

TOEPASSING VAN PROJEK-RISIKOBESTUURSBEGINSELS OM SAKE-VESTIGINGSRISIKO'S TE BESTUUR – 'N VOORGESTELDE OPLEIDINGSINSTRUMENT

Sleutelwoorde: vestigings; kleinsakeondernemings; klein en medium ondernemings, KMO; projek-risikobestuur; projek-risikoversagting; serious games; opleidingsinstrument; risiko

Dit word algemeen aanvaar dat kleinsakeondernemings toenemend belangrik begin word ten opsigte van indiensneming, welvaartskepping en die ontwikkeling van vernuwing in die wêreld ekonomie. Ongelukkig misluk baie kleinsakeondernemings voordat hulle volwassenheid bereik, hoofsaaklik as gevolg van onvoldoende entrepreneursvaardighede om hulleself te vestig en te laat groei. Dit is daarom noodsaaklik om die bestuursvermoëns wat nodig is om sakevestigings in staat te stel om te oorleef, te verstaan.

Die hoofdoel van hierdie studie is om 'n risikobestuur-opleidingsinstrument voor te stel om sakevestigings te help om hulle risiko's te verlig. Na verwagting sal dit voorsiening maak vir verhoogde sukseskoerse in sakevestiging. Die doel van die voorgestelde risikoversagtingsinstrument sal wees om opleiding te bied ten einde kleinsakebestuurders toe te laat om die uitdagings wat hulle in die gesig staar, te hanteer. Die instrument behoort te help om die risiko van mislukking te minimaliseer en daarom verhoogde groei en oorlewing van kleinsakeondernemings te ondersteun.

Die navorsingsvrae wat daarop gemik is om die primêre doelwit te bereik, betrek die volgende:

- Die tipiese risiko's in die vestigingsfase van kleinsakeondernemings.
- Hoe om die risiko in die vestigingsfase van 'n onderneming te versag.
- Die beste manier om entrepreneurs te leer hoe om risiko's in die vestigingsfase te identifiseer en te bestuur.

Die navorsing is uitgevoer deur middel van 'n literatuur- en empiriese studie. Die literatuurstudie het vestigingsfases van ondernemings, uitdagings wat sakevestigings in die gesig staar, lewensiklusfases van 'n projek, kritiese faktore wat tot mislukking van 'n projek lei, projekrisikobestuur en beginsels van serious games-ontwerp ondersoek. Die uitdagings wat sakevestigings in die gesig staar, is empiries in die praktyk deur middel van 'n meetinstrument getoets en daarna geëvalueer. Die grootte van die steekproef wat gebruik is, was 58 entrepreneurs van sakevestigings.

Die resultate van hierdie studie dui op 'n behoefte aan verbetering in die volgende vaardighede van eienaars/bestuurders van sakevestigings: risikobestuursvaardighede, entrepreneursvaardighede, mensbestuursvaardighede, ondernemingsbestuursvaardighede en finansiële bestuursvaardighede. Hierdie studie stel 'n instrument voor om entrepreneurs te leer om vestigingsrisiko's per fase te identifiseer en te bestuur. Die instrument word voorgestel as 'n gemengde model instrument. Die instrument bestaan daarom uit die werkwinkel-gedeelte waar die fasiliteerder van aangesig tot aangesig met die leerling verkeer, en toepassingsgebaseerde ondersteuning ná opleiding.

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LIST OF ACRONYMS

- DTI- Department of Trade and Industry**
- GEM- Global entrepreneurship monitor**
- ISO- International Standards Organization**
- NDP- National Development Plan**
- NPC- National Planning Commission**
- NYDA- National Youth Development Agency**
- PMBOK- Project Management Body of Knowledge**
- PMI- Project Management Institute**
- SA- South Africa**
- SEDA- Small Enterprise Development Agency**
- SME- Small medium enterprise**
- SWOT- Strength, weaknesses, opportunities, and threats**
- TEA- Total early-stage entrepreneurial activity**

CHAPTER 1 : INTRODUCTION AND PROBLEM STATEMENT

1.1 INTRODUCTION

Generally, it is accepted that small businesses are becoming increasingly important in terms of employment, wealth creation, and the development of innovation in the global economy. Unfortunately, many small businesses fail before reaching maturity, mainly due to inadequate entrepreneurial skills to establish and grow their businesses. It is, therefore, vital to understand the management abilities that are required to enable start-up businesses to survive.

Previous research indicates that poor internal business management, which should be directly controllable by the owners and managers of the business, is a major reason for small business failure (Olawale & Garwe, 2010:733). The research findings suggest that if we can identify and isolate the internal factors that contribute to business failure, measures can be put in place to avoid these start-up pitfalls. The term 'start-up' in this study is used for a new business that has been in operation for less than three years.

In this research project, the researcher decided to view a start-up as a project. This approach is expected to allow the researcher to use the principles of project risk management to provide insights and solutions for the risks facing business start-ups. Project risk management includes risk management identification, analysis, response planning, monitoring and control (PMI, 2008:273). The expectation is that a greater understanding of the risks that start-ups face, mapped to suitable project risk management solutions, will allow start-up owners to optimise the probability of success and growth of their businesses.

The South African government adopted the White Paper on the National Strategy for the Development and Promotion of Small Businesses in 1995. One of the reasons for the adoption of this strategy was to accelerate the growth of small businesses and to make them competitive in both job creation and poverty alleviation (DTI, 2003). To ensure that small businesses continue to fulfil their role as drivers of national economic growth, government has put formal measures in place to support

this sector. Chapter 2 of this study contains further discussions on the support to the small business sector and the entrepreneurial status of South Africa.

1.2 PROBLEM STATEMENT

Businesses do not operate in a vacuum, but form part of a systemic environment where internal and external factors could affect the success or failure of the business. Therefore, it is important for small business owners to be equipped with the necessary business and management skills and competencies so that they can successfully respond to the needs of their businesses.

Bezuidenhout and Nenungwi (2012:11662-11664) found that small business owners/managers lack certain competencies required to ensure the success of their businesses. Four competencies were identified, and the results were presented in the following order of priority, namely risk management, followed by financial management, industry awareness and project management. These results indicate that starting a business is always risky. However, understanding the problems facing start-up businesses and addressing them prior to the problem arising should increase the chances of success.

Olawale and Garwe (2010:730) state that the failure rate of small business enterprises in South Africa is between 70 and 80 percent. These statistics concur with the failure rate of small businesses estimated by Van Eeden *et al.* (2003:13). The majority of these enterprises fail within their first five years of operation. For those that go beyond five years, the majority are found to be just surviving as compared to those that are succeeding into sustainable growth. Thus, many small business enterprises do not reach their full potential and fail to grow, resulting in lost jobs and potential wealth for the region in which they are based.

The research questions that follow from the above discussion are:

1. What are the typical risks per start-up phase for small business?
2. How to mitigate the risk per business start-up phase?
3. How best to teach entrepreneurs to identify and manage business start-up risk per phase?

1.3 OBJECTIVES OF THE STUDY

According to the Maas and Herrington (2006:14) the creation of a new business is a process consisting of two phases, namely the start-up phase, and small medium enterprise (SME).The first phase is the start-up phase.

As mentioned in Section 1.1, the term 'start-up' in this study is used for a new business that has been in operation for less than three years. A project is defined as a temporary endeavour, undertaken to create a unique product or service (PMI, 2008:5). The researcher focused on the first phase (start-up phase) and viewed the start-up phase of a new business as a project with a definite beginning and an end. A project ends when the project deliverables are operationalised. Similarly, a business that is fully operational can be said to have reached the end of its start-up phase.

1.3.1 Primary objective

This study's main aim is to propose a risk management training tool to assist business start-ups to mitigate their risks. This is expected to allow for increased business start-up success rates. The aim of the proposed risk mitigation tool will be to provide training to allow small business owners to deal with the challenges they face. The tool should assist with minimising the risk of failure and therefore support increased growth and survival of small businesses.

Table 1 shows the research questions aimed at achieving the primary objective.

1.3.2 Research questions, research tasks and deliverables

Table 1: Research questions, research tasks and deliverables for this study

Research questions	Research tasks	Deliverables
1. What are the typical risks per start-up phase for small businesses?	1. Do a literature study on start-up phases, critical factors leading to start-up failure, project phases, and critical factors leading to project	1. Literature review 2. Table of mapped phases of start-up and project 3. Questionnaire

	<p>failure and project risk mitigation</p> <p>2. Translate critical factors leading to start-up failure to typical risks per start-up phase</p> <p>3. Translate critical factors leading to project failure to typical risks per project phase</p> <p>4. View the start-up phase of a business as a project by doing the following:</p> <ul style="list-style-type: none"> • Identify the typical phases of a business start-up and project • Map business start-up phases to project phases <p>5. Create a questionnaire to obtain information from entrepreneurs in the target group.</p> <p>6. Administer the questionnaire to a selected sample.</p> <p>7. Process the results of the questionnaire.</p>	<p>4. Data from the questionnaire</p> <p>5. Results from processed data from questionnaire</p> <p>6. Start-up risks per phase model</p>
<p>2. How to mitigate the risks per business start-up phase?</p>	<p>8. Adjust the start-up risks per phase model according to the results of the questionnaire</p> <p>9. Identify and apply project risk management principles to understand and address the risks facing start-up businesses</p> <p>10. Map verified start-up risks per phase model to project risk mitigation best practice</p>	<p>7. Verified start-up risks per phase model</p> <p>8. Project risk mitigation best practice</p> <p>9. Proposed model: Start-up risk identification and mitigation strategy per phase</p>
<p>3. How best to teach entrepreneurs to identify and manage business</p>	<p>11. Map proposed model: Start-up risk identification and mitigation strategy per phase to principles of serious game design</p> <p>12. Propose a serious games based</p>	<p>10. Training tool to teach entrepreneurs to identify and manage start-up risks per phase</p> <p>11. Research report, conclusions and future</p>

start-up risk per phase?	training tool for managing business start-up risk using project risk management principles	recommendations
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The output of this project is a proposed risk mitigation training tool that can be used by new start-ups to identify and manage their main risk areas per start-up phase. The tool will not be fully developed and tested as an electronic application as part of this masters study. The development and testing of the application will be considered as a possible separate research project post this master's study.

1.4 RELEVANCE OF THE STUDY

The findings from this research project are expected to contribute to on-going discussions on how to improve the performance of the small business sector as a key driver for job creation and economic growth in South Africa. Furthermore, the project could also be relevant to the envisaged National Development Plan (NDP) for 2030 as encapsulated by the National Planning Commission (NPC) (NPC, 2011:10). It is through this economic vision that the NPC set clear guidelines for South Africa to deal with issues of poverty and inequality by involving the communities in their own development. The intention of the proposed project start-up risk mitigation training tool is to ultimately contribute to a reduction of the rate at which small business start-ups fail and increase their chance of survival should the tool be developed.

1.5 METHODOLOGY

1.5.1 Literature study

A literature review of South African and international literature was conducted on business start-up phases, challenges facing start-up businesses, project life cycle phases, critical factors leading to project failure, project risk management and principles of serious game design. Sources for the literature study included books, journals, the Internet, government official documents, and official reports from agencies dealing with the small business sector.

1.5.2 Empirical study

The study adopted both qualitative and quantitative research methods. Chapter 3 describes the design of the study in detail.

1.5.2.1 Ethical considerations

This research project complied with the ethical standards of academic research at the North-West University. The researcher assured participants that the information collected will not be linked back to them. The questionnaire was designed to ensure the confidentiality of participants in the information sheet. Honourable intent was demonstrated by the researcher in carefully explaining the purpose of the research study to the participants.

1.5.2.2 Research design

The research design is described in Section 3.2.

1.6 CHAPTER LAYOUT

This dissertation is divided into six chapters.

Chapter 1: Introduction, problem statement and objectives

This chapter presents the introduction and background information to the study. The problem statement and the objectives of the study are also discussed in Chapter 1.

Chapter 2: Literature review

This chapter provides a literature review of the challenges and factors influencing the failure and the success of small businesses. The research also summarises relevant literature on project risk management, project risk mitigation, and the principles of serious game design.

Chapter 3: Research design

This chapter presents the research methodology of the study including the discussion on the research design, research area, data and sampling design and the method used to collect data for the study. Data analyses and statistical procedures are discussed.

Chapter 4: Findings and conclusion

The results of the data analysis are presented and discussed. Identified challenges are translated to start-up risks per start-up phase.

Chapter 5: A proposed risk mitigation training tool.

A risk mitigation training tool, based on serious games principles, is presented in this chapter.

Chapter 6: Conclusions and recommendations

Conclusions and recommendations based on the results of this study are discussed in this chapter.

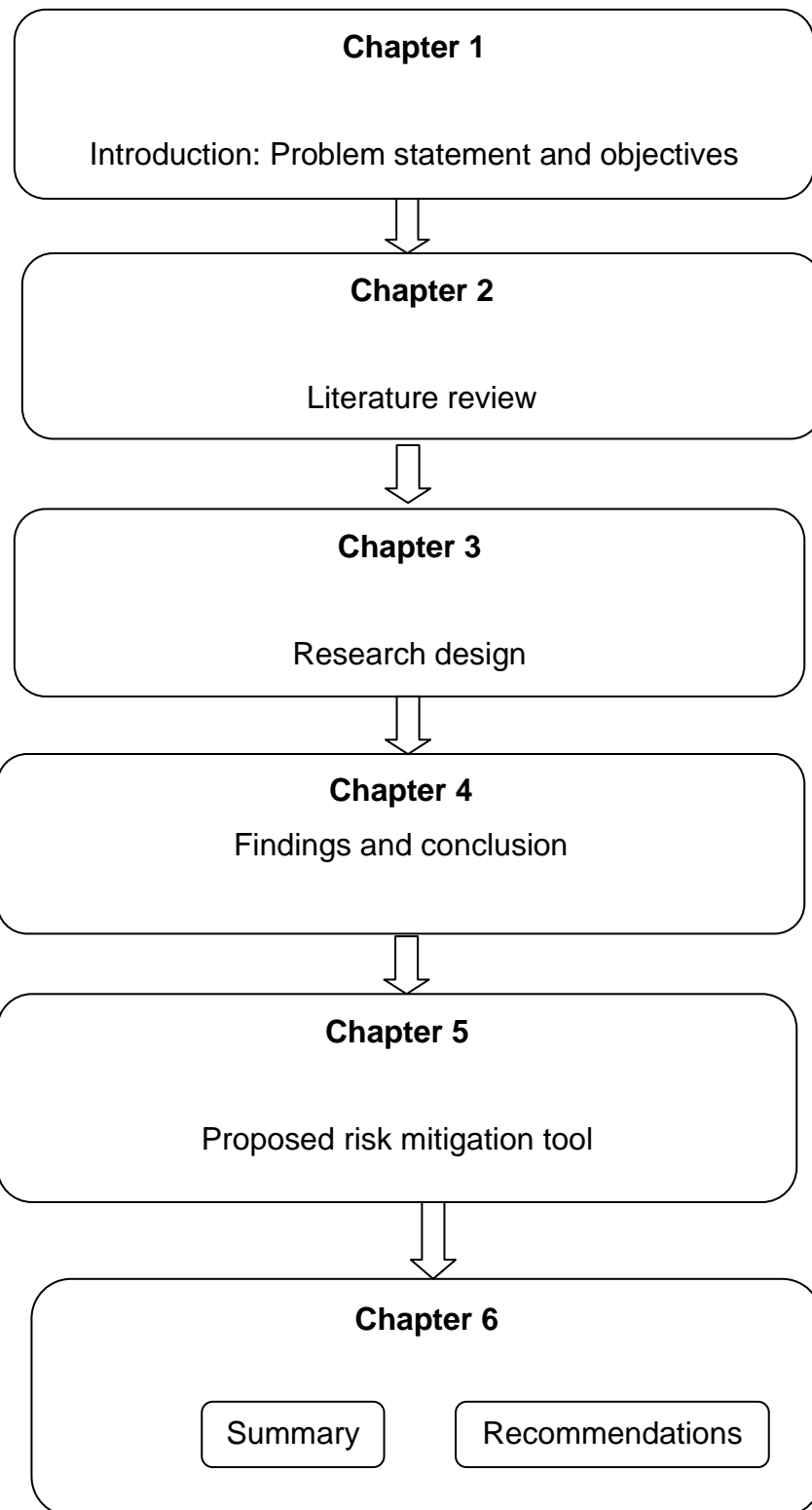


Figure 1: Graphical representation of chapter layout

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

With the advent of democracy in South Africa small business based entrepreneurship has become a vehicle that could be used to promote economic liberation amongst ordinary South Africans (DTI, 1995). Correspondingly, the development of the small business sector is a key part of the South African Government's strategy for economic development, poverty alleviation and job creation. The small business sector is seen as an important vehicle to address the challenges of job creation, sustainable economic growth, equitable distribution of income, and overall stimulation of economic development. As small businesses are typically more labour intensive than larger enterprises, the small business sector contributes to economic growth and job creation by providing important sources of employment and income (Olawale & Odeyemi, 2010: 2763-2770).

