A Feasibility Study Framework

for E-Business Start-ups: A case study on Sxuirrel®

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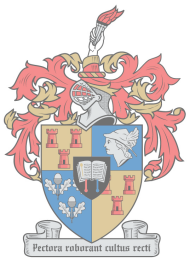

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Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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Executive summary

E-businesses that use technology to infiltrate the biggest rising market today, the Millenials, have become more and more popular over the past few years. This market however is very unpredictable and seems easy to infiltrate, but this is not at all the case. Due to lack of knowledge everybody is looking to becoming entrepreneurs by attacking the e-business market. The large number of e-business failures, that occur every year, are a good example of the rise in e-business start-ups over the last few years. This creates an opportunity for a tool that can help determine the potential of an e-business start-up before the start-up has started, while simultaneously helps defining the market and idea of the e-business start-up.

The objective of this study was to develop a process that could help e-business start-ups to determine if it is worth taking on the challenge of continuing with the start-up. By answering the question of feasibility, start-ups could determine if it worth taking the risk. In this context, the question of feasibility can be answered by the following components: Return on investment of the start-up, the market potential, the acquisition cost and the e-business customer life cycle.

The research endeavour investigated the main factors of feasibility, namely market feasibility and financial feasibility. Each main factor was divided into sub-factors that were also investigated. These main and sub-factors are the core of the feasibility study framework. After the framework was set up a validation process confirmed that the feasibility study framework has achieved its goal and can help e-business start-ups, to determine the potential feasibility of the e-business start-up. This resulted in e-business start-up founders as well as incubator liaison seeing the potential of an e-business start-up before the start-up was out of the idea phase.

The feasibility study framework for an e-business start-up is an important stepping stone towards developing a better understanding of the e-business start-up itself, the e-business start-up world and in what direction the start-up needs to go in order to reach maximum potential.

Opsomming

E-besighede wat gebruik maak van tegnologie om die grootste toenemende mark vandag, naamlik die Millennials, te infiltreer, het die afgelope paar jaar al hoe meer gewild geword. Hierdie mark is egter baie onvoorspelbaar en lyk maklik om te infiltreer, maar dit is glad nie die geval nie. Weens 'n gebrek aan kennis wil al hoe meer mense entrepreneurs word en word die e-besigheid mark stormgeloop. Die groot aantal e-besighede wat elke jaar misluk, dui op die styging in e-besigheid start-up getalle die afgelope paar jaar. Dit skep 'n geleentheid vir die ontwikkeling van 'n hulpmiddel wat gebruik kan word om die potensiaal van 'n e-besigheid start-up te bepaal voordat die start-up nog begin en wat terselfdertyd kan help om die mark en idee van die start-up deegliker te definieer.

Die doel van hierdie studie was om 'n proses te ontwikkel wat e-besigheid start-ups kan help om vas te stel of dit die moeite werd is om voort te gaan met die aanvang van die start-up. Deur die vraag van lewensvatbaarheid te beantwoord, kan start-ups bepaal of die risiko die moeite werd is om te neem. In hierdie konteks kan die vraag van lewensvatbaarheid beantwoord word deur middel van die volgende komponente: opbrengs op die belegging, die markpotensiaal, die verkrygingskoste en die e-besigheid lewensiklus van die kliënt.

Die navorsingspoging het die hooffaktore van lewensvatbaarheid ondersoek, naamlik markvatbaarheid en finansiële vatbaarheid. Elke hooffaktor is onderverdeel in sub-faktore wat ook ondersoek is. Hierdie hoof- en sub-faktore vorm die kern van die lewensvatbaarheid raamwerk. Nadat die raamwerk opgestel is, het 'n bekragtigingsproses bevestig dat die lewensvatbaarheid raamwerk die doelwit bereik het en die e-besigheid start-up kan help om die potensiële lewensvatbaarheid daarvan te bepaal. Dit het daartoe gelei dat stigters van e-besigheid start-ups sowel as incubator skakelpersoneel die potensiaal van 'n e-besigheid start-up kan insien nog voordat dit uit die ideefase is.

Die lewensvatbaarheid raamwerk vir 'n e-besigheid start-up is 'n belangrike stap in die rigting van 'n beter begrip van die e-besigheid start-up self, die e-besigheid start-up wêreld en in watter rigting die start-up moet beweeg om maksimum potensiaal te bereik.

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1 INTRODUCTION

This chapter provides the structure for the research by introducing the background and rationale for the research. This is further elaborated on in a problem statement which is condensed into a research question. The research methodology, scope and document outline provide the roadmap for the reader.

1.1 Background

The creation of the internet and the network economy was one of the most influential milestones of the previous century. This created a technological revelation that benefitted not only large enterprises and national economies, but also small first-time entrepreneurs and individual consumers. All these new technologies that came with the internet created a new environment for businesses to work in, called the e-environment. This was made possible by the fact that the internet adds value to almost every aspect of modern day life and provides a whole new range of opportunities for wealth creation and innovative businesses (Manyika and Roxburgh, 2011). The e-environment expanded rapidly due to the opportunities it created on both novelty and scale (Porter, 2001).

The user base of the e-environments consists mostly of millennials[1]. Millennials are generally considered to be the “now” generation because of their fast-paced, technology-enabled lifestyle and how they demand products instantaneously. Globally, millennials spend an average of six hours online every day with the longest times spent in North America and Latin America in particular, followed by Asia (Main, 2013).

[1] Millennials refer to the generation of people born between the 1980s and the 2000s (Main, 2013).

Introduction

The "sharing economy[2]" is one of the most unique entry points that define millennials. Social media, in particular, has become the key platform that connects and allows millennials to quickly share their lives with each other. This amount of online activity has created a new environment of market opportunities that can be exploited directly by new e-businesses. E-businesses that use technology to infiltrate the biggest rising market for new technology today, the millennials, have become more and more popular over the past few years (Sacks, 2011; Main, 2013).

This millennial market, however, is very dissectible and seems easy to infiltrate, but this is not at all the case. There is a common misperception about how easily and quick it is to start an e-business start-up and get rich quick (Batish, 2014; La Duke, 2016). This lack of knowledge encourages a lot of people to attack the e-business market and try to become entrepreneurs. The large number of e-business failures, that occur every year, are a good example of the rise in e-business start-ups over the last few years. Also, showing that it is very difficult to start a successful e-business. Between 30 and 80 percent of e-business start-ups fail within the first five years of operation (Ungerer, 2015). This is due to multiple reasons, but one of the reasons have been shown to be poor evaluation of the idea early on. In some cases, the idea is good, but might not always be profitable or bankable. By evaluating the idea better, the start-up can reduce failure rate with thorough research and customer feedback.

When still in the idea phase, it is difficult to measure the success of a start-up. Without the reassurance of possible success, some entrepreneurs will not even take on the process of starting a start-up.

The motivation of the study is to find a way to help founders be more confidence to start their start-up and help other stakeholders to believe in the idea from an early stage. Creating a framework that enables the user to determine the potential feasibility of an e-business start-up can be essential in the success of any new e-business start-up. However, the results of a feasibility study do not determine the success of a start-up, it only highlight the potential that the start-up might have.

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[2] The sharing economy is an economy where individuals can borrow or rent the assets owned by someone else. (*Sharing Economy Definition | Investopedia*, 2017)

A feasibility study is a research tool that is used very often, but unfortunately, general standards, requirements, or guides on feasibility study design are missing (Palvia & Palvia, 1988; Claase, 2012). The lack of a clear design or any structure makes it very difficult to determine what a feasibility study must contain especially for early stage start-ups when so much is still unknown. Another reason is that so little info about the market, business, etc. is available and the entrepreneurs are inclined to move on, but this should not be the case. Entrepreneurs should force themselves to find creative ways to answer all the questions of feasibility. The However, the aim of a feasibility study should always remain the same, which is to "determine the possible future success or failure of prospective endeavours" (Claase, 2012). To understand this definition an endeavour can be defined as any future project or organisation that is studied for its prospective feasibility (Palvia & Palvia, 1988; Brockman, 2008; Bowen *et al.*, 2009; Claase, 2012).

1.2 Problem statement

Between 30 and 80 percent of e-business start-ups fail within the first five years of operation (Ungerer, 2015). This is due to multiple reasons, but one of the reasons have been shown to be poor evaluation of the idea early on. In some cases, the idea is good, but might not always be profitable or bankable.

It is difficult to measure the success of a start-up when it is still in the idea phase. This can be a problem for the founders of the start-up as well as for other interested parties, like possible investors or start-up incubators. Without the reassurance of possible success, some entrepreneurs will not even take on the process of starting a start-up.

A feasibility study can be a solution to solve this problem, but the lack of proper guidelines to show what a feasibility study should entail as well as how to conduct a proper feasibility study does not make it a viable solution. Literature focusses on a lot of research on feasibility studies, but without any clear model that works and stands out from the rest.

The lack of feasibility study guidelines and the high failure rate of e-business start-ups create an opportunity for a feasibility study framework for e-business start-ups.

1.3 Research objective

The research objective of this study was to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective, a main research question must be answered and by answering the sub-research questions, it contributes to find the answer to the main research question. The research question and sub-research questions are as follows:

Main question:

> ***How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?***

The sub-research questions are stated and explained in below.

i. What is an e-business?
   a. What is the difference between an e-business and a normal business?
   b. What are the most important metrics for an e-business?
   c. How has e-business changed the normal way of doing business?
ii. What is a start-up?
   a. What makes a start-up different from a normal business?
   b. Who starts a start-up?
   c. How does a start-up grow?
iii. What is an e-business start-up?
   a. What is the difference between a start-up and an e-business?
   b. How difficult is it to start a successful e-business start-up?
iv. What is a feasibility study?
   a. What does a feasibility study entail?
   b. What is the difference between a feasibility study, a pilot study and a business model?
v. What components determine the feasibility of an e-business start-up?
vi. How will the literature of the research study be extracted to create a framework?
vii. How can the requirements be meaningfully combined into a framework?
viii. Is the framework addressing the requirements as set out by the research domains?

ix. Will the framework deliver on providing a way of determining the potential feasibility of an e-business start-up?

1.4 Research methodology

This section describes and explains the research design used as well as the research domains investigated. The difference between a model and a framework as well as the reason why this research mad use of a framework instead of a model are discussed. The research design map was developed as proposed by Mouton (2011). This provides a detailed description of the research design as well as the types of research that were conducted. Together with the research design, the research domains that were investigated are discussed and indicated in Figure 4. The research domains show what the basis literature is discussed as well as how these domains are connected.

1.4.1 Research design

Mouton (2011) directs the different types of research design into two different directions, *empirical* and *non-empirical* studies (Figure 1). This classification of the research design can narrow and guide the research into the right direction.

Empirical studies can be further broken down into the use of primary data versus analysing existing data. When analysing existing data, the nature of the data can be textual or numerical. This research study is a non-empirical study that focussed on theory building through a literature review.

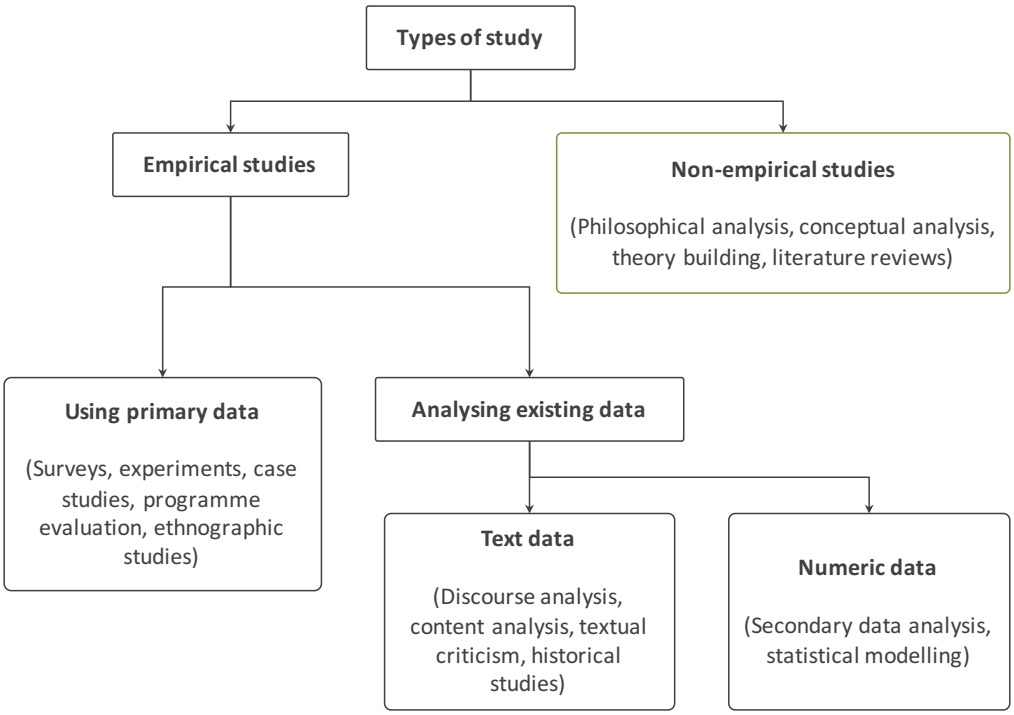

Figure 1 - Research design classification adapted from Mouton (2011)

When looking at the at the first two dimensions of the research design classification in Figure 1, the map in Figure 2 can be drawn. The research study was investigative and made use of inductive reasoning to expand and refine existing theories. This means that the study falls into the theory and model building category that is defined and explained by Mouton (2011). Figure 2 illustrates where this research study is when looking at the first two dimensions of research design.

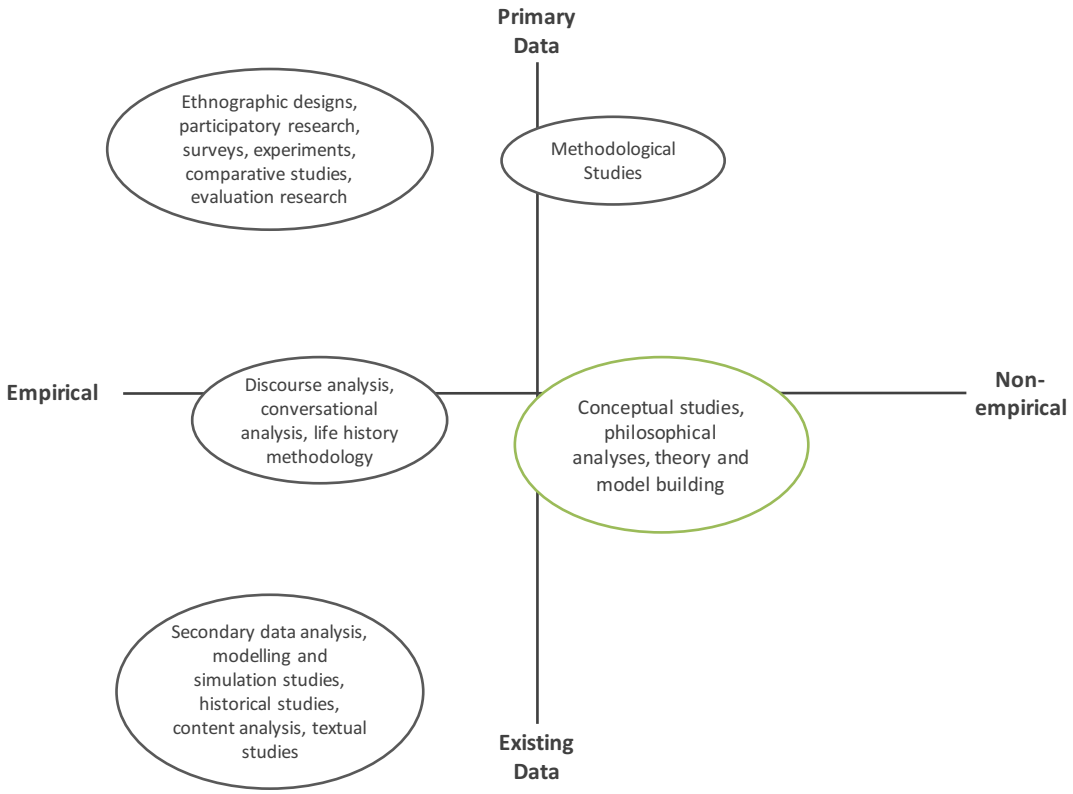

Figure 2 - Mapping design adapted from Mouton, (2011)

The research study used two types of data, both textual and numerical. This hybrid data collection approach can be explained by three different types of data collection. Firstly, the existing non-empirical data was obtained by a literature review and secondly the primary data was collected in the validation chapter of the research through semi-structured interviews.

The third type of data collection study is a second type of validation, an illustrative case study. Rationally, the two types of validation methods will work very well together, because the illustrative case study tests the practicality of the framework and the interviews tests the theory behind the framework. The feedback from the semi-structured interviews can help provide reasoning for the results obtained from the illustrative case study that also tests the implementation of the framework.

The problem that the research aims to solve is too complex to approach as is which makes it necessary to look at the problem from a system engineering perspective. The problem needs to be broken down into smaller sub-problems systematically. The smaller problems must not lose context when broken down. By having a better understanding of the smaller problems, will provide greater

contextual knowledge of the bigger problem. Now, the smaller sub-problems can be solved by smaller sub-solutions. These sub-solutions can be used to solve the initial problem.

The methodology of creating this framework followed a system engineering approach. This approach started with an in-depth literature study that was conducted to identify a set of framework requirements that needed to be satisfied by the framework. The framework then needed to be validated to complete the systems engineering approach.

As seen in Figure 3 the system engineering approach has five steps; 1) an in-depth literature review, 2) a requirement analysis from literature, 3) creating the framework from the requirements, 4) the verification and validation process of the framework, and 5) refining and evolving the framework from the validation process or new components that can affect the framework.

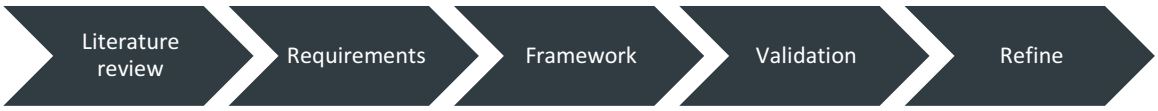

Figure 3 - Systematic engineering approach

1.4.2 Research domains

As seen in Figure 4, there are three main research domains, e-businesses, start-ups and feasibility studies. The first research domain, e-businesses, was the chosen as the first domain, because it narrows down the research and defines the context in which the next two domains must be looked at. The next domain, start-ups, is a very open domain and needs to be more focussed by looking more specifically at e-business start-ups. The final domain, feasibility, is a very difficult domain to specify. This could be because of the different types of feasibility. This domain only focusses on the feasibility of e-business start-ups.

Figure 4 illustrates the research domains as well as how they overlap. The overlapping areas indicate the integrated areas of the domains.

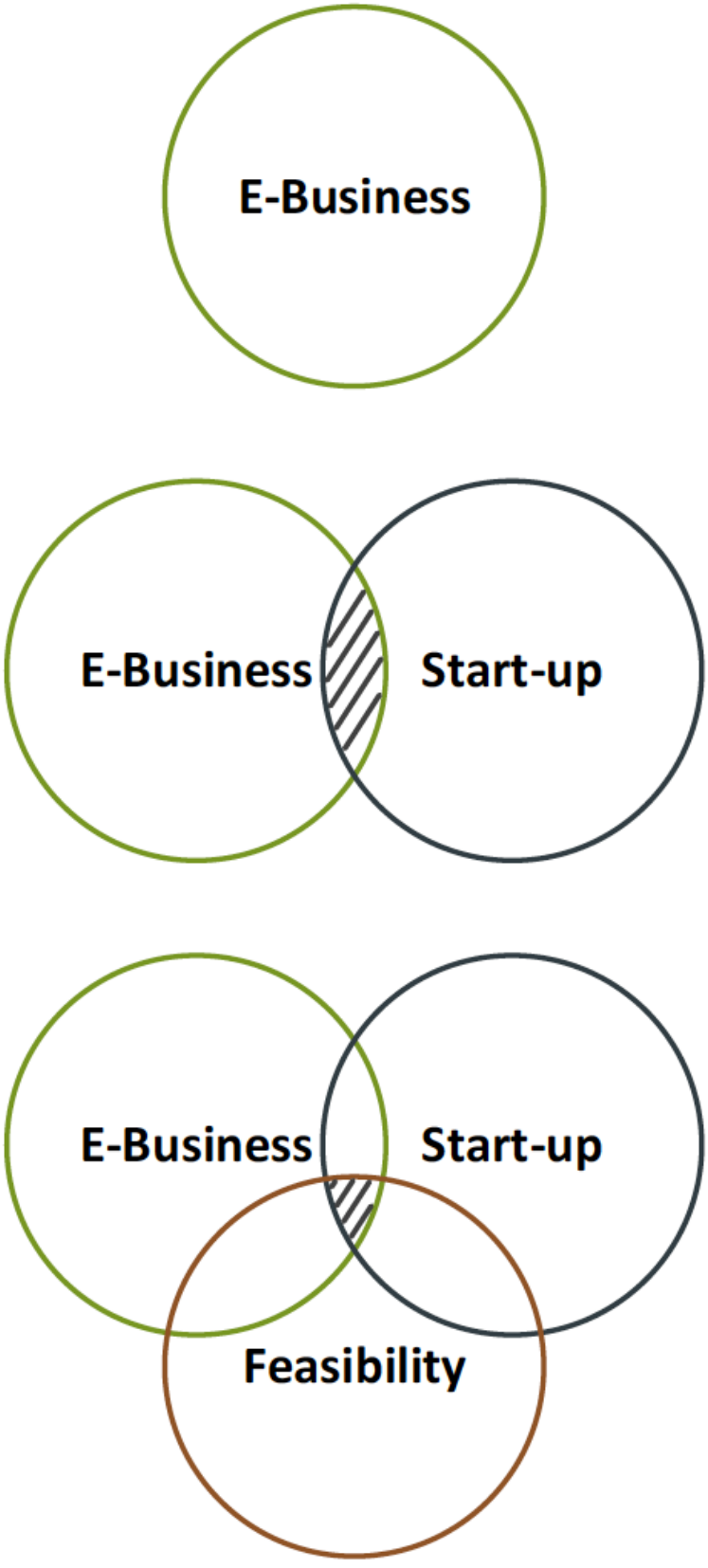

Figure 4 - Research domains

1.4.3 Model versus framework

A model approach and a framework approach are not completely different from each other, but there are some important differences that can have a big effect on a research study. The main difference between a model and a framework, is the fact that a model only has a limited number of variables. This restricts models to only use theories that can be modelled, whereas a framework can use parameters that are not fixed and can constantly change (Porter, 2001).

For this research study a framework was better suited than a model, given the definition of Porter (1991). This was because of the diversity of the research question and sub-questions as well as the fact that the parameters for the study were not fixed.

1.5 Scope and limitations

This section helps to define exactly what this thesis is and what it is trying to achieve. This section also defines what this thesis is not and what the limitations pertaining the approach used are. A precisely defined scope is required for theoretical models, as vague delineations lead too misplaced expectations and ineffective models that make implausible claims on reality (Mouton, 2011).

To reiterate, the study's goal was to assist e-business start-up with formulating a feasibility study and helping these start-ups determine potential feasibility. The intent was to assist e-business start-ups by providing a framework for setting up a feasibility study before entering the competitive environment without any knowledge of chances that the start-up has of succeeding. This can be beneficial for the founders of the e-business start-up as well as beneficial for other stakeholders, like potential investors or start-up incubators.

The feasibility study framework focussed on e-business start-ups and not on all start-ups. The start-up environment is a very broad topic to cover and by focussing on e-business start-ups the framework is more in-depth.

The limitations of this study were as follows:

- It only focussed on e-business start-ups based in South Africa.
- The framework was not implemented in a wide variety of industries.
- Time prevented a longer and more thorough validation process. The framework can be implemented, but the time constraints limited the validation to a short period.

1.6 Document outline

Figure 5 illustrates the outline of the study as well as the sub-research question that each chapter answers. This chapter provides an overview of the research area as well as the problem statement and the research objective. The research attributes such as the research methodology, limitations, scope and an outline of the document have also been expressed.

Chapter 2 focusses on the literature behind all the sections of this research, namely e-business environment, start-ups, e-business start-ups and feasibility studies.

Chapter 3 investigates the components of a feasibility study that influence e-business start-ups and the importance of each component. Chapter 3 also integrates all three research domains to find the components that will determine the feasibility of e-business start-ups. Chapter 2 and 3 provide the literature that is required to create the frameworks requirements in Chapter 4. The framework requirements are the building blocks used to illustrate how the framework was created (Chapter 5). An illustrative case study example to help explain how the framework is used is also provided in Chapter 5. This forms part of the validation process.

Chapter 6 consists of the verification process as well as the validation process. The verification process will check if the framework fulfilled all the requirements and the validation process by summarising the round of interviews. The final chapter of the study consists of a conclusion and recommendations regarding the research.

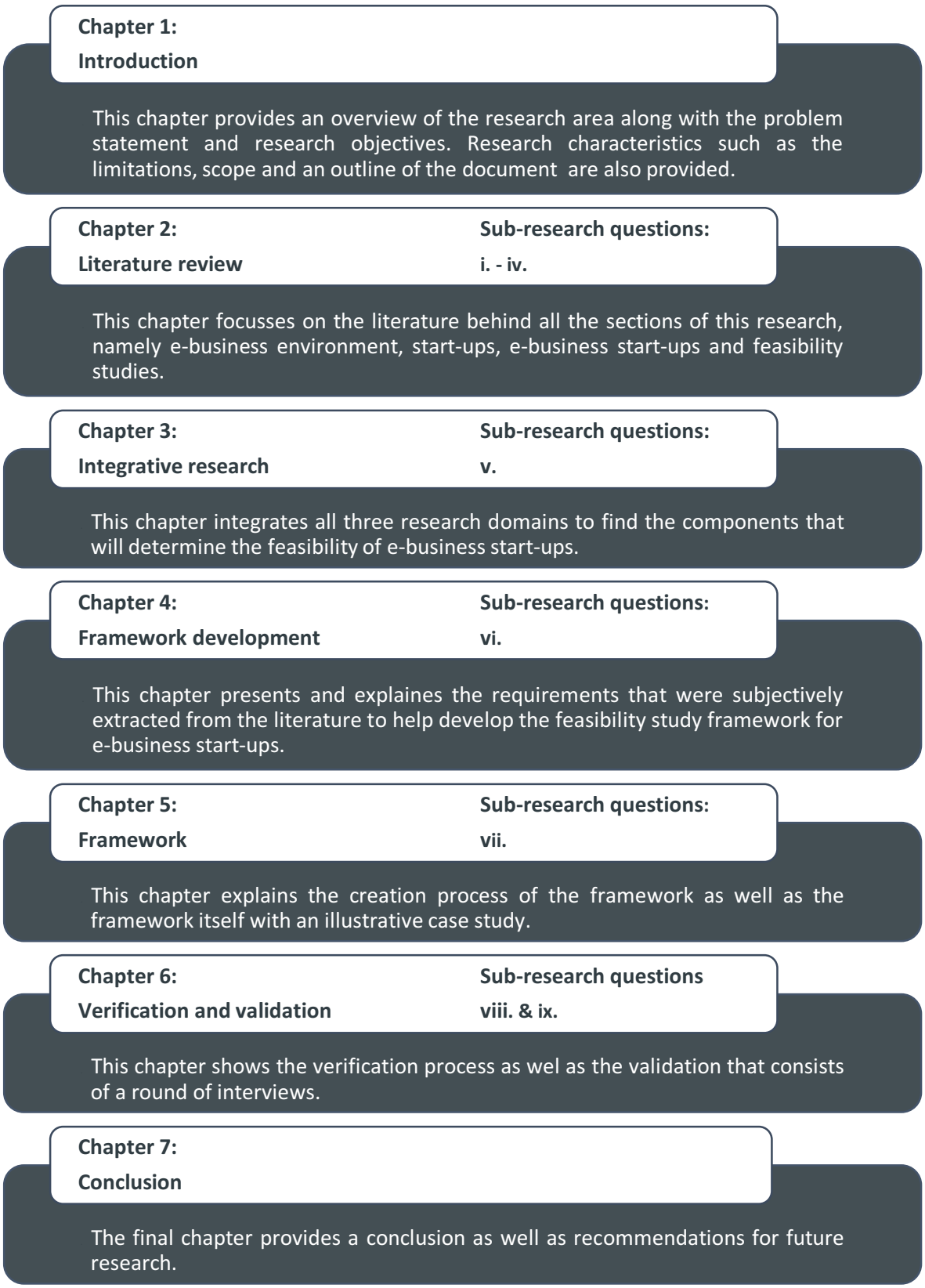

Figure 5 - Chapter layout and sub-research question allocation

1.7 Conclusion to Chapter 1

In conclusion, this chapter explained the problem as well as how this research study aimed to solve the problem, by dividing the research question into sub-research questions and answering the sub-research questions that will help answer the main research question. Also, included in this chapter is the scope and limitations of the research study. The next chapter provides a literature review for the study.