According to Bowler *et al.* (2007) small business undertakings create about 80 percent of all job opportunities. Gree and Thurnik (2003) argue that the contribution of the small business sector cannot be sustained without the creation of new businesses, and efforts should be made to increase new business start-ups. According to the Statistics SA 2011 census, South Africa is a developing country with an estimated population of 51.8 million people and high level of employment estimated to be 25.8 percent (Statistics SA, 2011).

The contribution of small businesses in generating employment, and their role in the economies of many countries, has become recognised increasingly around the world (Liedholm, 2001:1; Olawale & Garwe, 2010: 729-738). Many policy makers agree that entrepreneurs and the new businesses they establish play a critical role in development and the well-being of their societies (Xavier *et al.*, 2012:12). The South African government has also adopted the creation and promotion of small business as one of the best ways to address a high rate of unemployment, and poverty alleviation.

2.2 ROLE OF SMALL BUSINESS START-UPS IN THE SOUTH AFRICAN ECONOMY

Start-up businesses are created in an attempt to foster economic growth and development in the economy of South Africa. This contribution of small businesses to the economy comes with challenges to survival and success. This study focuses on the start-up of small businesses since they are regarded as the ones with the potential for job creation and makes a substantial contribution of 35 percent to the gross domestic product (GDP) of South Africa (Rwigema & Venter, 2004).

To ensure that small businesses continue to fulfil their role as drivers of national economic growth, the government has put in place formal measures to support this sector. Some of government's initiatives through the Department of Trade and Industry (DTI) include the provision of both financial and non-financial support to small businesses. To provide this support the DTI was given the responsibility of promoting small businesses (Cheru, 2001:514) and several state agencies were established, for example Khula, Ntsika, the National Youth Development Agency (NYDA), and the Small Enterprise Development Agency (SEDA). The promotion of start-ups has been found to be the key to enhancing competition and entrepreneurship, which in turn has spill-over effects on innovation, efficiency and productivity growth (Mazanai & Olawale, 2012).

Despite the efforts of the South African government to promote and support small businesses, this sector has achieved limited growth (Olawale & Garwe, 2010:729-738). This is because the small business sector has a high failure rate. Cant (2012:1107) argues that the problem of high failure rates in the small business sector cannot be solved unless it is managed well and the small business sector is assisted to improve their management skills. Due to high failure rate of small business sector, and a lack of entrepreneurial capacity, with the total early-stage entrepreneurial activity (TEA) rate of 7 percent being below the average (10 percent) of GEM participating countries in 2012, South Africa is not viewed as an entrepreneurial nation as compared to other countries around the world such as Russia, Tunisia, Germany, Italy and many more (Maas & Herrington, 2006:7; Herrington *et al.*, 2010;

Xavier *et al.*, 2012:26). GEM uses TEA as its primary measure of new small business creation. With the TEA rate of 7 percent, this indicates the level of challenge facing the success of the small business sector and entrepreneurship in South Africa.

The failure rate of small businesses in South Africa is a concern. The research done by Olawale and Garwe (2010: 729- 738) and Bezuidenhout and Nenunguwi (2012: 11658- 11669) reveals that 70–80 percent of small businesses fail within 42 months. The 80 percent failure rate of small business in South Africa is far too high. This means 80 percent of small businesses do not become established businesses. These high failure rates indicate the level of challenge the small business sector and entrepreneurship in South Africa is facing. Failure rates are not homogeneous across industries. According to Pena (2002:180) the service sector shows a high percentage of failed start-ups, followed by the retail, manufacturing and high-tech sector. According to Churchill and Lewis (1983:2) small businesses vary widely in size and capacity for growth. Yet on the closer scrutiny, it becomes apparent that they experience common problem or challenges arising at similar stages in their development.

2.3 DEVELOPING A SMALL BUSINESS START-UP – START-UP PHASES

According to the Global Entrepreneurship Monitor (GEM) report of 2006, the creation of a new business is a process consisting of two phases. The first phase is the start-up phase. In this period, individuals conceive the idea of starting a business and then identify the products or services that the business will trade in. They also assemble the required resources and put in place the necessary infrastructure such as staff members.

The second phase commences when the business begins to trade and compete with other firms in the market place (Maas & Herrington, 2006:14). The term 'start-up' in this study is defined as new businesses that have been in operation from zero to three years. The above definition of start-up was based on the fact that 70–80

percent of small businesses fail within 42 months as indicated earlier in the discussion. During this period, start-up businesses go through several developmental phases called start-up phases.

Researchers have defined different developmental stages for small businesses. For example, Churchill and Lewis (1983:3-9) developed a model that consists of five developmental stages of a small and growing business, namely existence, survival, success, take-off, and resource maturity.

Lester and Parnell (2008:542) adopted a five-stage organisational life cycle model of business development. The model has the following developmental stages of existence, survival, success, renewal, and decline. They believe that small businesses remain in the first two stages of the organisational life cycle (Lester & Parnell, 2008:546). Thus, no small business can be in the success stage of the life cycle. In the success stage, the business has matured; therefore, it can operate as a large business.

The proposed developmental stages of small business range from two stages to ten developmental stages. This is due mainly to differences in the way business founders create their businesses. Table 2 summarises a number of models developed by different scholars for the developmental stages of small businesses.

Table 2: Typical small business developmental stages

Model	Scholars	Phases
Two phases	Lester & Parnell (2008)	1. Existence
		2. Survival
Five phases	Witt (2004)	1. Idea
		2. Planning
		3. Creation
		4. Proving
		5. Growth

Five phases	McAdam & McAdam (2008)	1. Creativity
		2. Direction
		3. Delegation
		4. Coordination
		5. Collaboration
Five phases	Peter <i>et al.</i> (2004)	1. Idea
		2. Initial decision
		3. Assembling required resources
		4. Actual launch
		5. Building a successful business
Three phase	Bhave (1994)	1. Opportunity
		2. Technology setup and organization
		3. Exchange
Four phases	Kazanjian (1988)	1. Conception and development
		2. Commercialisation
		3. Growth
		4. Stability
Ten phases (Milestone model)	Block & MacMillian (1985)	1. Development of concept, completion of product testing
		2. Completion of product prototype
		3. Initial financing
		4. Completion of initial plant testing
		5. Marketing testing
		6. First batch production
		7. Early sale
		8. First competitive activities
		9. First redesign or adjustment of direction
		10. First major adjustment of prices

Source: Self-compiled from the literature

2.4 CHALLENGES FACING SMALL BUSINESSES

Starting and operating a small business includes a possibility of success as well as failure (Bowen *et al.*, 2009:16). The literature study shows that there exist different ways to define success and failure of small business. For example, Honjo (1998:559) defines the failure of a small business as a situation in which the business cannot meet its liabilities, and hence can no longer conduct economic activities. South African researchers tend to define failure from a local perspective. Table 3 provides a summary of South African definitions of small business failure. It important to note that table 3 and the sources listed in table are extracted as one thing from Nemaenzhe (2010:46).

Table 3: South African definitions of small business failure

Failure definition	Category/key definition	Source
Failure can be defined in different ways, but most people automatically think of absolute failure as evidenced by bankruptcy	Bankruptcy	McLeary (1995:288)
A small, medium and micro enterprise (SMME) failure can be seen as a venture that one must get rid of (whether by selling or liquidation) at a loss in order to prevent further losses. The definition includes bankrupt ventures and those that realise they are on the road to failure, but does not include those that are sold at a profit	Performance below expectation leading to bankruptcy	Moolman (1998:34)
Failure can be the inability of a business to meet its financial obligations or the discontinuation of a business, <i>inter alia</i> the entrepreneur no longer has adequate managerial capacity or the desire to continue operating, and the small business is not attractive enough to attract a purchaser to continue the operations	Inability of a business to meet its financial obligations	Engelbrecht (2005:464)
Failure is when those businesses cease to trade because the economic model is not sound	Economic failure	Pretorius (2006:221)
Venture failure is seen as the opposite of success	Success	Pretorius(2006:226)
Failure happens when expectations are not met and the outcomes do not exceed the expectations	Shareholder expectations or objectives	Visser (2007:16)

Source: Nemaenzhe (2010:46)

In this study, the researcher defines failure of a business as the closing of the operation on a permanent basis. The literature review indicated that most researchers avoided defining failure of small business as change of ownership or selling a business.

Business success can be measured in different ways. Owners/managers can measure their success by looking at the following aspects; proper financial management and control, proper and monitored planning, and controlled growth.

The literature results indicate that the small business sector is faced with a number of challenges that can be translated to the risk of failure (Bezuidenhout & Nenungwi, 2012:11662; Clover & Darroch, 2005:246; Olawale & Garwe, 2010:733; Peters & Brijlal, 2011:266; Van Scheers, 2011:5050). These challenges can be classified as internal and external. Olawale and Garwe (2010:733) named the main business start-up risk factor as financial; this is largely an internal factor. The other risk factors were identified as economical (external), market (external), management (internal), and infrastructure (external) (Olawale & Garwe, 2010:733-735). In the study done by Bezuidenhout and Nenungwi (2012:11662-11664), risk management was identified the major risk factor. However, both studies above agree on the financial risk factor as one of the challenges that small businesses face

Bezuidenhout and Nenungwi (2012:11658-11669) suggest that the small business sector in South Africa has a need for needs-driven rather than resource-driven training. They describe needs-driven training as training that is designed and developed to meet the specific needs of the trainee, while resource-driven training is training that is offered because is the only training available, and the most convenient, but does not necessarily address the actual needs of the trainee.

Bowen *et al.* (2009:26) concur by showing that relevant training and education are related positively to the success of a business. Forbes (2005) further supports the need of education by indicating that owners or managers with higher levels of education and experience are likely to become more efficient in seeking, gathering

and analysing information about availability of opportunities, which leads to the growth of a business. According to Peters and Brijlal (2011:268), education is one of the most widely studied entrepreneurial variables. They further related education to knowledge, problem solving ability, discipline, motivation and self-confidence. These factors influence and enable the entrepreneur to cope with problems and be more successful.

Although many researchers agree that education is needed to run a successful business, Lee and Tsang (2001:596-597) found out that the level of education of an entrepreneur may have a negative effect on the growth of the business. They found that the education of the entrepreneur is less important in the running a small business because of simpler requirements, but in a big business, education is more likely to be used in the areas of information technology and e-commerce, where it is needed. Thus, the level of education required to run a small business depends on the sector and size of the business.

2.4.1 Internal challenges

Internal challenges are controllable largely by the business, and include financial and management challenges (Olawale and Garwe, 2010:733). Olawale and Van Aardt Smit (2010:1786) further identified managerial competency and networking as important internal factors.

2.4.1.1 Financial challenges

According to Olawale and Garwe (2010:733) and Lighthelm and Cant (2003:25) financial challenges include among others, difficulty in obtaining funds or credit for business start-up, heavy operating expenses/high production costs, poor financial planning, and poor cash flow management.

Olawale and Van Aardt Smit (2010:1786) suggest that the lack of business information and managerial competency are major factors that could lead to inability to access funding for businesses.

2.4.1.2 Management challenges

Managerial competencies are generally associated with sets of knowledge, skills, behaviour and attitudes that contribute to personal effectiveness. Thus, lack of these managerial experiences and skills could be the main reasons why small businesses fail. Van Scheers (2011:5054), states that small business owners lack certain managerial skills such as marketing, financial and human skills to operate their business successfully. Bezuidenhout and Nenungwi (2012:11665), further add that skills such as business risk management skills, business planning skills, sales skills, and advertising skills are essential. Herrington and Wood (2003) points out that lack of education and training has the ability to reduce management capacity in new business in South Africa. This leads to a low level of entrepreneurial creation and the high failure rate of new start-ups. To add to the above-mentioned competencies, Man and Chan (2002:124) looked at entrepreneurial competencies. They consider entrepreneurial competencies to be a high level of characteristics, encompassing personal traits, skills, and knowledge to give the entrepreneur the total ability to perform the job role successfully.

2.4.2 External challenges

Largely, external challenges are uncontrollable by the business. Olawale and Garwe (2010:736) classify the external challenges as economic, crime and corruption, market- and infrastructure-related:

- **Economic challenges-** include high interest rates, high taxes, and high inflation rates
- **Market challenges-** include inadequate location of business, high competition, and high transport costs
- **Infrastructure challenges-** include poor electricity supply, lack of transport, poor roads, poor water supply, and poor telecommunication
- **Crime and corruption challenges-** include an increase in expenditure or investment in security measures to eliminate or reduce and minimise the likelihood and impact of crime and corruption on the business.

2.5 SMALL BUSINESS START-UP SUCCESS

The success of the small business sector is important to South Africa, as the small business sector is seen as a significant component of the solution to address the challenges of job creation, sustainable economic growth, the equitable distribution of income, and overall stimulation of economic development.

Business success can be seen or measured in different ways. In general, one can relate success with achievement of the goals and objectives set in all human life dimensions. The literature study shows that there is no universally single acceptable definition of business success. It suggests that there will be different meanings for success from different people. For example, Islam *et al.* (2011:290) associate the term success in business studies with good management and financial performance. In other words, success can be associated with survival, profit, return on investment, sales growth, number of employees, happiness, or reputation, etcetera.

Lyles *et al.* (2004:369) observed that managerial competencies, as measured by the education of the founder, managerial experience, entrepreneurial experience, start-up experience, and functional areas have a positive impact on the performance of a new start-up. According to Neneh and Van Zyl (2011:8328), in order for small business sectors to achieve long-term survival/success in their business operations, it is important that the managers and owners of small businesses create surviving businesses. Their study supports the study done by MacGregor and Varzalic (2005) that suggests that in order for manager/owners to create the surviving businesses, they must rely on entrepreneurship, possess entrepreneurial mindsets and characteristics, and implement good business practices.

2.5.1 Personal characteristics of an entrepreneur

The literature study shows that there is no single general definition of an entrepreneur (Churchill & Lewis, 1986).

- Gartner (1985) describes an entrepreneur as the founder of a new business, or a person who started a business where there was none before. This definition seems to exclude people who have inherited their businesses, who bought their businesses, and who managed to increase the performance of the businesses they manage (Cunningham & Lishcheron, 1991:45). Furthermore, the definition implies that being the owner of a business does not necessarily mean the owner is an entrepreneur.
- Other researchers, such as Schumpeter, known as the prophet of innovation, reserved the use of the term entrepreneur for the creative activity of an innovator. He believed that innovation was the central characteristic of entrepreneurial activities and declared that one can only be an entrepreneur if one innovates (cited by Croitoru, 2012:143). That means he views an entrepreneur as an innovator.
- Schmitt-Rodermund (2004:499) agrees with Schumpeter's definition by seeing an entrepreneur as an individual who creates new products, processes and services for the market. According to Cunningham and Lishcheron (1991:45) under the Schumpeter definition, the majority of people who are pursuing entrepreneurial and business activities will be excluded.
- Hisrich and Peter (1989) give a general definition of an entrepreneur as an individual who brings about improvement both for others and for the society as a whole.
- Carland *et al.* (1984:358) says, "An entrepreneur is an individual who establishes and manages a business for the principal purposes of profit and growth. The entrepreneur is characterized principally by innovation behavior and will employ strategic management practices in the business".

This study used and adopted the definition of Carland *et al.* (1984:358). The reason for adopting this definition is because of its ability to accommodate managers who may not be the founder of the business but can be strategic and innovative in the managing of the business. Generally, it is known that managers with innovative,

aggressive, and risk-taking management styles allow their businesses to become entrepreneurial businesses.