2 LITERATURE REVIEW

This chapter introduces the main research fields, namely e-business, start-ups, e-business start-ups and feasibility study. The core content of each of these research fields are discussed as well as the importance of each research field in terms of the framework. Figure 6 summarises the chapter layout and mentions the sub-research, as seen in Section 1.3 that is addressed in this chapter.

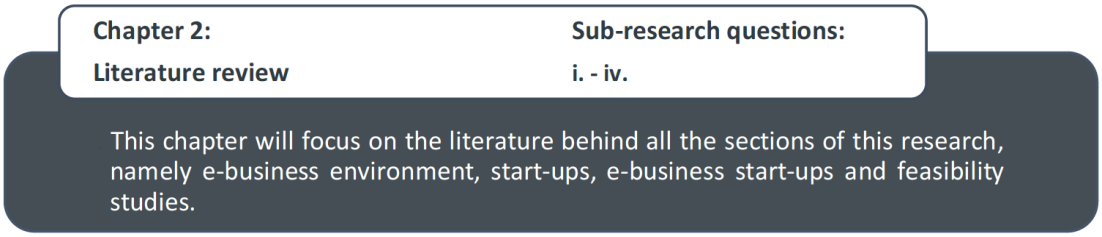

Figure 6 - Chapter 2 layout adapted from Figure 5

2.1 E-business

Section 1.4.2 describes the research method with the focus on certain domains. This section focusses on the e-business domain by giving a broad over view of e-businesses as well as by providing the requirements needed to create the framework from this section.

Figure 7 - First step from Figure 4 in the literature development process

"E-businesses", "electronic businesses", "online businesses" or "dot-coms" are all terms that can be defined as businesses that compete mostly or completely online, rely entirely on the internet for the success of the business, and conduct business online or electronically (Nelson, 2005). E-business can be easily confused with the term "e-commerce". The term "e-commerce" simply means to conduct business transactions electronically on the internet, whereas e-business is more than just buying, selling and transferring products, services and information on the internet. E-commerce can be seen as one of e-business' many facets (Gordijn & Akkermans, 2003).

E-businesses can be divided in two main groups, namely "pure play e-businesses" and "hybrid e-businesses" (Ungerer, 2015). In simple terms, pure play e-businesses can be described as more digitally oriented and offer digital products and services. Even if pure play e-businesses sell physical products, the main part of all their interactions are still digital. Examples of pure play e-businesses include Netflix, Facebook, Twitter, Google, YouTube, etc. (Ungerer, 2015).

Hybrid e-businesses sell the physical products that they own through commerce interface platform. This means that they make use of warehouses and they use physical order fulfilment. There can be some confusion between hybrid e-businesses and normal "brick-and-mortar" businesses (Ungerer, 2015). This can easily be solved by understanding the following: The new technology enabled brick-and-mortar businesses can function without the internet by using their physical channels, excluding them from hybrid e-businesses. Examples of hybrid e-businesses include Amazon, Geekfuel etc. (Ungerer, 2015).

2.1.1 E-business environment

The creation of the internet and the network economy was one of the most influential milestones of the previous century. Creating a technological revelation that benefitted not only large enterprises and national economies, but also small start-up entrepreneurs and individual consumers. This was made possible by the fact that the internet simplifies almost every aspect of modern day life and provides a whole new range of new opportunities for wealth creation and innovative businesses (Manyika & Roxburgh, 2011; Ungerer, 2015). The e-environment expanded rapidly due to the opportunities it created on both novelty and scale (Porter, 2001).

For consumers the internet had three major benefits; (1) real time access to unparalleled amounts of pertinent information, (2) it has given the consumer an whole new range of new digital

capabilities, and (3) it also changed the accessibility to communicate, share, collaborate, socialise and interact with other consumers (Ungerer, 2015).

These three benefits can be explained in more detail. By allowing the consumer to access the right kind of information the consumer has access to information that directly effects their needs. It can very clearly be seen in one major area, namely the increase in price transparency. This drives online prices down drastically due to the competition between rivals and making it possible for online prices to be on average 10 percent lower than offline competition (Manyika & Roxburgh, 2011).

The second benefit allows consumers to do almost anything on the internet, to make their life as convenient and as easy on possible. The opportunities are endless and can be seen in areas like, doing your banking on the internet, making online reservations from flights to accommodation to movie tickets and ordering product to be delivered immediately (Manyika & Roxburgh, 2011).

Lastly, the ability to communicate, share, collaborate, socialise and interact with other consumers provides endless opportunities for the consumer. This ability to share information makes it possible for people to use the internet to get public information; gain knowledge and even to seek personal connection (Manyika & Roxburgh, 2011).

The internet does not only benefit the consumer, it also provides an organisation the opportunity to be more flexible, efficient and multifaceted. On top of this, the internet also allows an organisation to connect with customers on a deeper level. The change that the internet has brought to organisations, even resulted in changing the structures of organisations. This resulted in organisational silos to break down and combine to help solve problems more effectively. This is made possible through social networks that link employees, customers and stakeholders (Du Rausas *et al.*, 2011). One of the more common phenomena that is becoming more and more popular is known as open innovations (Manyika & Roxburgh, 2011). Chesbrough et al, (2006) explains open innovation as “the practice of employing communities of internet participants to develop, market and support products and services”.

There are other phenomena that are changing the environment for e-businesses apart from open innovation. These phenomena include big data analysis and cloud computing. Big data can be referred to as collecting and analysing very large amounts of data in order to improve or even to automate decision making (Bughin et al., 2010). With these characteristics, big data has massive potential not only in the private sector, but also in areas like healthcare, education and government

operations. Cloud computing refers to accessing computer resources provided through networks like the Internet, rather than running software or storing data on a local computer (Bughin et al., 2010). The significant cost and accessibility benefits that cloud computing holds, are extremely beneficial for e-business start-ups. By moving a business or consumer's data storage and computing capabilities online or to "the cloud", it is no longer necessary to purchase servers, software and other IT infrastructure. The necessary functions or applications can simply be acquired online (Manyika & Roxburgh, 2011; Chesbrough & Brunswicker, 2013; Ungerer, 2015).

The aforementioned benefits that the internet provide have created a massive rise in internet technology adoption. There are about two billion people connected to the internet globally (Manyika & Roxburgh, 2011) and the size of the Internet economy in 2010 in the 20 major economies of the world (also known as the G-20 economies) alone was almost $2.3 trillion (Dean *et al.*, 2012). On average, this accounted for 4.1 percent of their GDP (Gross Domestic Product) (Manyika & Roxburgh, 2011; Dean *et al.*, 2012; Ungerer, 2015) . The internet has accounted for ten and twenty one percent GDP growth in the G-20 economies over the last 15 and 5 years respectively (Dean *et al.*, 2012). The internet economy is expected to increase rapidly with the increased access to the internet via smart phones and mobile devices (Dean *et al.*, 2012).

These facts show the massive size and the rapid growth of the internet economy. According to (Manyika & Roxburgh, 2011), for every job that the internet renders obsolete 2.6 jobs are created. This highlights the prosperity benefits that the internet provides. The economic growth in the G-20 economies that took the industrial revelation 50 years, was accomplished in 15 years by internet maturity (Manyika & Roxburgh, 2011; Ungerer, 2015). Internet maturity can be defined as the extent of a country's Internet access to infrastructure and internet usage, that accounts for a country's e-engagement, e-environment and e-expenditure (Ungerer, 2015). This shows the connection between rising living standards and the maturity of a country's internet ecosystem. The opportunity that the internet provides to drive economic growth should not be neglected or wasted, especially in developing countries who have the most to gain (Manyika & Roxburgh, 2011).

Even though the internet has had a massive effect on the world, the digital revolution has only just started. The amount of technological innovations and new businesses that are still very likely to emerge are endless. Not to mention the expansion potential provided by the internet's ability to

connect people and things and engage with customers on a much deeper level (Manyika & Roxburgh, 2011; Ungerer, 2015).

However, there are a whole range of new risks that became imminent with the adoption of the internet. The most common risks are invasion of privacy, online fraud, identity theft and the hacking of sensitive information and databases. Even though these risks are areas of concern and cannot be ignored, they still do not outweigh the positive potential that the internet has to build businesses, improve lives and enable consumers to make improved decisions in the future (Manyika & Roxburgh, 2011; Ungerer, 2015).

With all the new technology and innovation, the ever-changing and evolving e-environment is difficult to break down in components. There are always new components surfacing that will affect the e-environment. Therefore, the framework must be built with a process that is able to adapt to change and effectively evolve.

2.1.2 E-business versus technology businesses

There is a common misperception between e-businesses and technology businesses. Both these terms are often used to refer to any business that uses technology. The difference between a technology or tech business and an e-business business can be easily defined by the following: A technology business is a business that creates a new form of technology, whereas an e-business does not have to create a new technology (Weatherby, 2009). This study focussed on e-business start-ups and not on tech start-ups.

2.1.3 E-business customer life cycle

Before looking at e-business metrics, it is important to understand how the customer life cycle of an e-business works. E-businesses has become customer life cycle–centric and this is because the whole product-centric mind-set has changed to a much more customer-centric mind-set. The customer life cycle helps to understand what are most important metrics to track and measurements are more important than other for an e-business (Cutler & Sterne, 2000).

Another important factor when it comes to e-business metrics and measurements, is the fact that without a clear understanding or definition of a user or online visit, customers can sometimes become invisible and this makes tracking their movement impossible. A very simple way to look at

it, is that the customers that visit a site, leaves footprints on the site. These footprints, or traces, are easy to pick up or track, but they tell you nothing about the customers who left those footprints (Cutler & Sterne, 2000; Puschmann & Alt, 2016).

The customer life cycle describes how customers of a certain e-business goes through considerations of purchasing, using and maintaining loyalty to the service or product of a business. The customer life cycle starts with reaching out to a target market, then acquiring them into the sphere of influence of the business. After this the customer must be converted into a registered and paying customer. This customer must have a retention ratio[3] and ultimately the customer must become a loyal company advocate (Cutler & Sterne, 2000; Reichheld & Schefter, 2000).

Figure 8 illustrates the customer life cycle starting at reaching the potential target market and ending with a loyal customer base. This loyal customer base forms the core target market of forms the business.

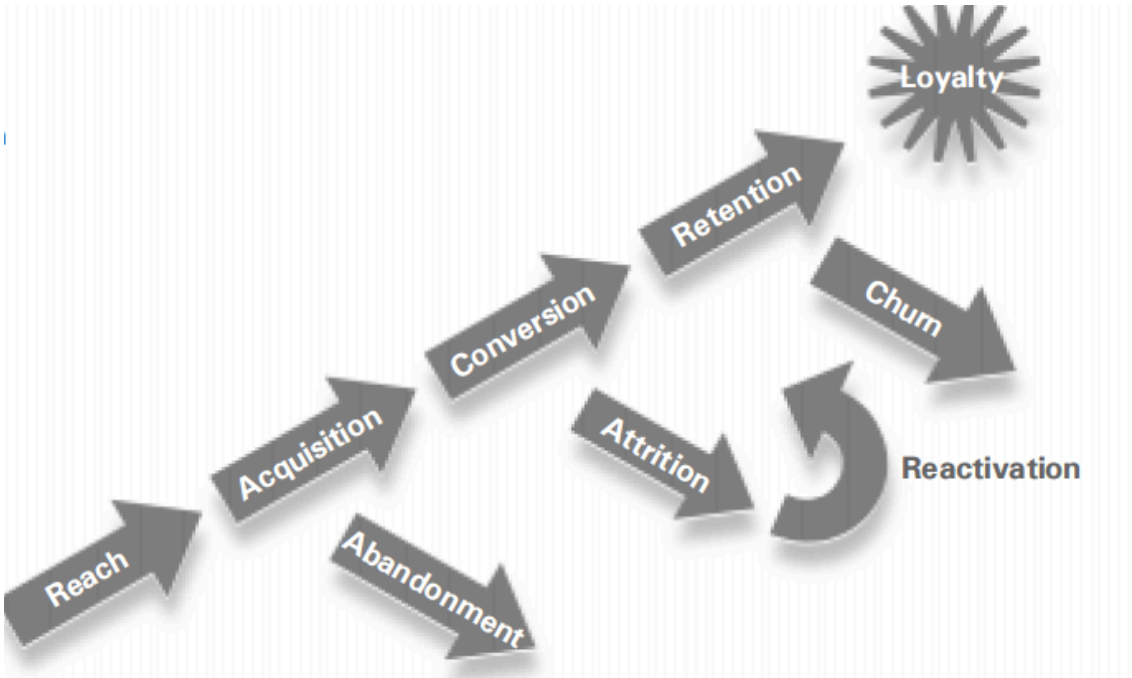

Figure 8 - The customer life cycle (Cutler & Sterne, 2000)

The customer life cycle is not a fixed cycle that is the same for all e-businesses. The lines for the various stages are drawn at different places for different e-businesses. There are different factors

[3] Retention ratio refers to the percentage that a customer reuses a platform (Cutler & Sterne, 2000).

that influence where the different phases start for different businesses. A few examples of these factors are: does the business sell a product or a service; the time a sale takes; what the product or the service is; the type of business etc. (Cutler & Sterne, 2000).