The notion of entrepreneurship can also be defined from different perspectives, for example Cunningham and Lishcheron (1991:45-47) mentioned the existence of a number of schools of thought on entrepreneurship (see Table 4). Each of these schools can be categorised according to the interest in studying personal characteristics, opportunities, management or the need for adapting an existing business/venture

Table 4: Summary of approaches for describing entrepreneurship

Entrepreneurial Model	Central Focus or Purpose	Assumption	Behaviors and Skills	Situation
"Great Person" School	The entrepreneur has an intuitive ability—a sixth sense—and traits and instincts he/she is born with.	Without this "inborn" intuition, the individual would be like the rest of us mortals who "lack what it takes."	Intuition, vigor, energy, persistence, and self-esteem.	Start-up
Psychological Characteristics School	Entrepreneurs have unique values, attitudes, and needs which drive them.	People behave in accordance with their values; behavior results from attempts to satisfy needs.	Personal values, risk taking, need for achievement, and others.	Start-up
Classical School	The central characteristic of entrepreneurial behavior is innovation.	The critical aspect of entrepreneurship is in the process of doing rather than owning.	Innovation, creativity, and discovery.	Start-up and early growth
Management School	Entrepreneurs are organizers of an economic venture; they are people who organize, own, manage, and assume the risk.	Entrepreneurs can be developed or trained in the technical functions of management.	Production planning, people organizing, capitalization, and budgeting.	Early growth and maturity
Leadership School	Entrepreneurs are leaders of people; they have the ability to adapt their style to the needs of people.	An entrepreneur cannot accomplish his/her goals alone, but depends on others.	Motivating, directing, and leading.	Early growth and maturity
Intrapreneurship School	Entrepreneurial skills can be useful in complex organizations; intrapreneurship is the development of independent units to create, market, and expand services.	Organizations need to adapt to survive; entrepreneurial activity leads to organizational building and entrepreneurs becoming managers.	Alertness to opportunities, maximizing decisions.	Maturity and change

Source: Cunningham and Lishcheron (1991:47).

From the table above, the researcher identified the following characteristics of what it takes to be an entrepreneur: creative/innovative, ambition, motivation, ability to

identify opportunities, risk taking, ethical, problem solving, decision making, friendly, leaders, teamwork, hardworking, need to achieve and perseverance.

Neneh (2011:13) also identified creativity, self-reliance and ability to adapt, tolerance of ambiguity and uncertainty, obsession with opportunities, commitment and determination to be what it takes to be an entrepreneur. According to Neneh and Van Zyl (2012:8329), these characteristics define the successful and potential entrepreneur from non-entrepreneurial individuals.

2.5.2 The entrepreneurial mindset

Dhliwayo and Vuuren (2007:124) define mindset as a way of thinking, and action about business and its opportunities, whilst capturing the benefits of uncertainty. Their study further points out that this mindset needs to shape its own environment by creating a strategic and entrepreneurial alertness for a start-up to survive chaos, complexity and confrontations. This entrepreneurial survival mindset is required to minimise failure, as the current business environment is characterised by increasing risk, decreased ability to forecast, and fluid boundaries in between (Morris & Kuratko, 2002:150; Neneh & Van Zyl, 2012:8329).

Dhliwayo and Vuuren (2007:124) summarise an entrepreneurial mindset as being about creativity, innovation and taking opportunities that result in organisational wealth creation and success. Their study also points out that such a mindset allows entrepreneurs to make convincing decisions in the face of uncertainty.

2.5.3 Business practices

The literature study indicated that business practices can be described in different ways. Table 5 summarises different business practices used by different researchers.

Table 5: Summary of business practices

BUSINESS PRACTICES							
Researchers	Quality management	Marketing practices	Performance management	Strategic planning	Teamwork	Customer orientation	Compensation policy
Jayakody & Sanjeevani (2005)	X	X	X			X	
Neneh (2011)		X	X	X	X		
Neneh & Van Zyl (2012)	X		X				
Sharma (1999)	X		X		X		
Stevenson & Sahlman (1987)	X		X	X			X

Source: Self-compiled from the literature

In consideration of Table 5, the researcher believes that a mix of business practices in a small business, with the desired entrepreneurial characteristics, could result in the attainment of success and survival of small business start-ups.

2.6 START-UP AS A PROJECT

The researcher, in this study, views starting a business as a project. Viewing a start-up as a project is expected to allow the researcher to use the principles of project risk management to provide insights and possible solutions to the risks facing business start-ups. The expectation is that a greater understanding of the risks that start-ups face, mapped to suitable project risk management solutions, will allow start-up owners to optimise the probability of success and growth of their businesses.

2.6.1 Why view a business start-up as a project?

This study adopts the widely-accepted definition of a project from the Project Management Body of Knowledge (PMBok) guide, fourth edition. PMI (2008:5) defines a project as:

a temporary endeavour undertaken to create a unique product, service or results. The temporary nature of projects indicates a definite beginning and end. The end is reached when the project’s objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. The term “temporary” in the above statement does not necessarily mean short in duration.

Viewing the start-up phase of creating a new business as a project, the researcher viewed the temporary nature of the start-up phase of a new business, before it graduates to a fully operational business, as indication that this could be viewed as a project. Here, unique will refer to a unique endeavour for the entrepreneur.

Similar to business start-ups, projects go through developmental stages called the life cycle of a project, with a number of manageable project phases. The literature review showed that different views of project lifecycles exist. A number of these are summarised in Table 6.

Table 6: Different views of the project life cycle

Model	Source	Phases
Six phases	PMI (2005)	1. Conception
		2. Planning
		3. Production/Implementation
		4. Handover
		5. Utilisation
		6. Close down

Five phases	Michael (2001)	1. Determine need and feasibility.
		2. Create project plan
		3. Create product specifications
		4. Create prototype product
		5. Test and implement
Five phases	PMI (2008)	1. Initiating
		2. Planning
		3. Executing
		4. Controlling and monitoring
		5. Closing
Five phases	Pennock & Haines (2002)	1. Requirements
		2. Design
		3. Prototype
		4. Production
		5. Phase out
Five phase	PMI (1996)	1. Determination of mission need
		2. Concept exploration and definition
		3. Demonstration and validation
		4. Engineering and manufacturing development
		5. Production and development

Source: Self-compiled from the literature

The summary of the different models of the project life cycle shows that projects may differ in implementation requirements, level of uncertainty and corresponding risks. According to Raz *et al.* (2002:101), Burke (2010:263) and PMI (2008:275), project risks are defined as undesired events that may prevent the project from achieving at least one of its defined goals and objectives. Risks may cause delays (impact on project schedule), excessive spending (impact on project cost), unsatisfactory project results (impact on project quality), safety or environmental hazards, and even total failure of the project. Since it is hard to avoid some risks that face projects (such as

natural disasters or fire), it is important to prepare for those risks by adding risk management in the planning of the project (Raz *et al.*, 2002:102).

Just as there are different types of projects, the expectation exists that there are different ways to do project risk management. Thus, there is no single right way to conduct project risk management. Often the best approach for any given project is determined by the unique characteristics of that project. Nevertheless, there are certain principles that apply universally to all risk management (Pennock & Haimes, 2002:91).

2.7 RISK MANAGEMENT

Project risks are defined as undesired events that may prevent the project from achieving at least one of its defined goals and objectives. Risk is defined as the effect of uncertainty on objectives. It is expressed often in terms of a combination of the consequences of an event and the associated likelihood of occurrence (AS/NZS ISO 31000:2009).

2.7.1 What is project risk management?

The Project Management Institute PMI (2008:273) defines project risk management as the process that includes risk planning, risk identification, risk analysis/assessment, risk response planning, and monitoring and control on a project. Reiss and Arm (2004:3) look at risk management from a small business point of view as planning for the potential deviation from expected business results.

These two definitions have in common, a way to manage the uncertainties inherent in either the project or small business. Simu (2006:vii) sees the risk management process as thinking ahead and trying to assess the level of risk and uncertainty in a project or small business. This definition corresponds to the view that project risk is about something that may happen in the future PMI (2008:275). Therefore, risk management should mainly be a proactive process rather than reactive one.

2.7.2 Principles of risk management

There are specific core principles of risk management that need to be considered during a risk assessment. These principles, as defined by the International Standards Organization, are listed in the Table 7 (AS/NZS ISO 31000:2009).

Table 7: Key business project risk management principles

Should add value to the business start-up project
Should form an integral part of the overall decision-making process on the business start-up project
Must explicitly address uncertainty in the business start-up project
Should fit the specific business start-up project
Must take into account human factors that could influence the implementation and outcome of the business start-up project
Should cover all aspects of the business start-up project
Should be transparent
Should be dynamic and adaptable to change
Should be systematic and structured

2.7.3 Why view business start-up risk as project risk management?

There are many ways risk management can be viewed in starting a business. In this study, the researcher views the start-up phase of a business as a project. Viewing the start-up phase as a project allows for the implementation of well-described project risk management principles in start-up risk management. The main reasons for conducting risk management in business start-up projects are to reduce future damage and loss, to minimise the total cost of possible risk events, and to identify, control and limit the impact of the risks by increasing the probability and the impact of positive events, (PMI, 2008:273; Larson & Gray, 2011:213). In addition, successful application of risk management principles is expected to increase the confidence

level and improve the management style of start-up managers (entrepreneurs) (Larson & Gray, 2011:213).

The PMI (2008) specifies the steps required for the successful application of project risk management:

- Plan risk management: The project manager defines how to conduct risk management activities
- Identify the risks: The process of determining which risks may affect the project and documenting their characteristics
- Perform a qualitative risk analysis (assessment): The process of assigning priorities to risks for further analysis
- Perform a quantitative risk analysis (assessment): The potential risk effects are numerically analysed for the overall project
- Plan risk responses: The process of developing options and actions to enhance opportunities and to reduce threats to the project's goals
- Monitor and control risks: The manager implements risk response plans, tracks identified risks, identifies new risks, and evaluates risk process effectiveness throughout the project.

Figure 2 illustrates the overview of how the PMI (2008) view the project risk management process.

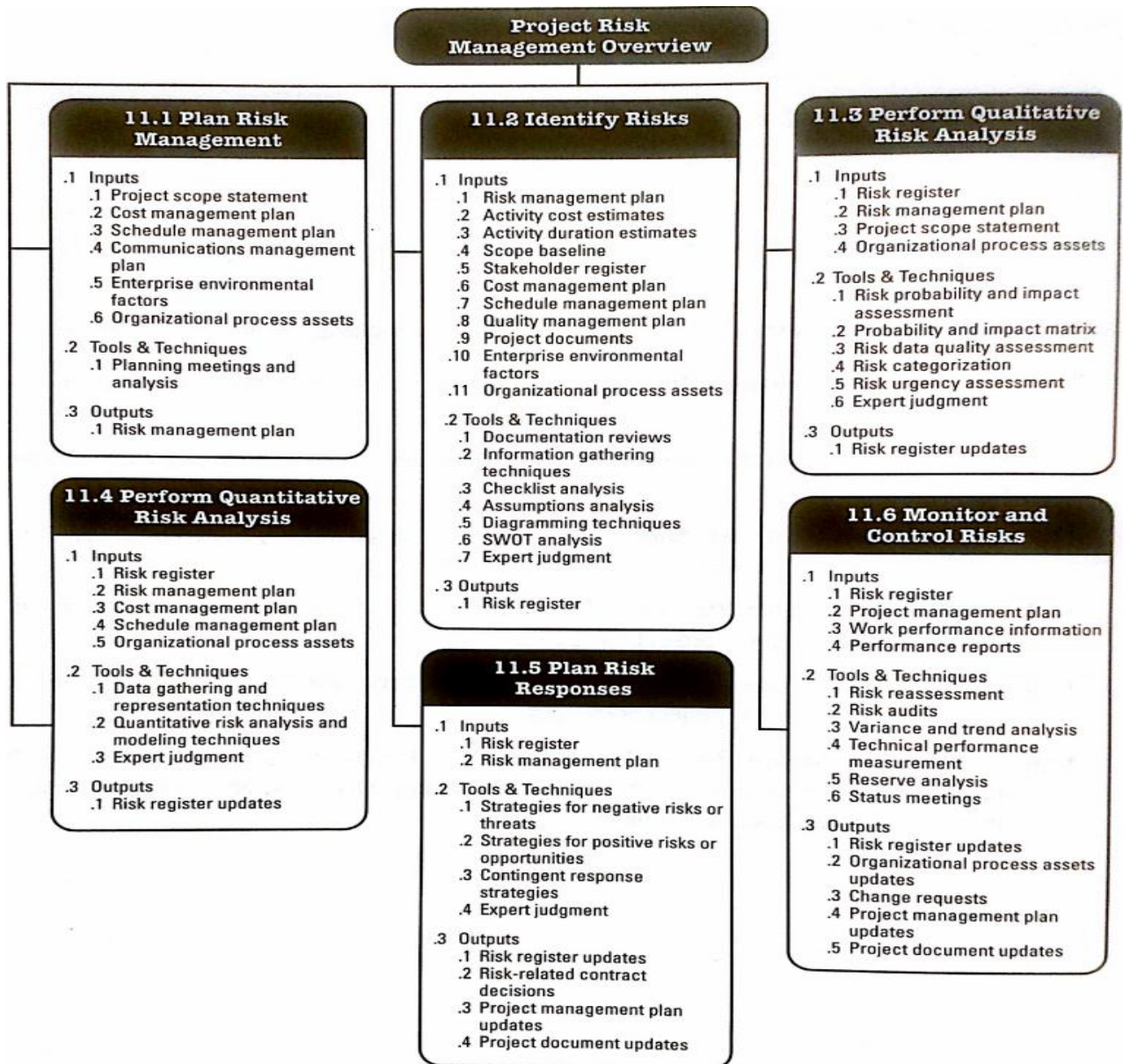


Figure 2: Project risk management overview

Source: PMI, 2008

As part of project risk management, it is important to assess the probability and potential impact of risk events on the start-up project. Figure 3 shows an example of how to assess the potential impact of risks on a project (start-up).

Impact

3	3	6	9
2	2	4	6
1	1	2	3

Likelihood 1 2 3

Note: Impact rated of higher importance than likelihood

Figure 3: A typical risk assessment template

2.8 PRINCIPLES OF SERIOUS GAME DESIGN

2.8.1 The concepts of serious games and gamification

There are many definitions of serious games, but most of them agree that the primary purpose of serious games have purpose and are more than mere entertainment. According to Hartog (2009:6), the ultimate goal of serious gaming sessions is to let the user acquire the competencies (combination of knowledge, skills and attitude) needed to perform the job. These competencies include accelerated learning, increased motivation, and development of higher order cognitive thinking skills. In the literature, the term, serious games, usually refers to computer-based gaming.

Ritterfeld and Weber (2005:403-404) define serious games as a genre that explicitly focuses on education. Thus, the distinguishing feature of serious games is the focus on education and learning. The outcomes of playing these games should always be advantageous for the player, by facilitating learning, and should not have any negative or harmful effects such as addiction or aggression. This implies that any games that stimulate aggression or addiction are not regarded as valid serious games.

The other concept gaining popularity, as revealed by the literature, is gamification. Gamification has been defined as, “the use of game design elements in non-game

context” (Deterding *et al.*, 2011:9). The goal of gamification is to improve user experience and user engagement.

2.8.2 The role of serious games

The literature shows that usually the main goal of serious games is to train or educate users. Michael and Chen (2006:26) support this statement by pointing out that the main point of serious games is getting players to learn something, and if possible, have fun doing it. Gee (2003:2-3) also indicated that the intention of serious games is to facilitate deep and sustained learning. The later study discussed examples of good learning principles that are incorporated in good games, such as:

- Good games give relevant information needed
- Good games operate at the edge of a player’s competence, while remaining challenging, but do-able
- Good games allow players to be producers and not just consumers of the game
- Good games confront players in the initial game levels with problems that are designed specifically to allow players to form generalisations about what will work well later when they face more complex problems.

Thus, good games allow people to immerse themselves in a new world, and simultaneously achieve deep learning.

Serious games in the form of video games can engage a player for two to four hours, whereas a student in classroom tends to lose interest after 15 minutes (Michael & Chen (2006:26). Thus, serious games can become very important tools to be used in a classroom to keep students interested in learning. In this way, serious games offer a new method of teaching and training, by integrating video games into education.

2.8.3 Serious game design

Serious or educational games have to be well designed to incorporate user engagement, an integral component of educational effectiveness (Kiili *et al.*, 2012).

Therefore, the ultimate aim of serious game design is to create appealing experiences for players that can hold the player's attention for as long and as intensely as possible. Furthermore, the study shows that it is challenging to design an educational game, since the learning objectives must be supported actively by the game. According to Quinn (2005), the challenge in designing an educational game is to find a balance between game-play and learning objectives (Kiili *et al.*, 2012).

2.9 SUMMARY OF THE CHAPTER

This chapter started with an introduction that discussed the background of the small business sector in South Africa, as well as the typical failure rates of small businesses. The second section of the chapter covered the typical developmental stages of a business. The section indicates that the developmental stages of a small business can range from two stages to ten developmental stages. The third section was about challenges facing small businesses in South Africa; challenges were categorised as internal and external. The fourth section discussed the success factors (personal characteristics, entrepreneurial mind set and business practices). The fifth section introduced the business start-up as a project. The section defined the concept of a project, and it ends with the summary of different project lifecycles. The sixth section explained risk management concepts as typically used for project risk management. Under this section, the researcher discusses what project risk management is, why risk management is important for project success, and ends with an overview of project risk management. The concepts of serious games and gamification are introduced in the last section of this chapter. The role of serious games and design issues to be considered when designing serious games are touched on.

This overview provides the background for the understanding of the research results described in this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This main aim of this study is to create a training tool to assist business start-ups to mitigate their risks to allow for increased success rates of business start-ups. The aim of the proposed risk mitigation tool will be to provide training to allow small business owners to manage the challenges they face when starting a new business better. The tool should assist with minimising the risk of failure and therefore assist with increased growth and survival of small businesses. The literature review showed that South African small businesses tend to suffer from high failure rates.

The main questions that were addressed in this study were:

- What are the typical risks per small business start-up phase?
- How to mitigate the risk per business start-up phase.
- How best to teach entrepreneurs to identify and manage business start-up risk per phase?

The aim of this chapter is to explain the research methodology followed in trying to answer the above-mentioned research questions. The chapter will discuss the following topics: research design, data collection, sampling and sample selection, validity and reliability issues, data analysis, use of the Statistical Package for Social Sciences (SPSS), and research limitations.

3.2 RESEARCH DESIGN

Iacobucci and Churchill (2010:57) define research design as a framework or a plan for a study that is used as a guide to collect and analyse data. They further point out that research conducted without design is likely to cost more than that conducted using a proper design. The research design should ensure that the study would be relevant to the research problem, and use the most suitable methods for the specific study.

This study followed the research design illustrated in Figure 4 to answer the research questions and achieve the aims.

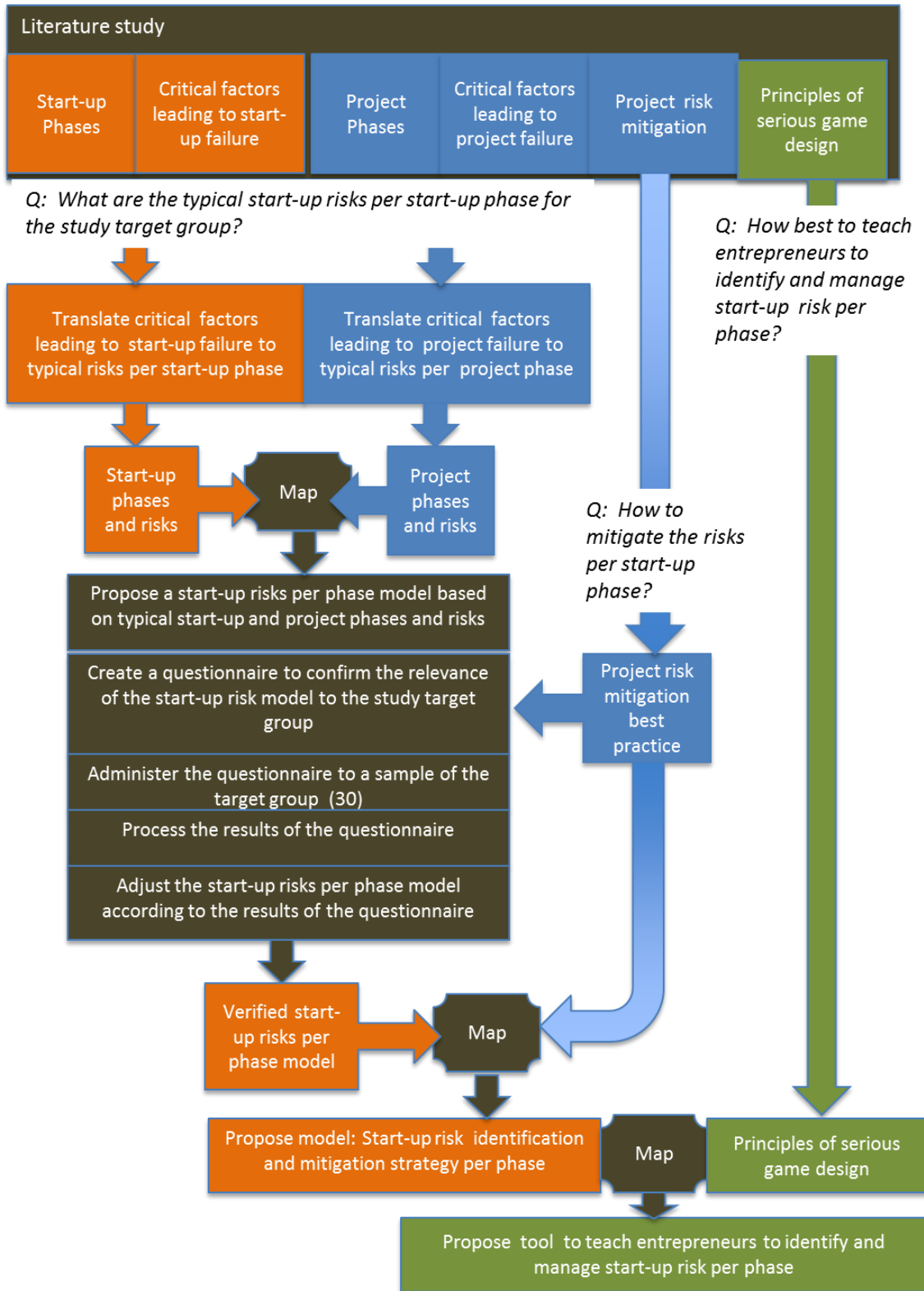


Figure 4: Graphical representation of the research design for this research project

3.3 RESEARCH APPROACH

This section—describes the difference between two research approaches, namely quantitative and qualitative research.

3.3.1 Qualitative research

According to Sharan (2002:3), qualitative research is associated with a socially constructed meaning by individuals who are in interaction with the world. Thus, qualitative researchers are interested in understanding multiple constructions and the interpretation of reality that changes over time, at a particular point in time, in a particular context. Bryman (2012:36) describes qualitative research as a research strategy that emphasises words rather than quantification in the collection and analysis of data. Qualitative research is more concerned with the generation than testing of theories.

3.3.2 Quantitative research

Creswell (2003:18) describes quantitative research as the approach that employs strategies of inquiry such as experiments and survey, and collect data on predetermined instruments that yield statistical data. Further quantitative approach uses measurements and observations numerically and test theories.

The two approaches have different strengths and logics and they can be used to provide complementary interpretations of the same problem. Table 8 summarises some of the characteristics of quantitative and qualitative research

Table 8: Characteristics of qualitative and quantitative research

Qualitative research	Quantitative research
PURPOSE	
<ul style="list-style-type: none"> • To describe and explain (behaviours and trends or relations) • To explore and interpret • To build theory • Construct social reality 	<ul style="list-style-type: none"> • To explain and predict (qualities, degree or relation) • To confirm and validate • To test theory • To measure objective facts
NATURE	
<ul style="list-style-type: none"> • Holistic • Unknown variables • Flexible guideline • Emergent design • Context bound • Personal view 	<ul style="list-style-type: none"> • Focused • Known variables • Established guideline • Static design • Context free • Detached view
DATA COLLECTION	
<ul style="list-style-type: none"> • Observation and interview • Informative, small sample 	<ul style="list-style-type: none"> • Standardised instruments (surveys and experimental designs) • Representative, large sample
REASONING	
<ul style="list-style-type: none"> • Usually inductive analysis 	<ul style="list-style-type: none"> • Usually deductive analysis
DATA ANALYSIS	
<ul style="list-style-type: none"> • Content analysis 	<ul style="list-style-type: none"> • Descriptive and inferential statistics
COMMUNICATION	
<ul style="list-style-type: none"> • Words • Narrative and individual quotes • Personal voice, literacy style 	<ul style="list-style-type: none"> • Numbers • Statistics, aggregated data • Formal voice, scientific style

Source: Schoonraad (2004)

This study adopted the use of both qualitative and quantitative research methods. The use of both qualitative and quantitative research is described usually as mixed method research. Based on the characteristics of qualitative and quantitative researches presented in Table 8, the collection of data in a mixed methods approach

involves gathering both numerical and text-based data to represent both qualitative and quantitative data. The reason for choosing a mixed methods approach for this study is to be able to answer the 'what' and 'how' research questions. Another reason was to cross-check the qualitative research expectations against the quantitative results.

3.4 DATA COLLECTION

The qualitative approach focuses on the viewpoints and opinions of people. This may result in a high level of subjectivity. To reduce this high level of subjectivity, the researcher applied triangulation. According to Bryman and Bell (2007:412), triangulation typically consists of three parts:

- It makes use of more than one researcher
- It uses various sources of gathering information and data analysis
- It uses different methods to collect data and for data analysis.

The use of triangulation was expected to not only limit the subjectivity, but also increase the validity of the research results.

There are various sources to gather data. These sources can be categorised as either primary or secondary data sources.

3.4.1 Primary data source

There are three primary data collection methods that can be used to collect data, namely observation, experiment and surveys (Neneh, 2011:106). The primary data collection method used to collect data for this study was questionnaire based, as discussed in the next section.

3.4.1.1 Questionnaire

According to Krosnick and Presser (2010:263), questionnaires form the heart of surveys. The reason for this is that a questionnaire scripts the conversation between

the researchers and participants. The results of any survey depend crucially on the validity of the questionnaire used in the survey. A questionnaire can be defined as an instrument that requires participants to answer a series of questions or statements, by either writing out their answers or selecting from existing answers (Neneh, 2011:106).

In this study, a structured questionnaire was used as the main information collection instrument. The participants were asked to complete the questionnaire in a self-administered process. The questions were formulated from the model established in the literature study.

3.4.1.2 Questionnaire design and contents

The questionnaire comprised of five sections. The first section was an invitation to participants to complete the questionnaire and provided participants with the researcher's basic information and main aim of the study. The second section requested demographical data from the participants. The requested information includes age, gender, ethnic group, and the level of education.

The third section focused on business identification. The section asked participants to indicate number of active/operational start-ups, number of sold businesses, number of closed/dormant businesses, and the total number of all businesses they have started. The participants also had to indicate in which business sector their businesses do/did operate, as well as if they have completed any small business training, and what the nature of such training was.

The fourth section tried to understand the challenges participants faced in starting their business. Firstly, participants were asked to define success for their businesses (how would they know that the business start-up phase is over and the business is in full operation). Second, participants were asked to list, in their opinion, the main challenges a business start-up will experience per start-up phase. The participants were provided with a standard list of start-up phases as a guideline.

The fifth and last section of the questionnaire was about risk management in small businesses. Participants were asked if they used formal risk management methods when they started any of their businesses. They were asked also to explain their answers. Second, participants were asked if they included risk management in the job descriptions of key employees, and also indicate which employees, or explain why risk management was not included if it was not included. Third, participants were asked to rate the standard risk management actions in their most recent start-ups and rate their understanding of risk management. Lastly, the participants were requested to explain what they will do differently in their next start-up business.

3.4.1.3 Pre-testing (pilot study)

The first drafts of the questionnaire were pre-tested in this step. The researcher pre-tested the questionnaire in order to ensure that the questionnaire collects data that will be relevant to answer the questions the research was trying to address. Table 9 presents different goals of pre-testing the questionnaire.

Table 9: Pretesting goals – Problem identification and questions to address

<p>Respondent comprehension, burden, and interest</p> <ul style="list-style-type: none"> · Do respondents have difficulty understanding words, terms or concepts? · Is the sentence structure too complex? Do respondents understand the question, the task required, and the answer format? · Do respondents interpret the question as the researcher intends? · Do respondents use different response categories or choices than those offered? · Are respondents willing and able to perform the tasks required to provide accurate and complete answers? · Are respondents attentive and interested in the questions?
<p>Other questionnaire issues</p> <ul style="list-style-type: none"> · Do the sections of the questionnaire and the questions within sections have a logical flow? · Are the instructions correct? · Is there evidence of question order effects?

Sampling

- What is the response rate? Does the response rate indicate any potential problems?
- Are the eligibility rates as expected; do these rates indicate any unexpected problems?
- Are there any indications of problems with the completeness and accuracy of the sampling frame?

Coding and analysis

- Is it difficult to construct code categories for the question or to code responses to open-ended questions?
- Is the level of variation in responses to each question acceptable?

Source: Czaja (1998:52-66)

3.4.1.4 Pre-testing technique

The researcher asked a group of five people to review the questionnaire. The group consisted of one statistician, three subject experts, one language expert, and one lay person. The objectives of this technique are as follows:

- Identify potential participant comprehension
- Identify potential data analysis problems
- Obtain suggestions for revising questions and/or the questionnaire

This technique of pre-testing is called “expert panel review of questionnaire and/or response problems” (Czaja, 1998:6).

The final product of the questionnaire was based on the findings and recommendations from the pre-testing. A copy of the questionnaire used to collect data for this study is attached as Appendix A.

3.5 SAMPLING AND TARGETED POPULATION SELECTION

A population is a collection of all the subjects to be studied that describe some phenomenon of interest. A sample is a group of subjects selected from a population (Sincich, 1993:9). A sample is drawn through a sampling process in order to obtain a

representative picture about the targeted population, without studying the entire population.

Table 10 presents a summary of common sampling methods with their description as well as advantages and disadvantages.

Table 10: Sampling techniques: Advantages and disadvantages

Technique	Descriptions	Advantages	Disadvantages
Simple random	Random sample from whole population	Highly representative if all subjects participate; the ideal	Not possible without a complete list of population members; potentially uneconomical to achieve; can be disruptive to isolate members from a group; time-scale may be too long
Stratified random	Random sample from identifiable groups (strata), subgroups, etc.	Can ensure that specific groups are represented, even proportionally, in the sample(s) (e.g., by gender)	More complex, requires greater effort than simple random; strata must be carefully defined
Cluster	Random samples of successive clusters of subjects (e.g., by institution) until small groups are chosen as units	Possible to select randomly when no single list of population members exists, but local lists do	Clusters in a level must be equivalent
Stage	Combination of cluster (randomly selecting clusters) and random or stratified random sampling of individuals	Can make up probability sample by random at stages and within groups; possible to select random sample when population lists are very localised	Complex, combines limitations of cluster and stratified random sampling

Purposive	Hand-pick subjects on the basis of specific characteristics	Ensures balance of group sizes when multiple groups are to be selected	Samples are not easily defensible as being representative of populations due to potential subjectivity of researcher
Quota	Select individuals as they come to fill a quota by characteristics proportional to populations	Ensures selection of adequate numbers of subjects with appropriate characteristics	Not possible to prove that the sample is representative of designated population
Snowball	Subjects with desired traits or characteristics give names of further appropriate subjects	Possible to include members of groups where no lists or identifiable clusters even exist (e.g., drug abusers, criminals)	No way of knowing whether the sample is representative of the population
Volunteer, accidental, convenience	Either asking for volunteers, or the consequence of not all those selected finally participating, or a set of subjects who just happen to be available	Inexpensive way of ensuring sufficient numbers of a study	Can be highly unrepresentative

Source: Black, (1999:118)

This study used the snowball sampling method on participants from the list of small start-up owners obtained from SEDA operating in Kroonstad, Edenville, and Heilbron in the Free State province, NYDAs Johannesburg branch, and one participant from Netherlands. The choice of using the snowball method was influenced by the

difficulty in getting a complete list of participants from agencies that give support to small businesses.

The number of returned complete questionnaires determined the size of the sample for this study. Questionnaires were hand delivered to different venues where participants were asked to complete them. The venues were selected based on business training dates and venues provided by SEDA in Kroonstad and the NYDA Johannesburg branch. The total number of completed questionnaires was 59, of which 58 were valid for analysis.

3.6 VALIDITY AND RELIABILITY ISSUES

According to Morse *et al.* (2002:2), research without rigor is worthless, becomes fiction and loses its utility. Hence, attention is given to reliability and validity in all research methods. Reliability is the consistency of a measure, and validity describes whether or not an indicator that was developed to measure a concept really measures that concept (Bryman & Bell, 2007:163-165).

For this study, the validity of the indicator developed to measure the concept was evaluated using face validity. Bryman and Bell (2007:165) describe face validity as asking people with experience or expertise in a field to judge and determine whether, on the face of it, the measure seems to reflect the concept concerned. The researcher also used triangulation to validate the qualitative side of the study. Triangulation is typically a strategy for improving the validity and reliability of research or evaluation of findings (Golafshani, 2003:603). This can mean using several kinds of methods or data, including the mixed method approaches (Bryman & Bell, 2007:412) as this study did by using mixed methods. Thus, triangulation is used for corroboration and correspondence of results across the different methods.