2.1.4 E-business measurements

When it comes to e-business metrics, also referred to as e-metrics, there are three analyses that help you answer the most fundamental question about database marketing. These three e-metrics are recency, frequency and monetary value. The recency, frequency and monetary value or RFM analysis, as these e-metrics are often referred as, answer the most important question of e-business metrics, namely who are my customers? (Cutler & Sterne, 2000)

Each of these e-metrics provide valuable insights about a customer's behaviour and can be determined by using past transactions. These e-metrics can be described as follows (Cutler & Sterne, 2000):

- Recency: Research proves that customers who have recently made a purchase or use the service will more likely purchase the product or use the service again. To determine recency, the question that must be asked is: Has the customer made a purchase, used the service or visited the website recently?
- Frequency: Users that have frequently made a purchase or use the service will be more likely to continue making purchases and using the service. To determine frequency, the question that must be asked is: How often has the customer purchased the product, used the service or visited the website?
- Monetary value: Customers that have spent a high amount in the past, will be more likely to spend high amounts in the future. These customers might not place frequent orders, but if the value of the orders is high, they are very profitable customers. To determine monetary value, the question that must be asked is: what is the total spending and profitability?

The RFM-based clustering method can be very beneficial to help separate certain customer segments by identifying and profiling customer segments that are not always obvious or easy to identify and separate from each other. This method represents significant opportunities (Barua *et al.*, 2000; Cutler & Sterne, 2000; Barua *et al.*, 2001; Barua *et al.*, 2001).

2.1.5 Acquisition cost

With the e-business environment bringing so much change to the traditional way of doing business, the way that marketing campaigns can be measured has changed completely. Nowadays, highly targeted marketing campaigns can track the exact progress of each lead. The number of customers that are converted with the marketing budget can be used to determine the acquisition cost of each customer by dividing the marketing cost spent by the number of customers acquired in the period during which the money was spent (Thomas, 2001; Hughes, 2015).

The customer acquisition cost or acquisition cost of an e-business is a very important metric from the start. This metric can be used to help the e-business to shape the way the marketing is done and to see calculate the minimum life time value of the customer. The customer acquisition cost must be less than the life time value of the customer to ensure that the e-business start-up makes a profit from the customer (Hansotia & Wang, 1997).

Simply, the customer acquisition cost is the cost of convincing a potential customer to use your product or service. It is a vital metric that e-businesses must track and it is one of the metrics that investors often look at, before investing in a e-business start-up (Hughes, 2015).

2.1.6 E-customer behaviour

It is difficult to properly define exactly what e-customer behaviour entails, but it is an essential component for e-business. To understand exactly how e-customers behave and what the need to be satisfied, is a vital part of any e-business start-up (Kwan *et al.*, 2005; Dennis *et al.*, 2009). There are a few models that can be used to describe e-customer behaviour, but a much simpler way is to use the following e-metrics (Cutler & Sterne, 2000):

- Stickiness: the stickiness is simply the total time of a unique user is on the site over the total number of unique users. Stickiness is ideal for sales pages on a website.
- Slipperiness: slipperiness is the exact opposite of stickiness and it is ideal for customer support pages on a website.
- Focus: focus is the average number of pages visited in each section over the total number of pages in a section.
- Velocity: this metric measures how quickly one user moves from one stage in the customer life cycle to the next.

- Seducible moments: these moments are the moments on the website where the customer is exceptionally vulnerable to an offer. These moments can stretch from buying more than one product, to signing up on for a newsletter.

These metrics are all aimed at a different segment of an e-business, namely providing enough information to better understand e-customer behaviour throughout the whole e-business. By understanding e-customer behaviour, the customer life cycle can be better understood as well as the customer acquisition cost (Cutler and Sterne, 2000). For e-business start-ups it will be easier to use these metrics, because e-customer behaviour models can be very complex and time consuming (Kwan, Fong and Wong, 2005).

2.1.7 E-business framework requirements

The following requirements, as presented in Table 1, were derived from the literature review in Section 2.1. These requirements will be used to serve as the building blocks for the framework.

Table 1 - E-business framework requirements

Type requirement	**Requirement**
User requirement	The Framework should consider the environment of e-business start-ups.
User requirement	The framework should allow for all the different sectors of the e-business landscape.
User requirement	The framework must be able to evolve as the e-environment evolves.
Functional requirement	The framework should promote a learning capability on e-business start-ups and the e-environment.
Functional requirement	Framework needs to include other important aspect that make it applicable for specifically e-business start-ups (Acquisition cost. Customer life cycle etc.).
Design restriction	The framework is intended for e-business start-ups, but some principles or suggested components may be applicable for all types of start-ups.
Attention point	Some of the factors included in the framework may vary for different types of e-business start-ups.
Boundary condition	The framework assumes that the technology of the e-business start-up is feasible. No need for any technology to be built for e-business start-up to work in terms of technology that does not exist.

2.2 Start-ups

According to Ries (2011) the start-up environment can be described with the following quote: “The grim reality is that most start-ups fail. Most new products are not successful. Most new ventures do not live up to their potential.”

Section 1.4.2 described the research method with the focus on certain domains. This section focusses on the start-up domain by giving a broad overview of start-ups as well as by providing the requirements needed to create the framework from this section.

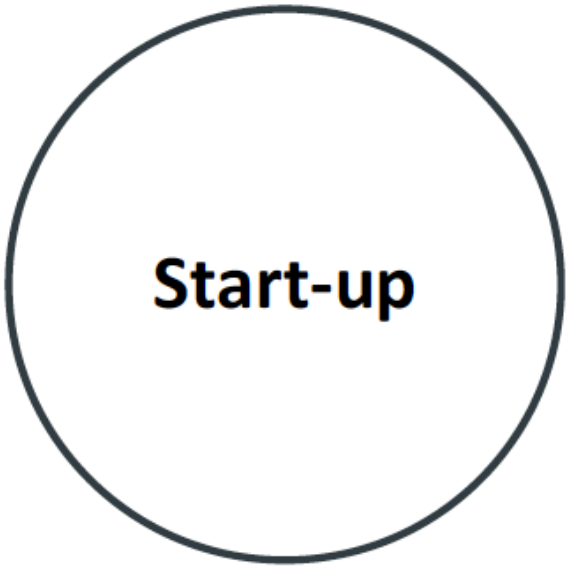

Figure 9 - Second step from Figure 4 in the literature development process

2.2.1 Start-up overview

A start-up is a business with limited operating history. It can be as simple as just having an idea. The idea can be to sell a product or a service. It is difficult to determine when a business is big enough not to be a start-up anymore, because there are no guidelines or set rules that state when a start-up becomes a business (Weatherby, 2009).

The term start-up is often associated with the popular stereotype of three college kids with youthful ambition and endless enthusiasm creating brilliant new technology that will change the future. Becoming millionaires overnight and achieving early success are often seen as part of the start-up process. This however is far from the truth.

A start-up cannot be defined by this simple stereotype. Ries (2011) defines a start-up as a human institution that must function under conditions of extreme uncertainty to create a new service or product. Start-ups are everywhere, can be managed by young and old and do not turn into gold overnight (Gelderen *et al.,* 2005; Ries, 2011).

These extreme uncertain conditions can be caused by various factors. Factors that can vary for every single start-up. The fact that these factors are so unpredictable makes it very difficult to mitigate the risk that is caused by uncertain conditions. This is the second part that people often get wrong.

Overnight success is never as easy as it sounds and almost never happens overnight. The hard work, late nights, endless cups of coffee and countless headaches are not always mentioned.

Taking all of this into account, nine out of ten start-ups fail (Patel, 2015). Some entrepreneurs may even write their business post-mortem before the start of their business. This statement may come over as very harsh, but if your start-up lasts, you are lucky. The success stories like Google and Facebook, are often misleading, most start-ups have to follow a much longer and more difficult path to success (Patel, 2015).

The uncertainty of the world makes it nearly impossible to predict the future, making it difficult for start-ups to know exactly who their customers are and what their service/product should be. Old management techniques relied on a long, stable operating history and a relative stable environment. However, for start-ups it is impossible to have these features, thus making planning and forecasting very inaccurate. Another problematic approach that start-ups adopt after the traditional methods fail, is the “just do it” approach (Ries, 2011).

It is difficult to manage a start-up with all the uncertainty and change that there is from the start, however it is very important that even something as dynamic and exciting as a start-up must be managed (Ries, 2011).

2.2.2 Start-up survival

As mentioned before, nine out of 10 start-ups fail (Patel, 2015). The main reason for start-up failure is that there is no market need for the product or service that the start-up provides (Weatherby, 2009). Start-ups succeed because they are solving a particular problem that users are experiencing. By not solving a problem, 42% of start-ups fail (Weatherby, 2009). Apart from not solving a problem, big factors like limited preparation and information are key in the failure of start-ups (Ungerer, 2015).

According to Ries (2011), what were seen as signs of likely success in earlier eras, might not be applicable for start-ups. Basic things like a solid strategy or a great plan does not work for start-ups. The reason for this is the fact that start-ups operate with too much uncertainty. As mentioned in section 2.2.1, the extreme uncertain conditions that start-ups create products and services under, cannot be predicted and vary from one start-up to the next. Therefore, start-ups change their initial

idea constantly (Hyytinen *et al.*, 2015). These uncertain conditions and constant change that takes place, generate the start-up culture.

When creating a product or a service there will always be some sort of failure. Failure must be seen as an opportunity to discover that the best way to go might be through change (Rampton, 2014). A start-up consists of three basic components, namely vision, strategy and product. The product and the strategy stages can change constantly. The product changes through a process called optimisation, which sometimes causes the strategy to change as well. This is called a pivot, as seen in Figure 10 (Ries, 2011). Figure 10 illustrates these processes and points out that the vision of any start-up is its foundation and this never really changes. The vision of a start-up can be described as the end goal and entrepreneurs are committed to see their start-up reach the final destination that they had in mind from day one.

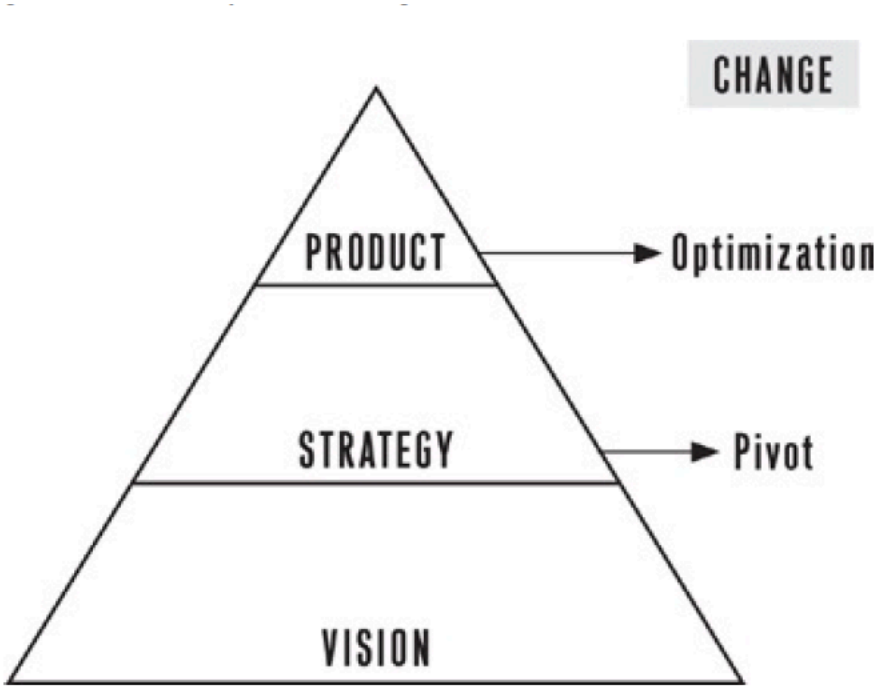

Figure 10 - Change of a start-up (Ries, 2011)

A start-up can be seen as a portfolio of different activities that all work simultaneously: acquiring new customers, serving existing customers, improving the product, improving the marketing, improving operations and even making major decisions like when to pivot. All these activities must be balanced and this is the challenge that the entrepreneur faces. These challenges can be found in all the phases of a start-up. Smaller start-ups sometimes struggle to support existing customers, while trying to innovate and grow (Ries, 2011). Some of the most established start-ups are faced

with the challenge of balancing the decision of when to invest in innovation before they become obsolete (Hyytinen *et al.*, 2015). As a start-up grows and becomes bigger, the thing that changes is the mixture of these activities in the portfolio of work.

Entrepreneurship can be seen as pure management. Managing all the changes, uncertain conditions and activities that are mixed and thrown at the person that manages the start-up. This may sound very straightforward, but it is the exact opposite. In general management, there are two types of failures, namely a failure to plan adequately or a failure to execute properly and both lead to a failure to deliver results. In the modern economy, these are not just failures, but stepping stones that are often required to achieve greatness. This means that significant lapses can often lead to success in the start-up environment (Gelderen *et al.,* 2005; Ries, 2011)

2.2.3 Start-up founder

To understand what a start-up founder is, it is essential to know the difference between entrepreneurs and start-up founders. These terms are often considered to have the same meaning, however, this is not the case. This misconception can be eluded by understanding the difference between a start-up founder and an entrepreneur (Shane & Venkataraman, 2000; Herrington *et al.*, 2010; Oe & Mitsuhashi, 2013).