3.7 DATA ANALYSIS

This study adopted the use of data transformation in data analysis. The data transformation method integrates quantitative data and qualitative data during data

analysis by transforming one data type to the other in order to allow statistical or thematic analysis of both data types (Caracelli & Greene, 1993:197).

For statistical analysis, descriptive and inferential statistics were calculated. Sincich (1993:9-11) describes descriptive statistics as the organisation, summarisation and description of the data set and inferential statistics as concerned with using sample data to make an inference about a population. Descriptive statistical tools used in this study were percentages, frequency distribution tables, and histograms and charts. For inferential statistics, cross tabulation, chi-square, and the Pearson correlation were used. The statistical package used for analysis of data is IBM SPSS Statistics 22.

3.8 LIMITATIONS OF THE STUDY AND RESULTING OPPORTUNITIES

- It was difficult to get participants for this study as most agencies have a confidentiality agreement with small business owners to prevent third party access to their information.
- The researcher experienced problems with gathering data from participants using the e-mail method. The response was very poor.
- Under the circumstances, the method selected was to deliver the questionnaires to participants. Some of the participants had problems with the language (English) resulting in an unwillingness to participate in the study.
- The majority of the respondent sample represents a specific section of South African small business entrepreneurs. These entrepreneurs form an important part of the population of South African entrepreneurs expected to assist with job creation and poverty alleviation. The challenges experienced to obtain a sample, therefore, led to the unexpected opportunity of getting to know the challenges facing a specific subset of entrepreneurs in South Africa.

This subset is described in Chapter 4.

CHAPTER 4: ANALYSIS AND INTERPRETATION OF RESULTS

4.1 INTRODUCTION

The main aim of this chapter is to present a summary of the results obtained from the research study, based on the responses to the completed questionnaires. A field study was performed using a structured questionnaire as the instrument to collect data. A total of 59 completed questionnaires were gathered, of which 58 were valid for analysis.

The demographical information of the participants and the main results from the study are summarised in this chapter. The main results are categorised into business identification of the entrepreneurs, the challenges the entrepreneurs face in starting up their businesses and risk management in small businesses.

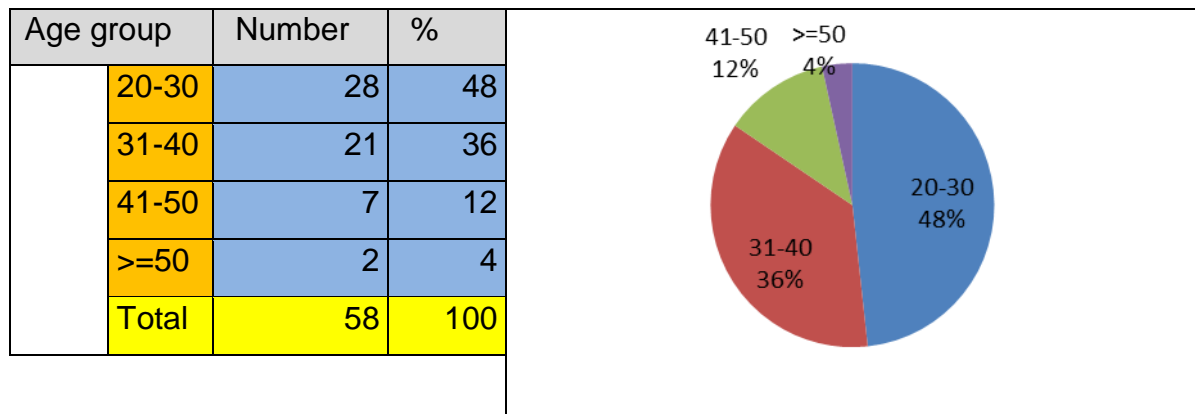
4.2 PARTICIPANT DEMOGRAPHICS

Section two of the questionnaire requested demographical data from the participants. This information includes age, gender, ethnic group, level of education, and the physical location of the participant businesses. It is assumed that the location where participants completed a questionnaire is the location of their businesses. However, it is noted that in future the location of the business should be indicated in the questionnaire.

4.2.1 Participant age

Table 11 summarises the age groups of the participants.

Table 11: Summary of age groups of participants



The majority of participants are between 20 and 40 years old, with 48 percent in the 20 to 30 year bracket, 36 percent in the 31 to 40 year old category, and only 16 percent of participants are more than 40 years old.

However, the researcher has noted that the age categories are not equal in range in the questionnaire. The suggestion for future research is that the age categories will be of equal range to maintain consistency (for example 20-29, 30-39...).

4.2.2 Participant gender

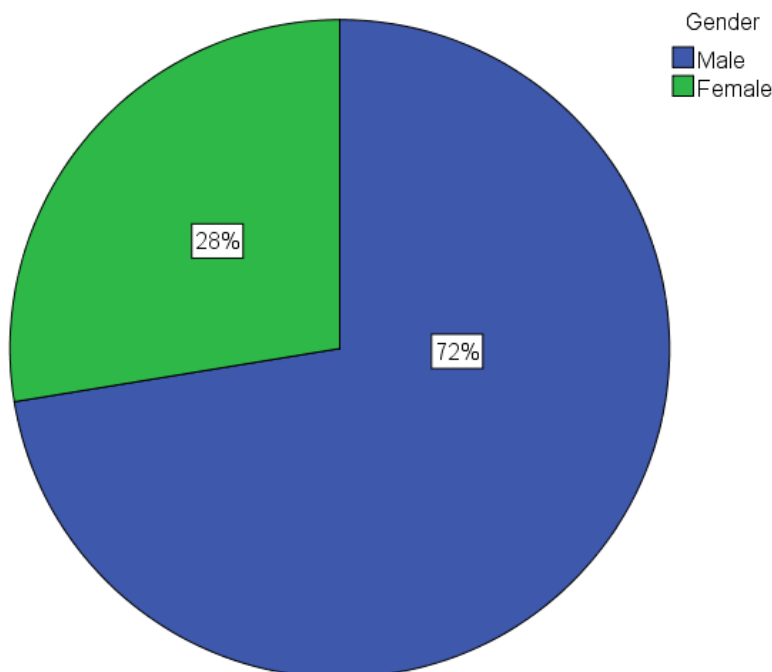


Figure 5: Gender of participants

Sixteen females and 42 males completed the questionnaire. The majority of the participants were therefore males at 72 percent, against 28 percent females.

4.2.3 Participant population group

Most of the participants who completed the questionnaire were from the black population group as shown in Table 12. No Indian or Coloured participants completed the questionnaire as part of this sample.

Table 12: Summary of participant population group

Ethnic group	Number	%
Black	54	93
White	4	7
Total	58	100.0

The results show that out of 58 participants, 93 percent were black people and only 7 percent were white people. This implies that the outcomes of this study will be based mainly on the experience of the black entrepreneurs who participated in the study.

4.2.4 Participant education levels

It is indicated in the literature that the level of education can influence the performance, knowledge and skills of a person (Peters & Brijlal, 2011:268). Therefore, this question was included to determine the highest academic level of education of the participants.

Table 13 presents a summary of levels of education of participants.

Table 13: Summary of education levels of participants

Education levels	Number	%
High school education	33	57
College education	17	30
University bachelor education	4	7
University post graduate	2	3
others	2	3
Total	58	100

The results show that the majority (57%) of participants obtained high school education as the highest level of education followed by 30 percent with college education and 7 percent a university bachelor education. Very few of the participants had an education at university post-graduate level.

Thus, there is a need for training for entrepreneurs without higher education qualifications. This result should be taken into account during the design of the risk training (teaching) tool.

Table 14: Relationship between age of entrepreneur and level of education

		Education Level					Total
		High school education	College education	University bachelor education	University post graduate	others	
Age	20-30	13	10	2	1	2	28
	31-40	14	5	2	0	0	21
	41-50	6	1	0	0	0	7
	>=50	0	1	0	1	0	2
Total		33	17	4	2	2	58

Table 14.1: Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.10	.19	-.74	.46 ^c
Ordinal by Ordinal	Spearman Correlation	-.18	.13	-1.37	.18 ^c
N of Valid Cases		58			

From Table 14.1, Pearson's correlation coefficient of -0.10 indicates that the entrepreneur's age and the level of education have negative weak correlation. These results mean that the age of an entrepreneur has no noticeable impact on the level of education in this research cohort.

4.2.5 Physical location of the participants

The sampling of this research study included small business start-ups from some towns in Free State supported by SEDA and the Johannesburg branch supported by NYDA.

The distribution of areas participated in the study is presented in Table 15.

Table 15: Summary of locations of participants

Locations	Urban/Rural	Number	%
Edenville	Rural	11	19
Heilbron	Rural	6	10
Johannesburg	Urban	31	53
Kroonstad	Rural	9	16
Netherlands	Urban	1	2
Total		58	100

The results in Table 15 indicate that there was a more or less equal distribution between the urban areas of Johannesburg and the Netherlands, and the rural areas of Edenville, Heilbron and Kroonstad.

4.3 BUSINESS IDENTIFICATION

The researcher understood that entrepreneurs may have started more than one business and some of those businesses might still be active, sold or closed/dormant. To confirm the understanding of the researcher, participants were asked to indicate total number of businesses started. From the total number of business started the participants were asked to indicate number of active/operational start-ups, number of businesses sold and lastly to indicate the number of businesses closed/dormant. The results are presented in Table 16.

Table 16: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Active Start-ups	41	.0	4.0	1.51	.87
Sold Businesses	18	.0	3.0	.39	.78
Closed Businesses	20	.0	3.0	.80	1.01

The results show that the maximum number of active start-ups that one entrepreneur operated was four, with an average of 1.51 and a standard deviation of 0.87. The minimum value of zero active start-up indicates that the entrepreneur is not yet operational, but the business idea already has been developed and the feasibility of the idea is being researched. The next part of the results show that the maximum number of sold and closed businesses by one entrepreneur is three, with an average of 0.39 and 0.80, and variation of 0.78 and 1.01 respectively.

Table 17: Active start-ups vs sold business

		Active start-ups					Total
		.0	1.0	2.0	3.0	4.0	
Sold	.0	1	6	3	2	1	13
businesses	1.0	0	2	1	0	1	4
	3.0	0	0	1	0	0	1
Total		1	8	5	2	2	18

Table 17.1: Symmetric measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by	Pearson's R	.11	.14	.43	.68 ^c
Interval					
Ordinal by	Spearman	.14	.21	.55	.59 ^c
Ordinal	Correlation				
N of Valid Cases		18			

In the investigation of the relationship between active start-up businesses and sold businesses, the results in Table 17.1 show Pearson's correlation value of 0.106; this indicates that there is a positive but weak correlation between active start-ups and sold businesses.

Table 18: Active start-ups vs closed businesses

		Active start-ups					Total
		.0	1.0	2.0	3.0	4.0	
Closed	.0	1	6	3	0	0	10
businesses	1.0	0	0	1	1	0	2
	2.0	0	0	1	0	0	1
	3.0	0	0	0	1	1	2
Total		1	6	5	2	1	15

Table 18.1: Symmetric measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.79	.09	4.60	.000 ^c
Ordinal by Ordinal	Spearman Correlation	.78	.10	4.42	.001 ^c
N of Valid Cases		15			

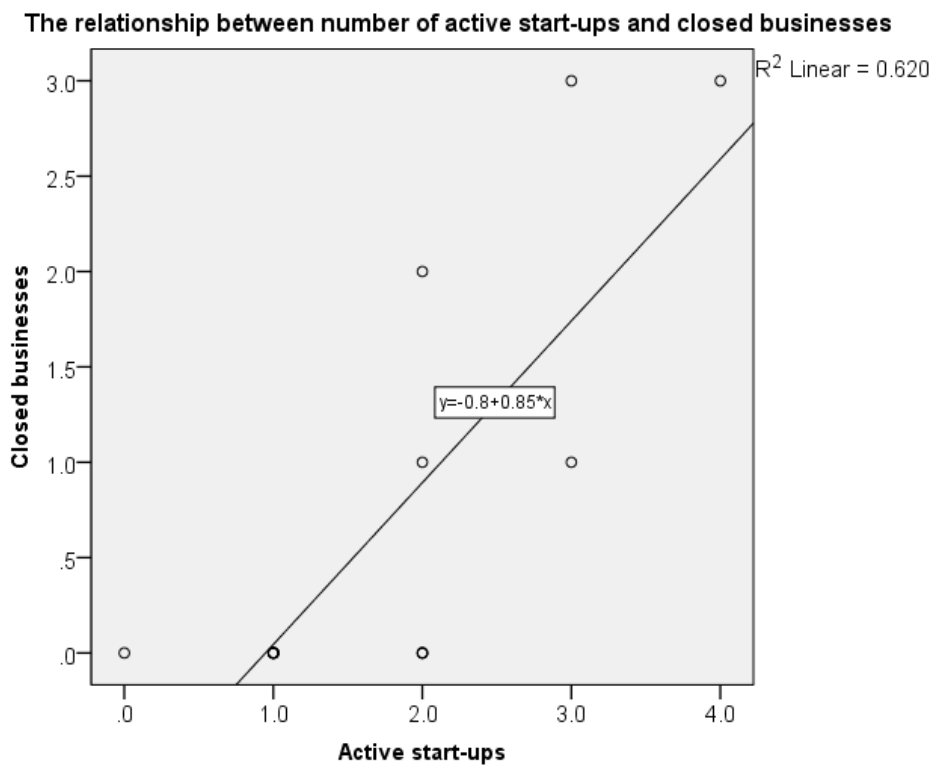


Figure 6: The relationship between number of active start-ups and closed businesses

Looking at the relationship between active start-ups and closed businesses the results in Table 18.1 and Figure 6 above indicate a positive strong linear relationship between the two business statuses, with a Pearson's correlation value of 0.79. In Figure 6, the coefficient of determination $R^2 = 0.620$ implies the use of a number of active start-ups (x) to predict the number of closed businesses (y) with the least

square line $\hat{y} = -0.8 + 0.85x$ accounts as 62 percent of the total sum of squares of deviations of closed businesses about their mean. That is, we can reduce the total sum of squares of our prediction error by nearly 62 percent by using the least squares equation $\hat{y} = -0.8 + 0.85x$, instead of average (\bar{y}) of closed businesses, to number of closed businesses (y). The results imply that the more start-ups were created the more they were closed.

The participants were asked to indicate in which business sector their businesses do/did operate. The results show that the majority of entrepreneurs participated in the study operated in the agriculture, construction and manufacturing sector. Few of the participants operate in the following sectors: trade, information technology, education and training, finance and transport.

Furthermore, the researcher asked participants if they had completed any business training and participants had to answer yes or no. If the answer was yes, the participants were asked to indicate what the nature of such training was. Table 19 presents the frequency of yes and no.

Table 19: Distribution of yes and no

		Frequency	Percentage	Valid Percentage
Valid	Yes	35	60.3	63
	No	21	36.2	37
	Total	56	96.6	100
Missing	System	2	3.4	
Total		58	100.0	

The results indicate that a valid percentage of 63 percent of participants had completed business training against 37 percent who had not.

Figure 7 presents the nature of business training entrepreneurs completed by the time they took part in this research.

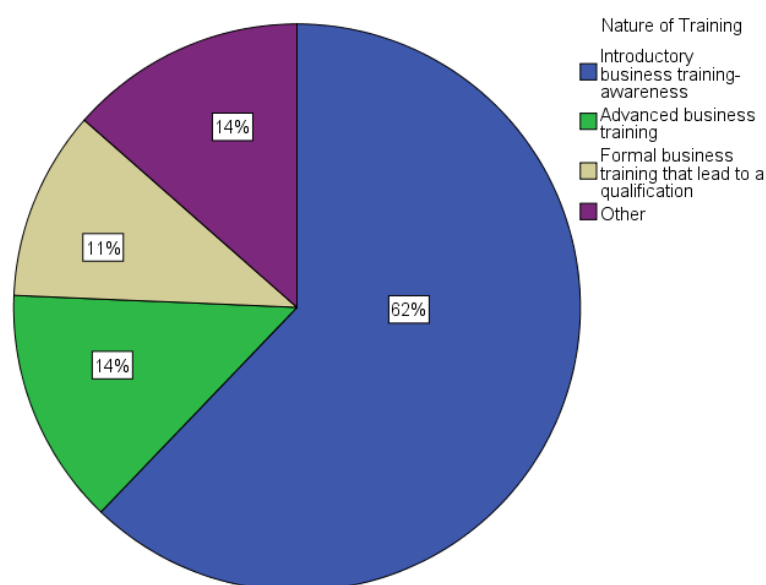


Figure 7: The nature of business training

At least 62 percent of the entrepreneurs who participated in this study have completed training at an introductory (awareness) level. This means that the majority of the entrepreneurs operate their businesses with at least a basic business knowledge that can assist them in running their business. Those who completed advanced and other training make up 14 percent each, and 11 percent completed formal qualification-based business training.

Table 20: The relationship between nature of business training and business sector

Nature of training * Sector Cross tabulation

		Sector							Total
		Agriculture	Construction	Education and training	Manufacturing	Transport	Trade	Other	
Nature of training	Introductory business training-awareness	8	4	1	0	0	2	6	21
	Advanced business training	0	0	0	2	0	1	2	5
	Formal business training that lead to a qualification	1	0	0	1	1	0	1	4
	Other	0	3	0	0	0	0	2	5
Total		9	7	1	3	1	3	11	35

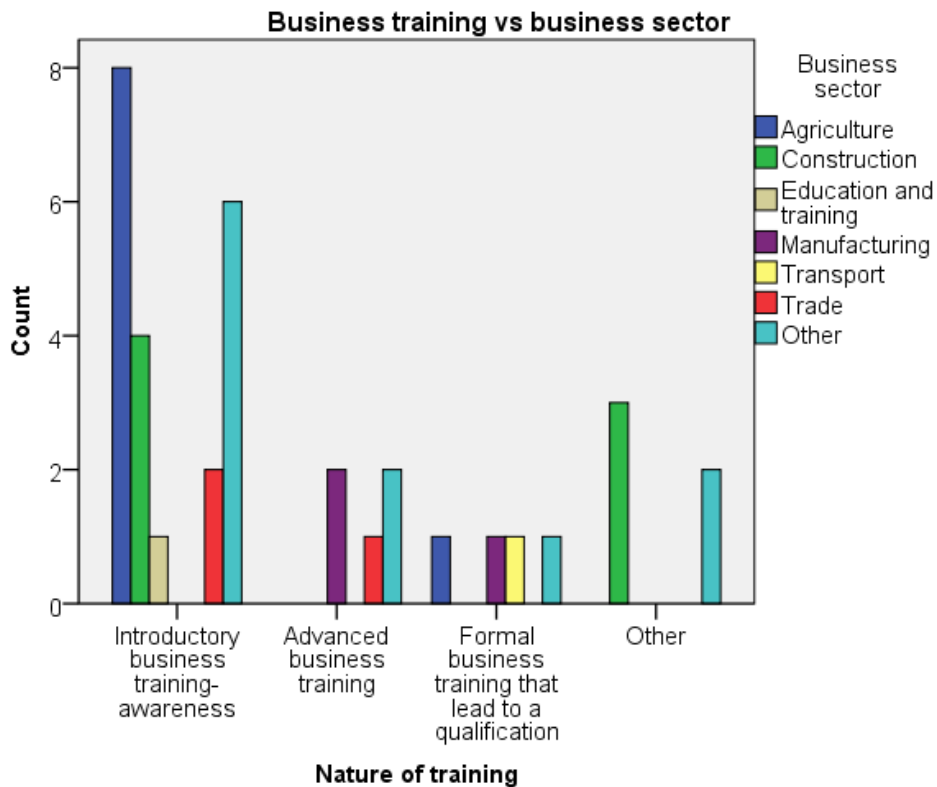


Figure 8: Nature of business training vs business sector

The results presented in Table 20, and in Figure 8, indicate that out of 35 businesses 8 from agriculture, 4 from construction, 2 from trade and 1 from education and training have acquired at least introductory business training-awareness. The results also show that 2 businesses from manufacturing and 1 from trade have acquired advance business training. Furthermore, the results show that only 1 business from agriculture, manufacturing and transport have a formal training that lead to a qualification. The results also show that no business in manufacturing and transport have acquired introductory business training-awareness. In agriculture, construction, education and training, and transport no business has acquired advanced business training. In construction, education and training, and trade no business has acquired a formal training that lead to a qualification. The results suggest a need for more business related trainings across business sectors.

4.4 UNDERSTANDING ENTREPRENEURS' CHALLENGES

In understanding the challenges facing entrepreneurs when starting their businesses, the researcher started by asking participants to define success for their start-up businesses (*inter alia* how would they know if their business start-up phase is over and the business is now fully operational). The responses indicated that different entrepreneurs have different ways to measure the success of their businesses. The researcher captured all the responses and summarised them in the next section.

4.4.1 Summary of definitions of success

A start-up is seen as successful when:

- It is fully operational, meaning clients fund the operational expenses of the business and create a positive cash flow on a recurring basis.
- The business has grown/expanded to the level of satisfaction. Thus, the business is able to pay its day-to-day operational costs and make more profit to sustain the operation of the business.
- The business can manage to show an increased growth in sales.
- The necessary resources are in place such as staff, infrastructure and the product of the business.
- The business is registered with the right documentation in place, such as tax clearance, bank accounts, business budget, policies to run the business, and a comprehensive business plan that has been compiled and presented to financial institutions for funding in order to finance the operation of their businesses. Furthermore, the business must have proper business management structures that are able to plan, monitor and improve the business operations. This includes professional administration and customer service skills.
- The owner measures the success by winning the trust of customers and being able to make them happy by providing for their needs.

- In addition to keeping its clientele, ensuring that the capital and the assets of a business help with effective operation of a business is also seen as a measure of success.
- The outcomes of a feasibility study is used as a basis to measure the success in the start-up phase; thus, using the possibility of a business being able to provide for the needs and demands of their customers as a motive to operate their businesses.
- The business is ready to expand and generate more employment as measured by the activeness and productiveness of the business.

The researcher summarised these definitions of success as the ability of the business to establish and manage to grow its market.

4.4.2 Summary of challenges entrepreneurs face

The literature discussed in Chapter 2 showed that the South African small businesses have a high failure rate of between 70 percent and 80 percent. This is because businesses operate in an environment where internal and external factors could affect the success or failure of the business. To understand the challenges entrepreneurs face in starting up their businesses, the researcher asked participants to voice their own opinion of the main challenges a business start-up will experience per start-up phase. The participants were provided with a standard list of start-up phases as a guideline. The Table 21 was used as a guideline with a list of start-up phases.

Table 21: Start-up phases

Start-up phases	Main challenges
<i>Example: Start-up phase X</i>	<i>Lack of experience, inability to access finance; unsuitable business location, etc.</i>
Idea- Develop business idea and determine need and feasibility	
Plan-	

Develop detailed business plan	
Create- Set up the business	
Prove- Test and refine business operation	
Operation- Full business operation, survival and growth	

The responses of participants were captured per start-up phase. For the purpose of the analysis, the researcher grouped the responses according to their similarities into eight categories of challenges, and coded them as: 1=economic, 2=financial, 3=infrastructure, 4=market, 5=management, 6=social, 7=personal challenges, and 8=business plan development. The results are presented in Figure 9 per start-up phase.

4.4.2.1 Idea: Develop business idea and determine need and feasibility

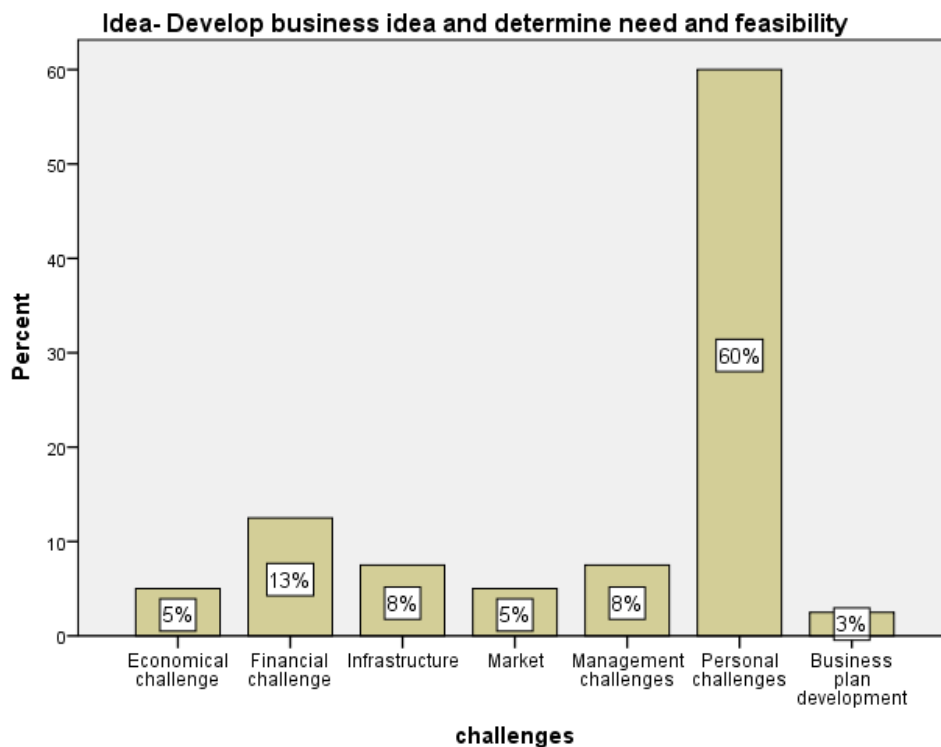


Figure 9: Idea phase

Figure 9 presents the main challenges during the idea phase when an entrepreneur develops business idea and determines the need and feasibility. Personal challenges had the highest percentage of 60 percent responses saying it is a major challenge in this phase. The individual challenges grouped as personal challenges include among others the following as mentioned by participants:

- Scope creep: want to do too much and make it too complex
- Lazy to research business idea to determine feasibility and need of a business
- Fear to start
- Willing to use and benefit from other people’s business ideas
- Lack of creativity to find new business ideas
- Ignorance of market research
- Lack of discipline and passion to continue
- Over confident about the business idea
- Lack ability to identify the gap in the market

4.4.2.2 Plan: Develop detailed business plan

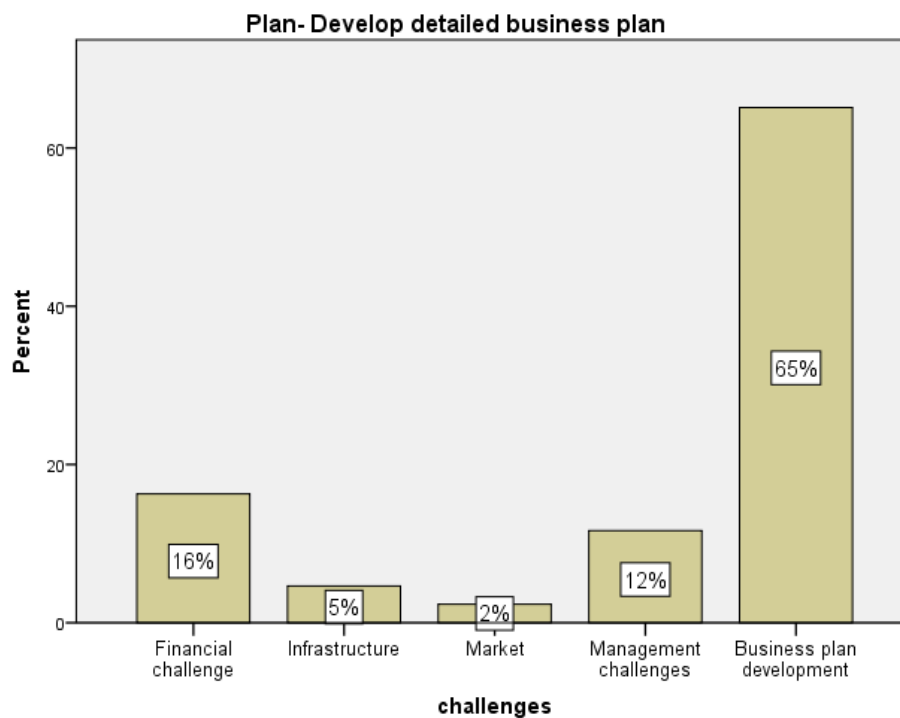


Figure 10: Business plan phase

In planning phase, the entrepreneur is expected to develop a detailed business plan. In Figure 10, it is shown that to develop a business plan is a major challenge as 65 percent of participants indicated that it is one of the obstacles hindering the development of a small business. The participants listed some of the difficulties they face in developing a business plan:

- It is a challenge to define exactly what the business proposal/value proportion is, and how much to pay for that by the client
- Difficult to compile a detailed winning business plan that includes the cost of the business
- Lack of entrepreneurial training to complete analysis of business needs and resources

4.4.2.3 Create: Set up the business

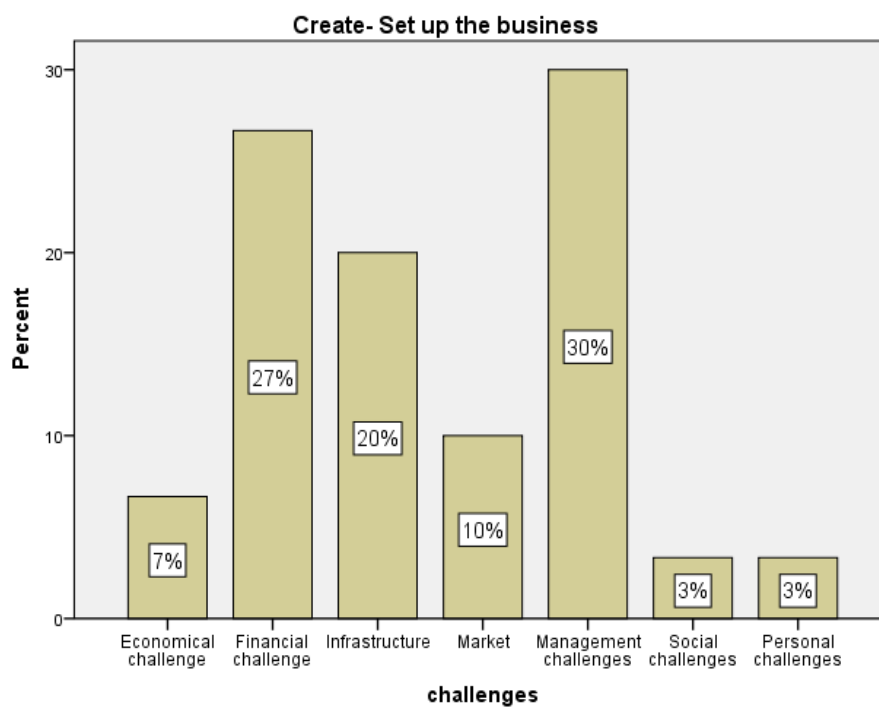


Figure 11: Create phase

In the create phase, entrepreneurs do a set-up of the business. The main challenges facing entrepreneurs in this phase are management, financial, infrastructure and market with response rate of 30 percent, 27 percent, 20 percent and 10 percent respectively, as shown in figure 11.

4.4.2.4 Prove: Test and refine business operation

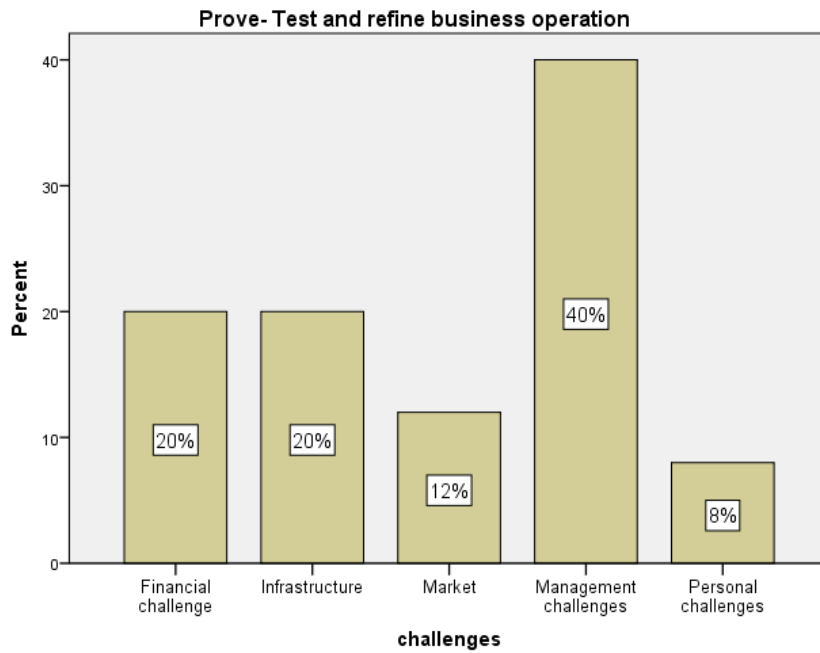


Figure 12: Prove phase

In Figure 12, the results show that 40 percent of participants experienced management challenges, financial and infrastructure have the same response rate of 20 percent, and lastly 12 percent of participants faced market-related challenges.