Tenner (2013) defines an entrepreneur as someone who sets out to find business opportunities and create business systems to exploit those opportunities for financial gain. This definition highlights the fact that the entrepreneurs always has a financial motive.

Start-up founders are the people who establish the business and create something from nothing (Fairbrothers & Gorla, 2013). Founders don't have a financial motive, they often start a business to create a great product, change the world, become famous etc. Their secondary motive can be to make money, but this is never the primary motive. Many start-up founders are also entrepreneurs.

The risk and pressure that founders must deal with is enormous and the difficulty to succeed is close to impossible. Start-up founders often must tie their own fate with the fate of their start-up. This means that a start-up founder always has the risk of exiting a start-up just as broke as they came in (Bengtsson & Hsu, 2010; Tenner, 2013).

Start-up founders can have various educational backgrounds, making it very difficult for some founders to start a start-up. Therefore, a lot of start-ups have more than one founder. When more

than one person founds a start-up, they are referred to as co-founders. Start-up founders often found a start-up together, because the different expertise of each co-founder can improve the start-up's survival (Fairbrothers & Gorla, 2013).

2.2.4 Start-up incubator

Start-up incubators started as flexible workspace that helped small companies by offering them discount, but the model has since changed completely. Now start-up incubators are designed to help start-ups succeed, by offering workspace, support, training, networking, funding, events services and facilities to accelerate the growth of the start-up. The most common service that start-up incubators provide is help with business basics (Smilor, 1987; Willson, 2012).

Incubators are often associated with universities or even business schools. These incubators are created to help student and alumni founders grow their start-ups. There are incubators started by other entities than universities like former entrepreneurs, governments and other businesses (Forrest, 2014).

The sole purpose of an incubator is to help a start-up grow, but there is no model for incubating start-ups, no proper guidelines to follow. Most start-ups use their own discretion and methods to help start-ups grow as fast as possible (Harris, 2017).

Incubators are often confused with accelerators and this can have a big impact on early stage start-ups. Even though both can be good for early stage start-ups, the few key distinctions between incubators and accelerators must be defined properly before the founder can choose which one to join. The best way to describe the difference between an incubator and an accelerator is by looking at the goals of both. Accelerators look to accelerate the growth of a start-up by focussing on the scaling of a start-up. Incubators on the other hand look to incubate disruptive ideas in the hope of building a company, by focussing on innovation (Forrest, 2014; Harris, 2017).

The goal of an incubator can also be explained as to decrease the chance of a start-up to fail (Chapman & Hannon, 2001). The incubator will achieve this goal, by making available the incubator liaison officer, whose role is to nurture the start-up by helping them with their different needs and connecting them to the network in the incubator that will supply support (Chapman & Hannon, 2001). Liaison managers are employees for the incubator and has different educational backgrounds. This means that there is no specific guideline what an incubator liaison officer needs

to know before working for an incubator. The incubator liaison officer or often referred to as the incubator manager or portfolio manager can be seen as a process coach more than anything else.

2.2.5 Start-up investment

To get a start-up off the ground, there is capitol needed, this is called the initial investment. There are a lot of different methods to get the initial investment for a start-up, the start-up founder can invest their own money, money can be borrowed from different sources or money can be raised from investors (Tanrısever *et al.*, 2012; Peavler, 2016).

A start-up has different steps of raising money, seed capitol, angel investor funding and venture capital financing. The seed capital phase is the type of investment that early stage start-ups use (Kanniainen & Keuschnigg, 2004). Seed capital or seed funding can come in different forms, such as bank loans, crowdfunding, credit cards or even the start-up founders own investment (Truong, 2017).

Getting investment for a start-up is very important, but it comes at a cost. The start-up founder usually gives away equity to receive funding. Getting the right investor is also a very time-consuming task. Taking several months or even years, finding the right investor is very rare for early stage start-ups (Rader, 2017).

2.2.6 Start-up framework requirements

The following requirements, as presented in Table 2, were derived from the literature review in Section 2.2. These requirements will be used to serve as the building blocks for the framework.

Table 2 - Start-up framework requirements

Type requirement	**Requirement**
User requirement	When using the framework, a user should be allowed to apply their own discretion.
User requirement	The framework should be considered as a decision-making tool for the user of the framework.
User requirement	The framework should provide clear definitions and explanations for at least a liaison officer to understand completely.
Functional requirement	The framework should determine if an e-business start-up will have the potential to be feasible.
Functional requirement	The framework should support the continued use of the framework.
Functional requirement	The framework must provide enough information to help an e-business start-up determine what it will take to potentially be feasible.
Functional requirement	The framework should follow and effective and efficient process and design.
Functional requirement	The framework should be structured that a start-up founder can use the framework without the help of an incubator liaison if the founder has the necessary knowledge.
Design restriction	The framework does not guarantee that an e-business start-up that is potentially feasible will be successful.

2.3 E-business start-ups

This section explains the difference between e-businesses and start-ups as well as give background on why e-business start-ups have become so popular and how the new economy has developed through the rise of the internet.

Section 1.4.2 describes the research method with the focus on certain domains. This section focusses on the overlapping section between the e-business domain and the start-up domain by giving a broad overview of e-business start-ups as well as by providing the requirements needed to create the framework from this section.

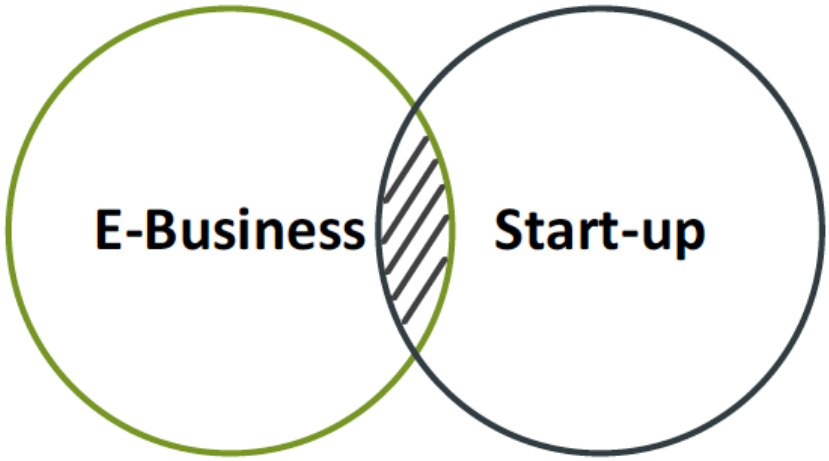

Figure 11 - Third step from Figure 4 in the literature development process

2.3.1 Difference between an e-business and a start-up

As seen in Section 2.1 and Section 2.2, it is clear that there is a big difference between an e-business and a start-up. These are two different entities on their own. A start-up does not have to be an e-business and a business does not have to be in its start-up phase to be an e-business. This study only focussed on e-businesses in their start-up phase.

An e-business start-up can be defined as “A business that is in its start-up phase and that competes mostly or completely online, rely entirely on the internet for the success of the business, and conducts business online or electronically” (Ungerer, 2015).

2.3.2 How an e-business can help or worsen start-up survival

According to Ungerer (2015), digital products and information services are becoming more significant to the economy every day. Small firms are using these products and services to create opportunities that were not easily accessible or even possible earlier. As mentioned earlier in Section 2.1.1, cloud services make it much simpler and much cheaper to start an e-business. The

smaller businesses can now compete with much bigger companies, by making use of online tools that automate a lot of unnecessary process can help lighten their work load, for a lot cheaper. These affordable online tools are constantly improving and are making it possible for the smaller businesses to get to market a lot easier (Ungerer, 2015). What the internet has done for start-ups, is to level the playground between start-ups and larger corporations. By making it possible for any start-up to establish a global footprint from day one, start-ups can now compete globally from day one (Manyika & Roxburgh, 2011; Dean *et al.*, 2012).

The internet provides a lot of other advantages for start-ups that were previously only possible for larger corporations. These advantages include better customer reach, finding suppliers easily, better marketing, improved brand building, tapping into talent worldwide and managing a supply chain that consists of a global work force (Ungerer, 2015). According to Dean *et al.* (2012), the Boston Consulting Group the internet provides five main advantages for e-businesses and they include:

1. Extended global reach
2. Enhanced marketing
3. Enhanced customer interaction
4. Access to cloud services
5. Simplified staff recruitment

While the internet has a huge impact on start-ups and SMEs, it also helps to improve performance in large businesses. A survey that included 4,800 SMEs in 12 countries was conducted to see the difference between small businesses that have a high web technology utilisation rate and small businesses that have a minimal web presence. The results, Figure 12, show that with a high web utilisation rate, a small business can grow twice as fast, can bring in twice as much revenue and can even create more than twice as many jobs (Manyika & Roxburgh, 2011). This is true across all sectors of the economy (Ungerer, 2015).

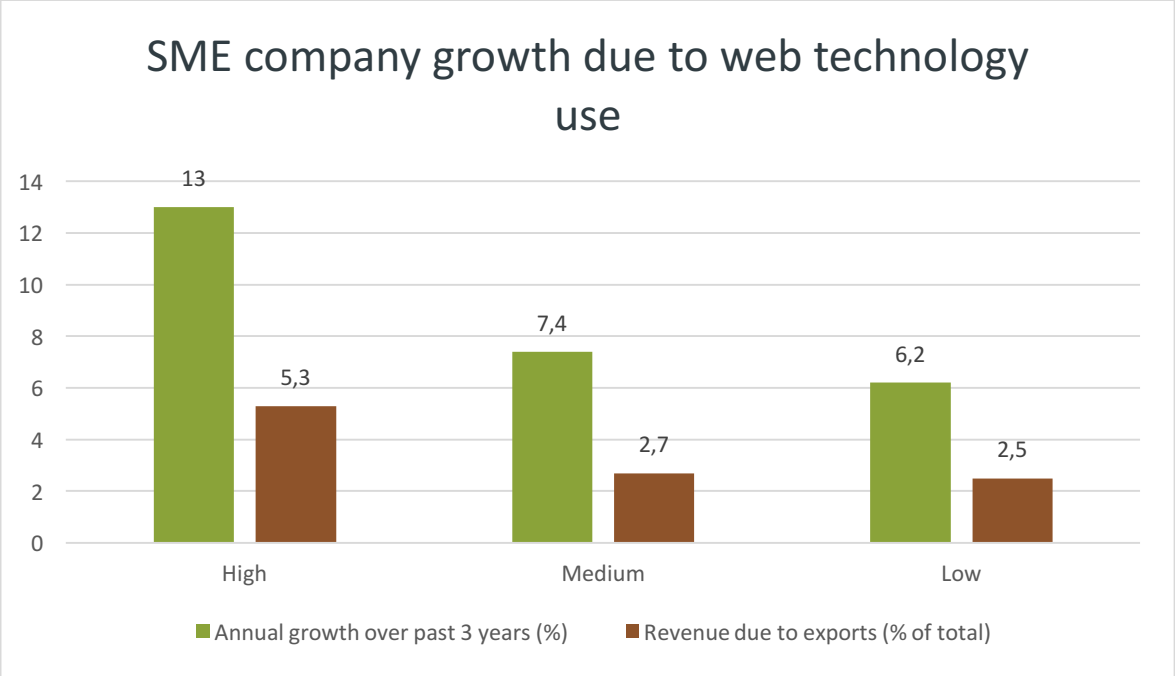

Figure 12 - Growth and exports of SME's adapted from Manyika and Roxburgh (2011)

In South Africa, there are about 410,000 SME's and 63 percent of these SME's have a website. 27 percent of these SME's with a web presence are very profitable and only five percent of these businesses are making a loss. On the other hand, only 11 percent of SMEs without a web presence are making a healthy profit and 16 percent of these businesses are making a loss (Ungerer, 2015). This shows that SMEs who are not making use of the online e-business environment are more likely to be in danger of losing out to big sales channels, by making themselves irrelevant to different customers segments (Ungerer, 2015).

It is clear that internet technologies can make an instrumental difference in the modern-day e-economy. In order to enhance the survivability of start-ups, they should utilise internet technologies. Even businesses that have been established can benefit from using internet technologies (Ungerer, 2015). Although making use of internet technologies will improve a start-ups chances of survival, it does not mean that every e-business start-up will be successful. It is pivotal for a start-up to have a e-business start-up competitive strategy and a business model (Manyika & Roxburgh, 2011; Ungerer, 2015).

2.3.3 The effect of the internet on strategy – E-business competition

The internet influenced business in various ways. The economy was not just affected, it changed completely. Other factors like strategy, industry structure and even basic business was also influenced by the internet. The internet has several disruptive components that a start-up's business model must capitalise on to enable the start-up to offer innovative solutions. By capitalising on these disruptive attributes, the internet provides certain economies of scale and scope that can change the outcome of a start-up's market segmentation completely (Porter, 2001; van der Heijden, 2001; Ungerer, 2015).

The rise of the new economy was made possible by the rise of the internet. The internet has such a big effect on the economy, that it did not just change the old economy, it created a new economy. The new economy differs from the old economy in several ways. These ways include, information based technology, digital products or services, supplying to a global market and enabling offerings to be customised. The old economy focussed on supplying to local markets, exploiting the efficiency of mass production, manufacturing-based technologies and the production of physical goods and services. Even though there are several differences between the old economy and the new economy, it does not mean that all the old rules of competition are no longer valid. This misconception was made by a lot of e-businesses. Table 3 summarises the differences between the old and the new economy.

Table 3 - New Economy vs Old Economy (Ungerer, 2015)

New Economy	**Old Economy**
Information-based technology	Manufacturing-based technology
Focus on services	Focus on goods
Information as source of value	Information supports physical transformation
Mass customisation	Mass production
Value maximisation	Cost minimisation
Economic principle of abundance	Economic principle of scarcity
Global markets	Local markets

Table 3 summarises some of the differences between the old and the new economy, but this also creates the illusion that the rules of the old economy does not count for the new economy. This misconception has resulted in the downfall of many e-businesses. Early internet firms believed that with a website and a business model it was possible to bypass the traditional way of strategizing and just dive in head first. The problem with these businesses was not their business models, it was the misuse of their business model that caused their downfall. This was a common mistake that businesses made in the early days of the internet – thinking that all the rules that were there before the internet can now be forgotten and ignored (Porter, 2001; Van der Heijden, 2001).

Many e-businesses or dot-coms as they are referred to, assumed they would be successful because they were the first to market and this gave them the advantage they needed. This was not the right mind set, because the internet made emulation so much easier in the digital world and this allowed competitors to catch up very quickly. With these low barriers to entry, e-businesses are required to rapidly adapt and change constantly. This causes a risk of becoming obsolete and highlights three key factors in the digital environment, namely innovation, speed and surprise (Ungerer, 2015). These three factors and the risk of becoming obsolete are not just applicable for established businesses, but also for e-business start-ups.

2.3.4 Where in the business chain does a start-up fit in?

From the moment the decision is made to set up a business, the business life cycle starts. This journey starts with the idea and goes from start-up phase to success or failure. The process consists of every object faced through growth and maturity. Each of the five stages of the business life cycle has its own challenges or obstacles and not one of them is easy. Different approaches are required for each stage, because of the unique characteristics of each stage.

According to Petch (2016) a lot of start-ups fail due to the self-destruction of their founders instead of conditions that were out of their control. This can be prevented by understanding in which position the founders are in the business life cycle, because this can help understand the potential challenges that the founders might have to face during the stage they are in. Another way to look at it is, if a business grows and develops, the objectives and aims change. Therefore, knowing where the business currently is and when it is growing can be very helpful to the success of the business.

The first stage of the business life cycle is known as the development or seed stage. During this stage, the business is just an idea and it must be determined if this idea viable and has potential. This stage consists of research and testing. Getting advice and opinions from as many sources as possible, like friends, family, colleagues, business associates, or any industry specialist that is accessible. This stage can then be seen as the soul-searching stage, when you must take a step back and decide if the idea has the potential to grow into a start-up and if you have what it takes to get it there. The following challenges are more than likely to pop up during this stage (Chen, 2014):

- business idea profitability;
- market acceptance;
- establishing business structure; and
- accounting management.

The second stage of the business life cycle is known as the start-up stage. This stage begins when it is decided that the business idea is worth pursuing and has been thoroughly established. This does not mean that the idea is final and will never change, but the business idea must be canvassed. This stage is difficult and risky and decisions made during this stage can affect the rest of the business life cycle. During this stage, the service or product can go from development to market and change again due to the initial feedback of your users. This is where most of the time is spent, tweaking and

changing your product or service according to the initial feedback of paying customers. In some cases, not only the product or service must be adjusted, but even the business model must change to ensure profitability and customer satisfaction. That's why during this stage adaptability and innovation are essential. The challenges that will be faced during this stage are (Chen, 2014):

- managing cash reserves;
- managing sales expectations;
- accounting management;
- establishing customer base; and
- establishing market presence.

The third stage is the growth stage and can also be referred to as the survival or establishment stage. The business has now endured and survived the initial stages of the business life cycle and is now established. Consistently generation revenue and taking on new customers are the main focus of this stage. The constant revenue can help to cover the operating expenses and open new business opportunities. This stage creates a whole new range of demands that needs to be balanced to ensure an increase in the revenue and improve profit. Competition, increasing revenue, expanding the workforce, marketing models and operation models are only a few of the demands that need to be balanced and organised before expanding to mass market. The challenges that will be faced during this stage are (Chen, 2014):

- dealing with increasing revenue;
- dealing with increasing customers;
- accounting management;
- effective management; and
- market competition.

The fourth stage of the business life cycle is the expansion stage. During this stage, the business has been firmly established within a certain industry and will look to expand into new markets. This does not mean that the business will expand by itself. A lot of careful planning is necessary and factors like resources, effort, cost, potential returns and product/service quality must be considered at all times. What makes this stage difficult, is the risk of taking on too much to quickly and thinking that a successful business model can work in all markets. Measuring risks and preparing the business for

anything is essential during the fourth stage of the business life cycle. The following challenges could be faced during this stage (Chen, 2014):

- increasing market competition;
- accounting management;
- moving into new markets;
- adding new products/services; and
- expanding existing business.

The fifth and final stage of the business life is the maturity stage. After successful expansion, the business is now at the top of the industry. During this stage, the company should see a stable profit year-on-year. The next step is to either exit the business by selling or to expand even further. A lot of entrepreneurs bring in a seasoned CEO with loads of experience at this stage to manage all the new challenges and to take the business to a whole new level. Exiting the business is a whole process on its own and can be done fully or partially, depending on type of company. The final stage in the business life cycle can present the following challenges (Chen, 2014):

- Increasing market competition;
- Accounting management;
- Moving into new markets;
- Adding new products/services; and
- Exit strategy.

These five stages of the business life cycle are not experienced by every business or in the chronological order. The business life cycle is merely an outline and the challenges of each stage can differ from business to business, but for many companies there will be some kind of resemblance to these five stages and staying in to of things can enhance the change of success. Staying on top of things is very important and knowing in which stage the business is at all times, is crucial (Chen, 2014).

This study focussed on the start-up stage of the business life cycle. The success of each stage depends on a lot of different factors and an innumerable amount of decisions made by the founders and employees of the business during each of these stages, that is why planning and anticipating what comes next is so important. The feasibility study framework that this study provides can be

used in phase one and phase two. When used in the first phase, it can be used to plan ahead and prepare for some of the challenges that the second stage would provide (Chen, 2014).

It is important to understand the start-up life cycle and which stage of the start-up life cycle the study focussed on. There are five different stages of the start-up life cycle, problem, minimum viable product, product market fit, scale and maturity (Bass, 2015). The study focussed on the stage right before the start-up life cycle starts, namely the idea phase. The idea phase does not form part of the start-up life cycle, because the start-up has not started yet. It is still only an idea. During this phase there are still loads of uncertainty about the future and the success of the start-up. The start-up life cycle is much more complicated than these five phases, but the five phases can be used as a guideline (Bass, 2015).

2.3.5 E-business start-up framework requirements

The following requirements, as presented in Table 4, were derived from the literature in Section 2.3. These requirements will be used to serve as the building blocks for the framework.

Table 4 - E-business start-up framework requirements

Type requirement	**Requirement**
User requirement	The Framework should consider the environment of e-business start-ups.
User requirement	The framework should be user friendly and straight forward.
Functional requirement	The framework should be useable for start-ups that are past the idea phase.
Functional requirement	The framework should follow and effective and efficient process and design.

2.4 Feasibility study

Section 1.4.2 describes the research method with the focus on certain domains. This section focusses on the feasibility study domain by giving a broad over view of feasibility studies as well as by providing the requirements needed to create the framework from this section.

Figure 13 - Fourth step from Figure 4 in the literature development process

There are many different definitions and explanations of what a feasibility study entails and what the purpose of a feasibility study is. The word feasibility is derived from feasible, which can be described as capable of being done or accomplished. A feasibility study is a study that tries to prove if something is feasible by compiling a formal document that summarises the results of the analysis and evaluations conducted to review the business. It also provides results of research done on alternatives as well as recommendations. The feasibility study describes and supports the most feasible solution applicable for the business (Feasibility.pro – Learn Feasibility Study, Real Estate Finance and Excel Online, 2016). Hoagland and Williamson (2000) uses the questions in Sections 2.4.1, 2.4.2 and 2.4.3 to help explain what a feasibility study entails.

2.4.1 What is the purpose feasibility study?

When starting a new business there are a lot of assumptions that must be made to determine if it is worthwhile to pursue the business idea. The purpose of a feasibility study can be to determine a business opportunity is practical, viable and possible.

2.4.2 Why do a feasibility study?

When an entrepreneur gets an idea, or is approached with a business opportunity, the negative aspects are easily overlooked. The focus of a new business venture tends to be more on the positive aspects. A feasibility study helps ensure that a more realistic approach is followed, looking at both the positive and negative aspects of the business venture.

2.4.3 When to do a feasibility study?

Before a new business can be started the business must be defined. This step is critical and can very easily be left out or underestimated. A feasibility study can be used to as a tool to make the right decisions when defining a business. A wrong decision in this step can lead to the failure of a start-up. According to Hoagland and Williamson (2000) only 50 percent of start-ups are still in business after the first 18 months and the percentage drops to 20 after 5 years. Feasibility studies can also be conducted when acquiring an existing business, but this study only focussed on feasibility studies conducted before starting a new business.

According to Claase (2012), a feasibility study is a tool that helps an endeavour realise its prospective. With an endeavour defined as any future project or organisation that is studied for its prospective feasibility (Claase, 2012). Figure 14 illustrates the developmental process of an endeavour. This highlights the importance of a feasibility study and shows that it is important to conduct such a study before the business is started to discover the possible prospect and potential.

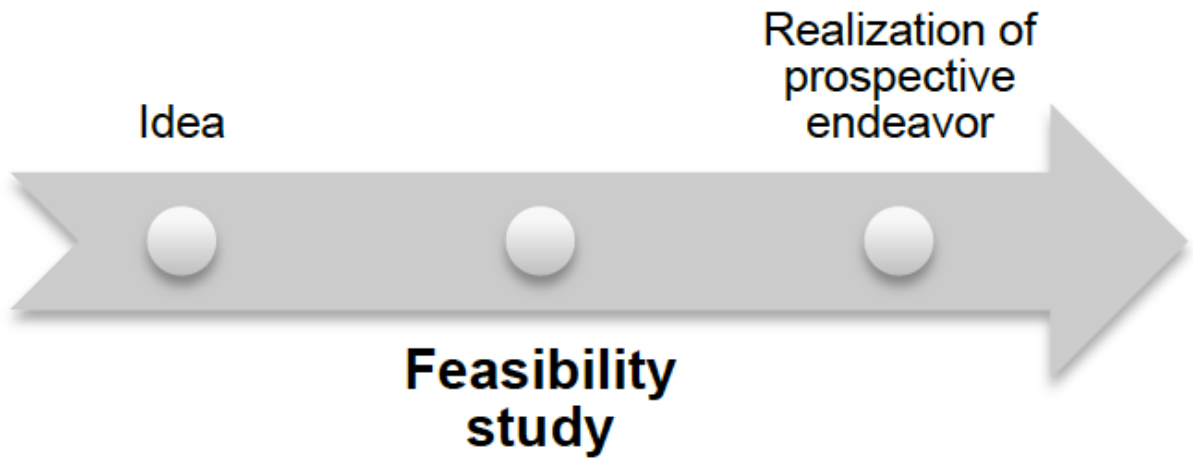

Figure 14 - The developmental process of an endeavour (Claase, 2012)

Claase (2012) also states that no one has articulated a general feasibility design method. There are also no guidelines, general standards or even requirements on feasibility study design (Palvia & Palvia, 1988; Claase, 2012). As mentioned before, a feasibility study can have more than one aim, but for this study the aim of a feasibility study is defined in Section 1.1 by (Palvia & Palvia, 1988; Claase, 2012). The aim of any feasibility study is to examine and/or evaluate the possible future

success or failure of a prospective endeavour. For this study, an endeavour is defined as any type of future start-up.

The lack of feasibility study guidelines and requirements has led to confusion between feasibility studies and similar business tools, like pilot studies, business models and business plans. Section 2.4.4 explains the difference between a feasibility and a pilot study and Section 2.4.5 the difference between a feasibility study and a business model. The rest of this chapter describes the core principles of a feasibility study as well as the core elements of a feasibility study.

2.4.4 Pilot study versus feasibility study

Pilot studies and feasibility studies are often confused with each other. These studies have similar traits and sometime a feasibility and a pilot study can be used to obtain the same objective (Ioannidis *et al.*, 2005). For the objective of this study, there is a big difference between a feasibility study and a pilot study. The reason these studies are often confused and misused, is because there are no guidelines or rules when it comes to conducting a feasibility study or a pilot study.

A pilot study can be defined as a small study that is conducted to help design a further confirmatory study. Studies like a pilot study can be used for a lot of different types of purposes, such as testing study procedures, estimation of parameters, validity of tools etc.(Ioannidis *et al.*, 2005). When conducting a pilot study, the author is often confronted with the problem that the readers will not regard the pilot study more favourable than a small trial. This can lead to confusion of when to conduct a feasibility study and when to conduct a pilot study and what features must be included when these types of studies are conducted.

Ioannidis *et al.* (2005) and Lancaster *et al.* (2010) both conducted a study to describe the difference between a pilot and a feasibility study, as well as the difference between the methods of a pilot and a feasibility study. These studies used feasibility and pilot as key words to find different types of research papers in seven different journals from 2000 to 2001 and 2007 to 2008. The results of the search from 2000 to 2001 can be seen in Table 5. The study conducted from 2007 to 2008 found a total of 54 papers. Of these 54 papers, 20 were described by the word pilot and 34 were described by the word feasibility.