4.4.2.5 Operation: Full business operation, survival and growth

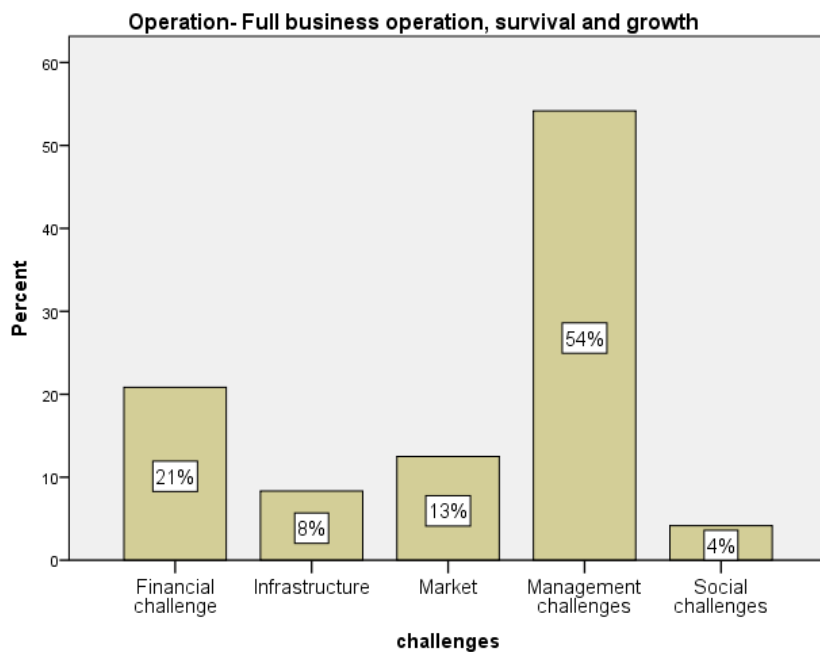


Figure 13: Operation phase

In Figure 13, management challenges took the lead by having a response rate of 54 percent, followed by financial challenges with 21 percent, market-related challenges with 13 percent, and infrastructure with 8 percent.

The above figures present the challenges per phase listed by entrepreneurs who participated in this study. These are suggested challenges an entrepreneur is expected to face in starting a business. The paragraph below summarises the challenges grouped as management, financial, infrastructure, market related, economic and social challenges. The results confirm the results from Bezuidenhout and Nenungwi (2012:11662-11664) and Van Scheers (2011:5054) that small business owners lack certain managerial skills (competencies) such as marketing, financial, and human skills to operate their business successfully.

Management challenges include, among others, the following:

- Failure to find a model that is not dependant on growth factors that are hard to fulfil (for example, very specific skilled people)
- Lack of business management skills and experience
- Lack of knowledge about the business industry they operate in
- Unrealistic targets set for businesses
- Not attending business workshops and training
- Incorrect implementation of business strategies.

The financial challenges mentioned by participants include the following:

- Not enough capital to start, set up and also to keep the business operating
- Rejection from financial institutions
- Lack of skills to generate profit
- Inadequate finances to employ skilled employees.

The challenges entrepreneurs face regarding the infrastructure are mentioned below:

- Difficult to gather the necessary resources to set up a business
- Difficult to find a suitable location for a business

- Difficult to secure buildings with proper services such as electricity, roads, telecommunication and security
- Difficult to recruit skilled employees
- Transport for employees and staff.

The market related challenges mentioned by participants are as follow:

- Difficult to find customers. The respondents mentioned that finding customers and finding funding money are both of equal importance
- Lack of opportunities in the market
- Not meeting the demands and needs of customers (*inter alia* loss of clientele)
- High competition
- Lack of marketing (advertising) resources and experience in marketing (advertising)

Other challenges faced by entrepreneurs in start-up phases came out as economic and social challenges. Economic challenges indicated by participants include interest rates and tax.

Social related challenges were listed as follows:

- Theft
- Crime and corruption
- Difficult to register businesses
- Lack of networking and communication skills

In general, Table 22 gives a summary of challenges an entrepreneur can be expected to face per start-up phase.

Table 22: Summary of challenges per start-up phase

Start-up phases	Main challenges
Idea- Develop business idea and determine need and feasibility	personal , financial, infrastructure, management, economic, market, business plan development
Plan- Develop detailed business plan	financial, infrastructure, management, market, business plan development
Create- Set up the business	personal, financial, infrastructure, management, economic, market, social
Prove- Test and refine business operation	personal, financial, infrastructure, management, market
Operation- Full business operation, survival and growth	financial, management, economic, market, social

4.5 RISK MANAGEMENT IN SMALL BUSINESS START-UPS

In trying to understand the use of risk management methods in small business start-ups, the researcher asked participants if they used formal risk management methods when they started any of their business. The results show that 65 percent did not apply risk management methods when they started their businesses and 35 percent applied them. The study revealed that the reason why 65 percent did not use risk management methods is because they were not aware of such methods, they found out about risk management methods while they were busy establishing their businesses.

The reasons for not being aware, as indicated by participants, were the unavailability of teaching on risk management methods, or ignorance of the existence of formal risk management methods. These results support the need for the risk-training tool, which this study is proposing. This result also supports the finding mentioned in Chapter 2 that risk management skills ranked number one among the skills business owners lack (Bezuidenhout & Nenungwi, 2012:11665).

The participants who used risk management methods explained that it was beneficial to use the risk management methods when they started their business as it provided them with an indication of possible negative impacts on the business and also helped in preparing for them. Thus, risk methods helped them to identify the possible risks and plan how to address them. The common risk method mentioned by participants was strength, weaknesses, opportunities and threats (SWOT) analysis.

The next part of risk management in small business start-ups was for participants to indicate if risk management was included in the job descriptions of key employees. Furthermore, the participants had to indicate which employees were included and if risk management was not included, why not. The result shows that only 37 percent included risk management in job descriptions of key employees, and 63 percent did not include risk management in job description of key employees. The main reason why the high number of entrepreneurs did not include risk management in job descriptions of employees is the employees (participants) were also the founders of their businesses. The second reason is that participants were not aware of risk management. Third, some of the participants could not use risk management as they had not yet commenced operations of the business, as they were still busy with the business idea development phase.

In the last part of the risk management-related questions, the participants were asked to rate how well they used the standard risk management actions like identifying risk, assessing the potential impact of these risks on start-up, planning risk response and monitoring and controlling risks. The rate of each action was on the scale of zero to five, where 0=not used at all, and 5=used optimally. The results are presented in Figure 14 per risk management action.

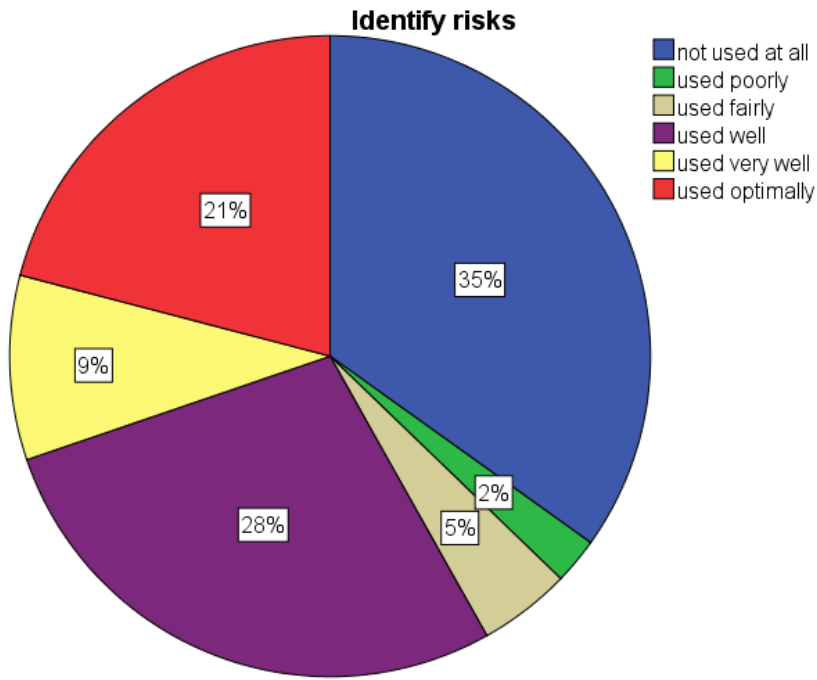


Figure 14: Identify risks

The results show that 35 percent of participants (entrepreneurs) did not identify the risks in their start-up businesses, and 28 percent and 21 percent used the action well or optimally, respectively.

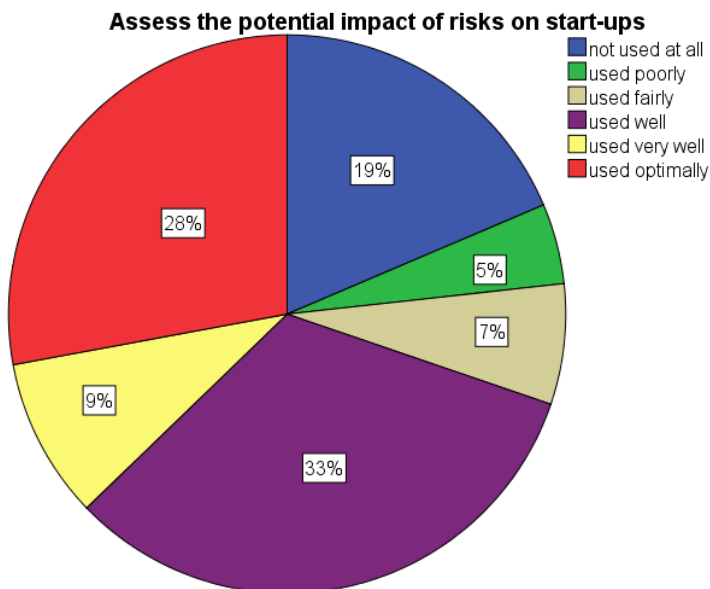


Figure 15: Assess the potential impact of risks on your start-up

The results indicate that 33 percent and 28 percent of participants used the action of assessing the potential impact of risk on start-ups well and very well, respectively, against 19 percent of those who did not assess.

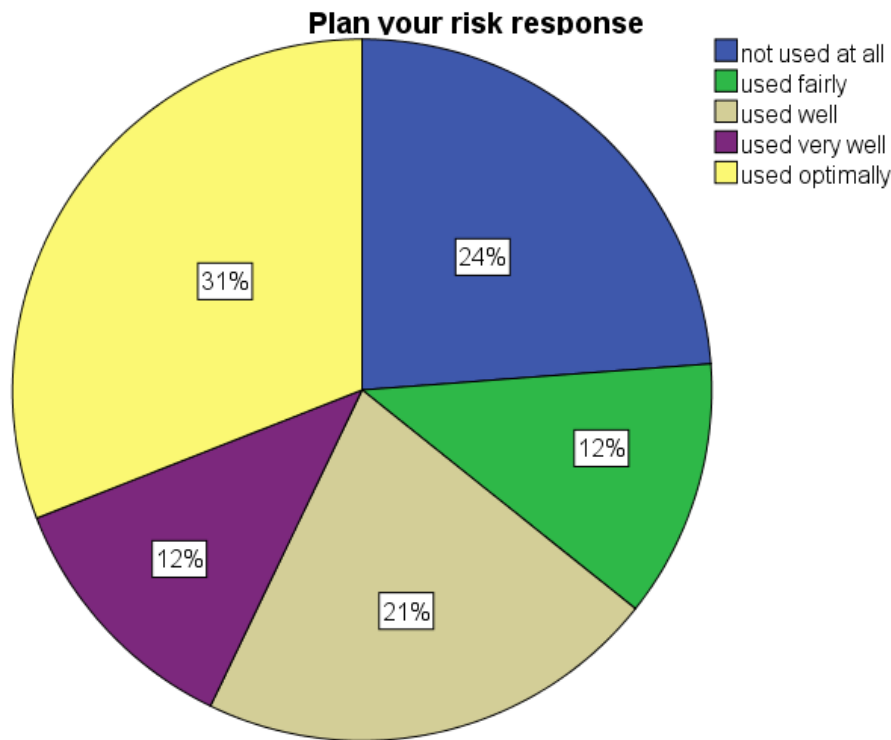


Figure 16: Plan your risk response

For planning your risk response action, 31 percent used the action optimally, 24 percent did not use the action at all, 21 percent used the action well, 11.90 percent used the action very well, and 12 percent used the action fairly.

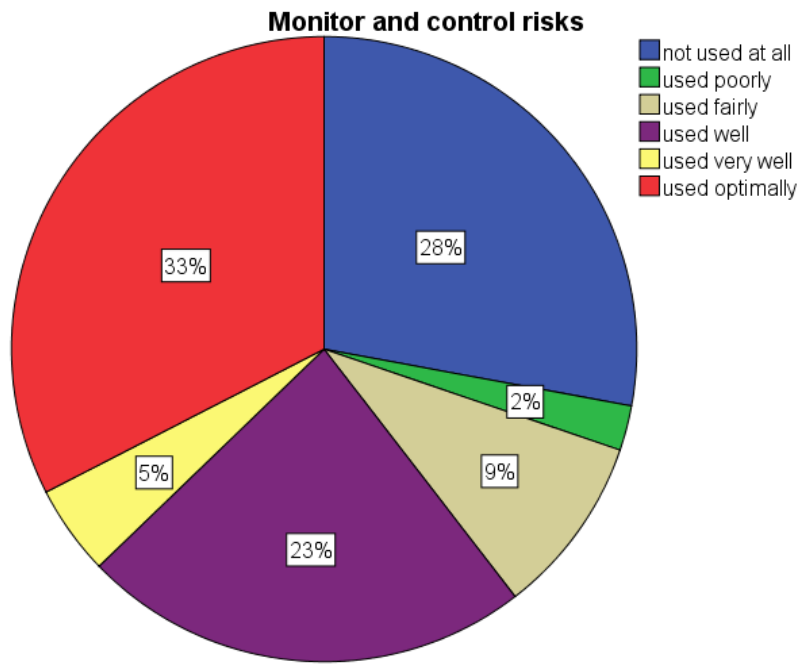


Figure 17: Monitor and control risks

The results shows that 33 percent of participants used monitor and control action optimally, 28 percent did not use the action at all, and 23 percent used it well.

The section of risk management in small businesses was concluded with asking participants to rate their understanding of risk management. The rating levels were excellent, good, average, poor and do not know. Figure 18 presents the outcomes of the rating.



Figure 18: Understanding of risk management

The results show that 39 percent have an average understanding of risk management, 22 percent have a good understanding, 17 percent a poor understanding, 11 percent do not know about risk management, and 11 percent believe that they have an excellent understanding of risk management.

It is important to note that these rankings were based purely on the respondent's own perception of their understanding and implementation of risk management principles in their own environments. Further work will be required to confirm whether their perceptions are valid. This may be an interesting future research project.

The research was concluded by asking participants what they would do differently in their next start-up business. The researcher captured and summarised the responses, and the following were presented as the findings:

- Include risk assessment during business planning phase and risk management actions throughout the business operation
- Do more research on the business idea and corresponding opportunities (market) and how it can meet the needs and demands of customers

- Establish networks and communicate with those who have succeeded in business
- Attend business training and workshops for skills development
- Employ skilled people to run the business
- Have an open mind to allow for new ideas
- Prepare not to rely on external funds to run the business, but work hard in the business to generate funds.

This chapter concludes the discussion of results by summarising the demographics of the entrepreneurs who participated in this study, as represented by the results of this study combined with the personal profile of entrepreneurs from the literature:

Table 23: Summary

Personal profile of entrepreneurs from literature study
Creative/innovative
Ambitious; motivated; determined; committed
Able to identify opportunities; Obsessed with opportunities
Take risks; Make decisions and solve problems
Tolerant of ambiguity and uncertainty
Need to achieve; Willing and able to persevere
Leaders; Team players
Self-reliant and able to adapt
Demographics of entrepreneurs from empirical study
Majority aged 40 and under
Mainly with high school and college education
From both rural and urban areas
Mainly completed introductory business training
Majority have businesses in agriculture and construction
They are faced with the following challenges: personal; business plan development; management; financial; infrastructure; market; economic; and social
The majority believe that they have an average understanding of risk management

These results were used to inform the suggested training tool discussed in Chapter 5.

CHAPTER 5: A PROPOSED RISK MITIGATION TRAINING TOOL

5.1 INTRODUCTION

Businesses do not operate in isolation, but in an environment where internal and external factors could affect the success or failure of the business. It is, therefore, important for small start-up business owners to be equipped with the necessary business and management skills and competencies so that they can successfully respond to the needs of their business. Bezuidenhout and Nenungwi (2012:11662-11664) found that small business owners/managers lack certain competencies required to ensure the success of their businesses. This chapter proposes a tool to teach entrepreneurs to identify and manage start-up risks per phase. The proposed teaching tool aims to address the last two research questions of this study, namely:

- How to mitigate the risk per business start-up phase.
- How best to teach entrepreneurs to identify and manage business start-up risk per phase?

In the next section, the researcher outlines the steps followed to propose the training (teaching) tool.

5.2 OUTLINE OF THE RESEARCH PROJECT

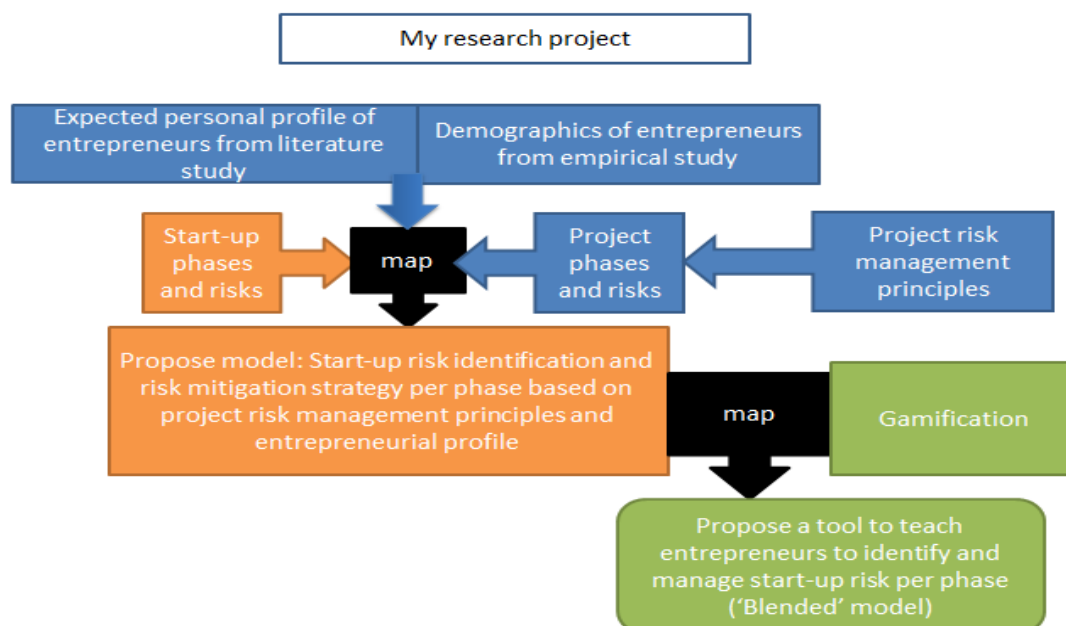


Figure 19: Research project

In Figure 19, the researcher outlined some of the main steps followed that lead to the proposal of a training tool. The researcher studied the literature to understand what makes an entrepreneur (personal characteristics of an entrepreneur). He further conducted a survey to gather more information about entrepreneurs. The results are presented as a summary in Chapter 4, Table 23. These personal characteristics of entrepreneurs from the literature, and the demographics of entrepreneurs from the empirical study, were merged. The resultant profile guided the researcher to propose a tool that will benefit and suit the profile of entrepreneurs under the study.

The next main step outlined in Figure 19 is the mapping of the start-up phases to project phases. In this step, the researcher viewed starting a business as a project. Viewing a start-up as a project is expected to allow the researcher to use the principles of project risk management to provide insights and possible solutions to the risks facing business start-ups. The expectation is that a greater understanding of the risks that start-ups face, mapped to suitable project risk management solutions, will allow start-up owners to optimise the probability of success and growth of their businesses. Table 24 presents the mapping of a start-up phase to project phases with main challenges per start-up from empirical survey.

Table 24: Start-up phases mapped to project phases

Start-up phases Peter Witt (2004)	Suggested project phases	Main Challenges from empirical survey
1. Idea Develop business idea and determine need and feasibility	1. Initiate project Conception; Determine need and feasibility	Personal challenges; financial, infrastructure; management; economic; market; business plan development
2. Plan Develop detailed business plan	2. Plan project Requirements analysis; Identify solution; Create project plan; Identify project risks and risk mitigation plan	Financial; infrastructure; management; market; business plan development
3. Create Set up the business	3. Execute project plan Obtain required resources; Create and/or implement product; Monitor and manage risks	Personal challenges; financial, infrastructure; management; economic; market; social
4. Prove Test and refine business operation	4. Test	Personal challenges; financial, infrastructure; management; market
5. Growth Full business operation, survival and growth	5. Hand over to operational users Project close-out	Financial; management; economic; market; social

The main challenges presented in Table 24 are explained in more detail in Chapter 4, Section 4.4.2.

5.3 PROPOSED TRAINING TOOL



Figure 20: Proposed training tool

Figure 20 shows an overview of the proposed training tool meant to teach entrepreneurs to identify and manage start-up risk per phase. The tool is proposed to be a blended model tool. Thus, the tool consists of the workshop part, whereby the facilitator is face-to-face with the trainee, and a post-training application-based support.

5.3.1 Workshop

The aim of the workshop is to teach skills related to start-up risks to entrepreneurs. Based on the outcomes of empirical survey it was discovered that entrepreneurs lack certain skills needed to operate their businesses successfully. The following skills were identified as lacking from participants who took part in this research: risk management skills, and skills that could mitigate risks inherent to start-up businesses such as entrepreneurial skills, people management skills, business management skills, and financial management skills.

The workshop will teach entrepreneurs to view start-up as a project. To view the start-up as a project will take a form of a facilitated interactive game. The concept gamification can be used for the training approach. The game will be probability based, with risk-mitigation options. Suggested elements of the game are computer based scenario driven, story line based, narrative, characters and plot, group and individual engagement, and competition.

Existing games should be investigated for relevance to the target population. An example of such a possible game is Entrepreneurship Simulation: The Startup Game, developed by the Wharton School of the University of Pennsylvania (Mollick, 2014). The subjects covered in the start-up game are business models, entrepreneurship, marketing, negotiation, sales, start-up valuation, and venture capital.

5.3.2 Post-training application-based support

The other part of the training tool is post-training application-based support. This mobile application should be designed in such a way that it will support users to do risk management after the workshop.

It is suggested that the application assists the entrepreneurs to perform industry-relevant risk identification and probability impact-based assessment of each risk. The application could alert the user with critical actions that need to be taken for each identified risk. Table 25 shows an example of what the application will assist players to do.

Table 25: How to assess risks

Risks	Likelihood	Impact on the development of the start-up)		
		Minor	Moderate	Major
1. Lack ability to identify the gap in the market	Possible			
2. Difficult to compile a detailed winning business plan that includes the cost of the business	Likely			
3. Not attending business workshops and training,	Unlikely			
4. Inadequate finances to employ skilled employees.	Possible			
5. Crime and corruption	Likely			

Risk treatment key

<p>Key risk Immediate action required</p>
<p>Major risk Risks must be reduced so far as is practical</p>
<p>Minor risks Monitor and further reduce where practical</p>

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The aim of this chapter is to summarise and integrate the results of this research project, make conclusions and recommend guidelines for entrepreneurs in the small business sector and other interested stakeholders. This chapter is divided into four sections. Section 6.1 introduces the chapter. Section 6.2 provides an overview of the main objective of the study. Section 6.3 discusses the results of the study. Section 6.4 highlights the recommendations for further studies.

6.2 OBJECTIVE OF THE STUDY

This study's main aim was to propose a risk management-training tool to assist business start-ups to mitigate their risks to allow for increased business start-up success rates. The aim of the proposed risk mitigation tool will be to provide training to allow small business owners to deal with challenges they face. The tool should assist with minimising the risk of failure and therefore assist with increased growth and survival of small businesses. In order to achieve this main objective, the study had to answer the following research questions:

- What are the typical risks per start-up phase for small business?
- How to mitigate the risk per business start-up phase?
- How best to teach entrepreneurs to identify and manage business start-up risk per phase?

The next section provides the results from the empirical study to answer the research questions.

6.3 RESULTS OF EMPIRICAL STUDY

6.3.1 What are the typical risks per start-up phase for small business?

The study revealed that start-up businesses face challenges specific to their developmental stages. That implies that the identified challenges can be translated to risks facing start-up businesses. The detailed discussion of these challenges is in Chapter 4, Section 4.4.2.

The next section discusses how these challenges (risks) can be managed.

6.3.2 How to mitigate the risk per business start-up phase?

To answer the above question, the researcher studied the developmental stages of start-up businesses and projects. The results show that there is an overlap between the way start-ups and projects develop. The results inspired the researcher to view a start-up as a project. Viewing a start-up as a project is expected to allow the researcher to use the principles of project risk management to provide insights and possible solutions to the risks facing business start-ups. The expectation was that a greater understanding of the risks that start-ups face, mapped to suitable project risk management solutions, would allow start-up owners to optimise the probability of success and growth of their businesses. The mapping of start-up phases to project phases is presented in Chapter 5, Section 5.2, Table 24.

From viewing a start-up as a project, the researcher proposed a tool to teach entrepreneurs to identify and manage business start-up risks per phase. The next section discusses the proposed training tool.

6.3.3 How best to teach entrepreneurs to identify and manage business start-up risk per phase?

To teach entrepreneurs to identify and manage business start-up risk per phase, this study proposed a training tool using a blended training model. The proposed tool consists of a facilitated workshop part, and post-training mobile application-based support. The aim of the workshop will be to teach skills related to start-up risks to entrepreneurs, teach entrepreneurs how to view a start-up as a project, and teach skills that prepare players to play the game and to use the post-training mobile application for risk management support.

The proposed mobile application can be used for risk identification, assessment, and alert the user with critical actions that need to be taken to manage the identified

risks. The workshop and application should be tailored to suit the needs of the target population.

The next section highlights some recommendations informed by the results of this study.

6.4 RECOMMENDATIONS FOR FURTHER STUDIES

Due to the potential scope of this research project, not all aspects of the research questions could be studied fully. Based on the results of the research project, the researcher proposes that the following be considered for further investigation:

- How beneficial it is to view a start-up business as a project for training and support of the entrepreneur in identifying and managing start-up risks?
- Should the proposed training tool be developed?
- For which target population(s)?

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APPENDIX A



FACULTY OF ECONOMIC
SCIENCES AND
INFORMATION
TECHNOLOGY

APPLYING PROJECT RISK MANAGEMENT PRINCIPLES TO MANAGE BUSINESS START-UP RISK - A PROPOSED TRAINING TOOL

Research conducted by:

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Student number: 23065176

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Tel: 016 910 3279

Dear Participant

You are invited to participate in an academic research study conducted by Piet Ntema, Masters Student at the School of Information Technology, University of North West (Vaal Triangle Campus). This study's main aim is to create a risk management training tool to assist business start-ups to mitigate their risks to allow for increased business start-up success rates. The aim of the proposed risk mitigation tool will be to provide training to allow small business owners to deal with challenges they face. The tool should assist with minimising the risk of failure and therefore assist with increased growth and survival of small businesses.

1. Please note that this study is an anonymous survey. Your name will not appear on the questionnaire and the answers you give will be treated as strictly confidential. You cannot be identified in person based on the answers you give.
2. Your participation in this study is voluntary and you may choose not to participate.
3. The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.
4. Please also feel free to contact me (details above) or my study leader, Prof. Hermien Zaaiman, hermien.zaaiman@nwu.ac.za, if you have any questions or comments regarding the study.
5. Please answer the questions as completely and honestly as possible. This should not take more than **10 minutes** of your time.
6. Please send the questionnaire back to me by **Due Date**.

Please indicate the relevant answer below: Use a cross (X) to mark all your answers.

I have read and understood the information provided above.

Yes	
No	

I consent to participate in this study on a voluntary basis.

Yes	
No	

For Office Use

<p>1. Respondent Number</p>	<p>V1 <input type="text"/></p>																
<p>PERSONAL IDENTIFICATION</p>																	
<p>2. Age of the participant (at present) [Place X on the appropriate answer]</p>	<p>V2 <input type="text"/></p>																
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< 20		20-30		31-40		41-50		>= 50									
<p>3. Gender of the participant [Place X on the appropriate answer]</p>	<p>V3 <input type="text"/></p>																
<table border="1"> <tr> <td>Male</td> <td></td> <td>Female</td> <td></td> </tr> </table>	Male		Female														
Male		Female															
<p>4. The ethnic group of the participant [place X on the appropriate answer]</p>	<p>V4 <input type="text"/></p>																
<table border="1"> <tr> <td>Black</td> <td></td> <td>White</td> <td></td> </tr> <tr> <td>Indian</td> <td></td> <td>Coloured</td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td>Specify:</td> <td></td> </tr> </table>	Black		White		Indian		Coloured		Other		Specify:						
Black		White															
Indian		Coloured															
Other		Specify:															
<p>5. Highest level of education of participant [Choose only one answer]</p>	<p>V5 <input type="text"/></p>																
<table border="1"> <tr> <td>No formal education</td> <td></td> <td>Primary school education</td> <td></td> </tr> <tr> <td>High school education</td> <td></td> <td>College education</td> <td></td> </tr> <tr> <td>University Bachelor Degree</td> <td></td> <td>University Post Graduate Degree</td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td>Specify:</td> <td></td> </tr> </table>	No formal education		Primary school education		High school education		College education		University Bachelor Degree		University Post Graduate Degree		Other		Specify:		
No formal education		Primary school education															
High school education		College education															
University Bachelor Degree		University Post Graduate Degree															
Other		Specify:															
<p>BUSINESS IDENTIFICATION</p>																	
<p>6. Complete the tables below per business status</p>	<p>V6 <input type="text"/></p>																

Number of start-ups operational	Number sold businesses	Number of closed/dormant businesses
	Total number of businesses	

V7

V8

V9

7. For the number of businesses provided above, please indicate the sector for each by writing down the number for the sector. (key: 1=Agriculture; 2=Construction; 3=Education and training; 4=Finance; 5=Information technology; 6= Manufacturing; 7=Transport; 8=Trade; 9=Travel and Tourism; 10=Other)

V10

V11

V12

V13

V14

V15

Business number	Sector
1	
2	
3	
4	
5	

8. Have you completed any small business training? [Mark the appropriate choice with X]

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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V16

9. If yes, what was the nature of such training? [Mark the appropriate choice with X]

Introductory business training-awareness	<input type="checkbox"/>	Advanced business training	<input type="checkbox"/>
Formal business training that led to a qualification	<input type="checkbox"/>	Other	<input type="checkbox"/>
Specify:			

UNDERSTANDING THE CHALLENGES YOU FACED IN STARTING UP YOUR BUSINESS

10. How would you define success for your start-up business? I.e. How would you know that your business start-up phase is over and the business is now fully operational? [Explain in full]

V17

11. In your opinion, what are the main challenges a business start-up will experience per start-up phase? Answer this question by listing the challenges per start-up phase using these factors as guideline:

Start-up Phases	Main Challenges
<i>Example: Start-up phase X</i>	<i>Lack of experience, inability to access finance; unsuitable business location, etc.</i>
Idea	
Plan	
Create	
Prove	
Operation	

V18

V19

V20

V21

V22

RISK MANAGEMENT IN YOUR BUSINESS

12. Did you use a formal risk management method when you started any of your businesses?

Yes		No	
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V23

13. Please explain your answer to the above, e.g. name/brief description of formal strategy used or why a formal risk management strategy was not used.

V24

14. Is/was risk management included in the job descriptions of key employees?

Yes		No	
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V25

15. Please explain/elaborate on your answer, e.g. which employees or why not included

V26

16. Please rate how well you used the following standard risk management actions in your most recent start-up.

Rate **each** action on scale of 0 to 5 (0='not used at all' and 5='used optimally').

Standard Risk Management Actions	Rating
Identify risk (determining which risks or potential challenges may affect your start-up business)	
Assess the potential impact of these risks on your start-up (analysing the effect of identified risks or potential challenges on overall start-up objectives)	
Plan your risk response (developing options and actions to enhance opportunities and reduce threats to start-up)	
Monitor and control risks (tracking identified risks, identifying new risks, and evaluating risk process effectiveness)	

V27

V28

V29

V30

V31

17. How would you rate your understanding of risk management?

Excellent	<input type="checkbox"/>	Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Do not know	<input type="checkbox"/>
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18. What will you do differently in your next start-up business?

V32

-----The End-----

I thank you for your participation and contribution.