Table 5 - Literature search with keywords feasibility and pilot (Ioannidis et al., 2005)

	Journal Name							
	BMJ	Lancet	NEJM	JAMA	BJS	BJC	BJOG	Total
2007-8								
Original articles	6	5	5	1	10	16	10	54[1] (1.6%)
Pilot or feasibility study in preparation for a trial	0	3	3	0	2	1	3	12
Piloting new technique, combination of treatments	1	0	0	0	4	2	6	13
Phase I, II trials	0	1	1	0	0	7	0	9
Piloting screening program	2	0	0	1	1	1	0	5
Piloting guidelines, educational package, patient care strategy	3	1	0	0	2	3	1	10
Laboratory testing of activity of compounds	0	0	1	0	1	2	0	4
Total research papers	292	379	444	383	338	1084	398	3318
2000-1 [2]								
Original articles	11	17	3	7	9	33	10	90 (2.0%)
Total research papers	372	1115	434	619	396	1132	381	4449

According to Lancaster *et al.* (2010), even when the study was repeated between 2007 and 2008, the reporting of pilot studies was still very poor. Pilot studies are also often confused with Randomised controlled trials (RCTs) and this effected the reporting as well as the quality of pilot studies. This creates a problem with the distinction between feasibility studies and pilot studies (Lancaster *et al.*, 2010). Lancaster *et al.* (2010) found that studies labelled as feasibility studies have a more flexible methodology than studies labelled pilot studies. Feasibility studies are used for large scale studies such as screening programs that are applied at a population level. This is then used to determine the initial feasibility of the programs. In contrast pilot studies used more rigorous methods and used components like sample size estimation and randomised selections.

To distinguish between these two types of studies, Lancaster *et al.* (2010) recommends the NETSCC definitions to be the most helpful. This definition is mostly focussed on conducting a feasibility study or a pilot study as part of a main study and not for a project or business. However, this definition does explain the difference between a pilot study and a feasibility study clearly.

The NETSCC defines the difference between feasibility studies and pilot studies as follows (Glossary, 2017):

A feasibility study is a study that is done before the main study takes place. The feasibility study is undertaken to determine important parameters that are needed to design the main study. The most defining term of a feasibility study is, is the fact that it does not change the outcome of the main study, it only determines a possible outcome.

A pilot study on the other hand is a version of the main study. It can be seen as a small test of the main study to determine if all the components of the main study work together. The pilot study is focussed on the process of the main study and not on the possible outcome. The data that is determined by the pilot study can be used to help the main study in some cases.

In conclusion pilot studies are very poorly reported and they focus on the hypothesis testing that is inappropriate for these types of studies. At the moment authors are not aware of the different requirements that pilot and feasibility studies have. This must be highlighted more effectively and these studies must be reported appropriately. The problem originates from the fact that feasibility and pilot studies are poorly defined. The definition that Lancaster *et al.* (2010) suggest, defines the difference adequately.

2.4.5 Feasibility study versus business model

A good business model remains essential to every successful organisation, whether it's a new venture or an established player (Magretta, 2002). It is clear that a business model is a vital part of a successful business, because it provides a structure to certain aspects of a strategy and it shows how all the elements fit into a whole. There are a lot of different elements and definitions of a business model making it very difficult to choose the best option. According to (Ungerer, 2015), the literature is not consistent in the usage of the term business model and, moreover, often authors do not even provide a definition of the term.

Business models often vary because of the researcher's field of study. There are three main fields of study that give attention to business models (Zott *et al.*, 2011). These three fields of study are:

- E-business and the use of information technology in organisations.
- Strategic issues, such as value creation, competitive advantage and firm performance.
- Innovation and technology management.

Even though most of the business models have different definitions, the main focus of a business model remains the same. Regardless of researchers' field of study or the type of business, there are

common factors that applies to every business model: business models assumes a bottom-up analysis of the fundamentals within each company, as to determine the normal course of how a firm "does business"; the business model is used as a primary source of new information that incorporates a holistic view of the company and the stakeholders influencing the company; the firm's operations and executives play an imperative role in conceptualising what the business model entails; and a business model strives to explain both how value is created and captured by the firm (Zott *et al.*, 2011).

The business model canvas of Osterwalder and Pigneur is used as a guideline in this regard. This is a recently developed business model that is getting popular globally and provides generic components that makes it a flexible model that is perfect for e-business start-ups (Ungerer, 2015).

The business model canvas consists of four main elements, namely an offering element, a customer element, an infrastructure element and a finance element. These four elements can be broken down into nine smaller segments, known as the nine basic building blocks of a business. These building blocks are the blueprint of how a business's strategy is to be implemented through organisational structures, systems and processes for any business. The nine building blocks are now explained individually (Osterwalder *et al.*, 2009).

- **Customer segments** defines the different groups of people or organisations an enterprise aims to reach and serve.
- **Customer relationship** describes the types of relationships a company establishes with specific customer segments.
- **Value propositions** describes the buddies of products and services that create value for a specific customer segment.
- **Channels** describe how a company communicates with and reaches its customer segment to deliver a value proposition.
- **Revenue streams** represents the cash a company generates from each customer segment.
- **Key activities** describe the most important things a company must do to make its business model work.
- **Key resources** describe the most important assets required to make a business model work.
- **Key partnerships** describe the network of suppliers and partners that make the business model work.

- **Cost structure** describes the cost incurred to operate a business model.

The business model canvas can be seen in Figure 15.

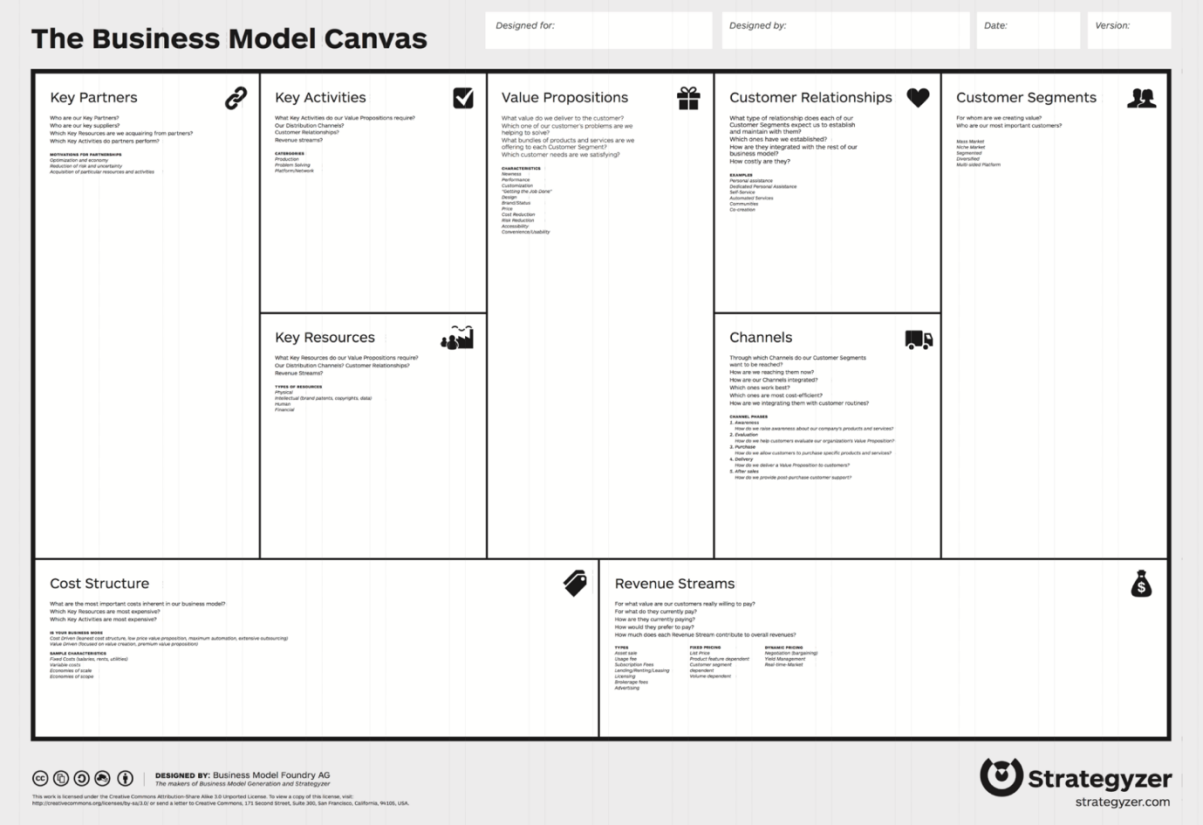

Figure 15 - Business model canvas (Osterwalder et al., 2009)

To explain how the business model canvas can also be used to determine feasibility, the business model canvas is separated into 3 parts as seen in Figure 16.

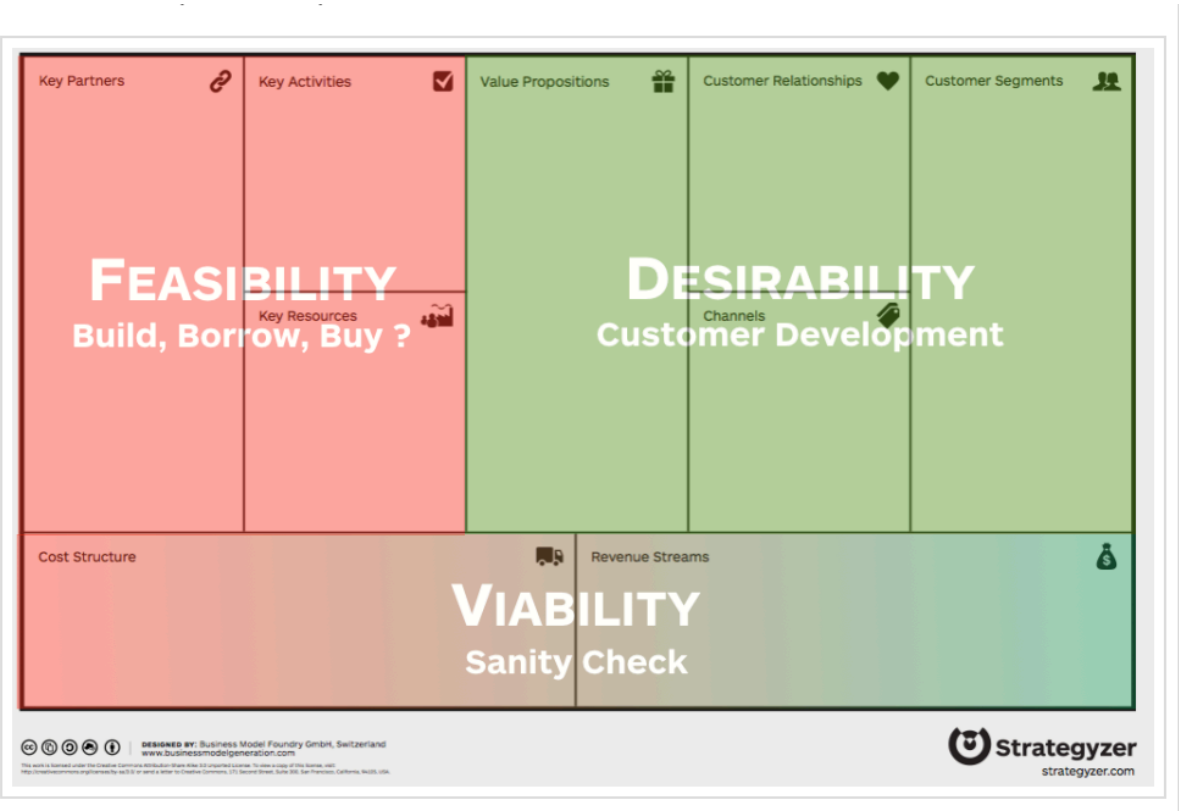

Figure 16 - Business model canvas separated to explain feasibility from Blank, (2016)

The feasibility side of the canvas consists out of three or possibly four stages of the business model. These stages are defined and explained above. It can be very difficult to determine feasibility from the business model canvas. There are no structures or even guidelines to determine feasibility from the business model canvas.

2.4.6 Conceptual elements of a feasibility study

The conceptual elements are the body of the feasibility study. It is very important to define these elements before the feasibility study is started. The feasibility study should come to a conclusion and to support the conclusion the feasibility study must have some type of format. The format of the feasibility study can vary for every feasibility study, but there must be a certain type of guideline to support the study.

Due to the lack of clear guidelines and set our principles for feasibility studies, the conceptual elements cover a very broad field. These elements are not just vague, but also outdated for most reliable sources. One of the more complete feasibility study templets were designed by (Behrens &

Hawranek, 1991). According to Behrens and Hawranek (1991), a feasibility study should have some kind of structure and cover, but should not be limited to the following areas:

A summary of the start-up background and history:

- Name and details of founder(s)
- Founder(s) roles within the start-up
- Product/service background
- Start-up objective and basic strategy including geographical area, market niche and differentiation
- Start-up location and the location of resources
- Economic policies that are possibly supporting the start-up

A list of the raw materials and supplies:

- Provide a description of the availability of raw materials, processed industrial materials, industrial components, factory and spare parts and supplies for social and external needs.
- Materials needed for supply requirements
- A summary of the availability of critical material inputs

A summary of the market analysis and the market concept:

- Summarise all the market research including business environment, target market, target segmentation, channel of distribution, competition and life cycles
- List the annual data on demand, like quantities, prices and supply
- Outline the marketing strategies for achieving the project objective and explain the marketing concept
- Make assumptions and calculate the revenue and elements of projected sales
- Think about possible impacts on the supplies, location, environment, production programme, technology etc.

A list of the location and the environment:

- Identify the location of the start-up, as well as the ecological and environmental impact, socio-economic policies, incentives and constrains
- Describe the significant cost relating to the location and site

A detailed explanation of the engineering and technology:

- Describe and justify technology selected focussing on the advantages and disadvantages as well as the life cycle, transfer of technology, training, risk control, cost, etc.
- Outline the production programme
- Describe major engineering works

A list of the organisation and overhead costs:

- Describe the basic management, organisational design and measures required

A list of the human resources:

- Describe all the social-economic environment and human resources availability
- Describe the training needed and recruitment process
- Indicate key employee's skills required
- Indicate the total number employment needed as well as the cost

A project implementation schedule:

- Indicate the rate of the production start-up and cost
- Indicate the duration of the production installation

Financial analysis and investment assessment:

- The total cost of the investment
- A summary and explanation of the different types of investment
- The total cost of sold services or products
- The financing of the project

Most of these conceptual elements of a feasibility study might not even be applicable to all types of e-business start-ups. This contributes to the necessity of a feasibility study framework for e-business start-ups (Behrens & Hawranek, 1991).

2.4.7 Core principles and importance of a feasibility study

A feasibility study can be seen as the first stage of a product or service life cycle, with the aim to examine the viability of the project, product or service (Overton, 2007). The feasibility study

analyses the product or service by looking at the performance objectives that the start-up expects to achieve as well as the cost benefit report.

Another way of looking at the use of a feasibility study, is that a feasibility study is the process of defining exactly what a start-up is and what strategic issues needs to be examined to evaluate the feasibility of the start-up as well as the start-ups change of success. It is very important that when a feasibility study is conducted all the assumptions that are made, must be made based on correct facts. Collecting correct facts and financial data to make accurate assumptions is a key factor when conducting a feasibility study (Overton, 2007).

When conducting a feasibility study, there are a lot of decisions that need to be made about several enduring characteristics of a start-up. Table 6 shows possible enduring issues that will affect the decisions made when conducting a feasibility study as well as secondary issues that must also be considered.

Table 6 - Enduring characteristics and secondary issues of a feasibility study (Overton, 2007)

Enduring characteristics	**Secondary issues**
1. Establishing project scope - stating exactly what the project is and what it is intended to achieve - its objectives	1. Is there a key decision maker involved?
2. Vision/mission statement	2. Is technical feasibility an issue?
3. Vision - where do you see this opportunity taking you?	3. Are there clear business objectives to be addressed by the feasibility study?
4. Situation analysis, history and background of the product/service, industry and the organisation	4. How committed are users and management to achieving the stated business objectives?
5. Identifying the statutory and mandatory requirements	5. Appointing analyst(s) to conduct the initial assessment.

Enduring characteristics	**Secondary issues**
6. The aims, goals and objectives of pursuing the opportunity	6. Producing a schedule for the feasibility study and determining its size and scope based on previous experience, and considering the following points:
7. Market opportunities	7. Deadlines imposed by the organisation
8. Current market penetration	8. An estimation of the time required to complete the feasibility study
9. Current market segments	9. Appointing a research team based on the preliminary study to conduct the feasibility study.
10. Projected growth in each market segment	10. Should a campaign go forward at this time?
11. A review of what is currently on the market	11. Are there any foundations and grants to assist our project?
12. Customer profile and demographics	12. Are we in the optimal possible position to conduct a campaign?
13. Performance objectives expected	13. Is there enough strong leadership available for the campaign?
14. Estimation of customers and potential revenues	14. When is the best time for the campaign to take place?
15. Critical success factors	15. Where will the financial support come from?
16. Determination of competitive advantage	16. What is a feasible goal for the project?

Enduring characteristics	**Secondary issues**
17. Barriers to entry, education, distribution channels, costs	17. Do you have a business plan for this project, product or service?
18. Definition of proposed operations/management structure and management methods	18. What action do we need to take to make our vision a reality?
19. The time frames	
20. The initial costs involved	
21. Financing and projected cash flows - where will the money come from?	
22. Break even analysis	
23. The payback period	
24. Return on investment	
25. A report of cost benefits	
26. Development of an action plan for the project to proceed	
27. A summary of findings	

A feasibility study can be used for any type of new start-up, it does not matter what type of business it is. The feasibility study can be used to assist with making the pivotal decision of proceeding with the start-up after looking at the wide range of business issues that can affect the business. A good way to start the feasibility after looking at Table 6, is to write down the aims and objectives that needs to be achieved by the study. It is important to establish the extent of the feasibility study and state exactly what it intends to achieve. This long list of characteristics also emphases the

importance of following a structured framework when conducting a feasibility study, because many of these characteristics can easily be overlooked.

2.4.8 Feasibility study framework requirements

The following requirements, as presented in Table 7, were derived from the literature in Section 2.4. These requirements will be used to serve as the building blocks for the framework.

Table 7 - Feasibility study framework requirements

Type requirement	**Requirement**
Functional requirement	The framework must provide enough information to help an e-business start-up determine what it will take to potentially be feasible.
Design restrictions	The framework does not focus on management- or team-feasibility of an e-business start-up, only on the market- and financial-feasibility.
Attention point	Feasibility study framework are not easily available and there is no clear expert in the field of feasibility studies. This framework was set up without clear guidelines of how to create a feasibility study.

2.5 Conclusion to Chapter 2

This chapter explored the different research domains separately to provide the base of the literature for the research study. Enough information was provided for the author to integrate all the research domains and conceptualise the literature where the domains overlap in the next chapter. The necessary framework requirements used as the building blocks of the framework can be created from the literature in Chapter 2 and Chapter 3.

3 INTEGRATIVE RESEARCH

This chapter investigates the components of a feasibility study that will influence e-business start-ups and the importance of each component. Figure 17 summarises the chapter layout and mentions the sub-research questions, as seen in Section 1.3 that is addressed in this chapter.

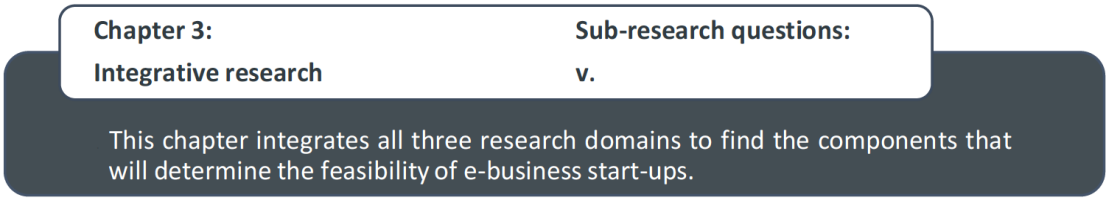

Figure 17 - Chapter 3 layout adapted from Figure 5

As seen in Figure 17, this section integrates all three research domains to find the components that will provide the feasibility of e-business start-ups. Figure 18 illustrates the integration of the research domains.

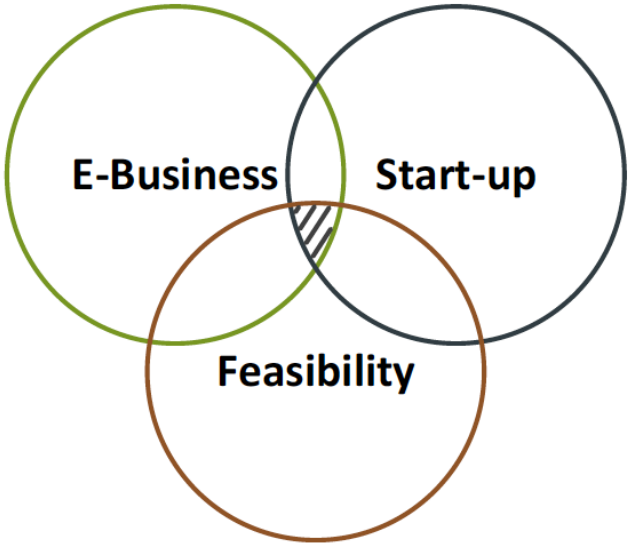

Figure 18 - Final step from Figure 4 in the literature development process

The overlapping area of the three domains has little to no existing literature. Thus, the three domains were placed into context through the interpretation of the author. Chapter 2 provided literature about the three domains that was used to determine the important components for the

feasibility study framework. This chapter provides the author conceptualisation of the integration of these three domains. This study took the first step to make sense of the overlapping area of the three domains.

3.1 The start-up idea and basic background

The insights provided in this section were synthesised from the elaborative research done for sections 2.1.1, 2.1.2, 2.2.1, 2.3.1 and 2.3.4. This section provides the authors conceptualization of the start-up idea and basic background of the start-up.

Before a feasibility study can be conducted, there are a few objects of the study that must be very clear to ensure the successful completion of the feasibility study. How the start-up idea fits into the framework of the general economic conditions of the country or countries that the start-up is or will be based in must be clear before the feasibility study can be properly conducted (Behrens and Hawranek, 1991).

The project idea and the basic background of a feasibility study aims to provide enough background information about the start-up as well as the direct and indirect environment that affects the start-up. This part of a feasibility study will not only provide the reader of the feasibility study with enough information, it will also help the e-business start-up to formulate the start-up idea as well as do thorough research about the environment that the start-up will be in. To ensure that the relevant information is provided, three parts must be covered, namely: 1)start-up idea; 2)background; and 3)environment.

3.1.1 Start-up idea

When formulating the idea of a start-up it is best to divide it up in two parts. The problem and the solution. If the start-up does not solve a problem, it can be difficult to measure the feasibility of a start-up. When solving a problem, the start-up creates a value for a certain customer segment. This can be referred to as the value proposition of a start-up. A value proposition aims to solve a problem for the customer or to satisfy their specific needs and describe the combination of elements, products and services that creates value for a customer segment. A list of examples that can contribute to value creation can be seen in Table 8. These are not the only examples that can contribute to value creation, but these examples can serve as a guideline when looking to find the

value that a start-up provides. When the value that a start-up creates can be determined, the idea of a start-up can be formulated and clearly explained.

Table 8 - Value creation examples

Value creation	**Description**
Newness	Newness refers to value offerings that satisfy an entirely new set of needs that customers possibly did not even perceive they had. Newness is often related to technology, but this need not always be the case (Osterwalder *et al.*, 2009).
Performance	Performance refers to fitness for use and achieving the desired output. Improving product or service performance is a classic example of creating value (Osterwalder *et al.*, 2009). It involves doing things better, faster, with fewer resources, producing fewer defects and acting more efficiently and effectively overall.
Customisation	Customisation refers to tailoring products and services to the specific needs of individuals or customer segments. Recently, mass customisation and customer co-creation have gained traction, as they allow for customised products and services, while taking advantage of economies of scale. (Osterwalder, *et al.*, 2009)
Getting the job done	The "getting the job done" element refers to helping customers to get particular jobs done, thereby creating value for them (Osterwalder, *et al.*, 2009).
Design	Design is another element that can lead to value creation, but this element is often difficult to measure (Osterwalder *et al.*, 2009). It may refer to aesthetic stylising to fit with newer fashion trends, but on a more functional level, it may also refer to designing for modularity of components, designing for fewer components to ease assembly, and designing for environmental friendliness.

Value creation	**Description**
Branding or status	Value can also be unlocked for the customer through a company's brand or status (Osterwalder, *et al.*, 2009). Customers may want to express themselves through a brand and intentionally or unintentionally show society certain aspects of themselves. Wearing a Rolex for instance, could signify that a customer wants to be perceived as rich. Buying organic food at Woolworths on the other hand could signify that a person may want their friends to think that they are environmentally conscious.
Price	Another way to unlock value is to offer customers similar value products and services, but at a lower price (Osterwalder *et al.*, 2009).
Cost reduction	Helping customers reduce their costs in doing certain things is another element that creates customer value (Osterwalder *et al.*, 2009). An online customer relationship management application, online recruitment or an online accounting software package are all examples of ways to reduce customers' costs for doing necessary things.
Risk reduction	Reducing customer risk by employing warranties, guarantees or service-level agreements also create value for customers(Osterwalder *et al.*, 2009).
Accessibility	Making products and services accessible to previously untapped customer segments also creates enormous value. This can result from business model innovation, new technologies or a combination of the two. (Osterwalder *et al.*, 2009)
Convenience or usability	Lastly, value can be created by making things more convenient or easier to use (Osterwalder *et al.*, 2009).

3.1.2 Start-up background

The background should include start-up objective, proposed basic start-up strategy, to identify everybody that is involved in the start-up and the history of the start-up.

The most important thing that must be included in the start-up background is the start-up objective as well as the proposed basic start-up strategy. It is important to identify everybody that is involved in the start-up. The start-up initiators name and location must be provided as well as the financial possibilities that the founders will be able or want to invest in the start-up. The role of each founder in the start-up must be clearly stated as well as the role of any mentor. Any other relevant information about the founders and mentors that may be relevant must also be provided. This may include previous projects of the founders and mentors (Behrens & Hawranek, 1991).

You can get the history of the start-up and any history of similar start-ups or businesses, by looking at the following: 1) the dates of essential events in the start-ups history, like the start of the development of the technology that the e-business start-up uses; 2) all the information about these studies about similar businesses, including titles, authors, completion dates etc.; and 3) all conclusions of these similar studies must be considered and investigated to help with any further research (Behrens & Hawranek, 1991).

3.1.3 Environment

The environment of the start-up does not refer to the industry that the start-up is in, it refers more to the location and the direct environment of the e-business start-up. Even though the e-business environment may be similar for all e-business start-ups, the direct environment of all start-ups is different.

Information needed to explain the direct environment of the start-up is the location of the start-up as well as the resources available at this location. These resources are resources that the start-up needs as well as any resources that can help the start-up grow without having a direct effect on the start-up. The location, includes all the different locations, this must include all geographical levels that possibly influence the start-up including local, regional, national and international. It is also very important to know the economic and industrial policies surrounding the product or service that the start-up provides. Or any other related policies, like financial, social, economic or industrial.

3.2 Market feasibility

The insights provided in this section were synthesised from the elaborative research done for sections 2.1.1, - 2.1.6 and 2.4.6. This section provides the authors conceptualization of market feasibility for an e-business start-up.

The market section of the feasibility study is very important and links directly with the financial section. The main focus of the market section of a feasibility study is to determine the demand analysis.

3.2.1 Demand analyses

When determining the demand analyses of a start-up, there are three factors that must be determined to before the market section of a feasibility study can be properly assessed. The most important factor of market feasibility is the market potential. The other factors, industry overview and competition analyses, are not essential when determining market feasibility for an e-business start-up, but can contribute when drawing a conclusion (Stevens & Sherwood, 1982; Capps & Love, 2002).

The demand analyses factor of the feasibility study is essential when determining if an e-business has the potential to be feasible. This factor, however, can also help the founder of a start-up determine the exact market that the start-up wants to target. The focus of the demand analysis factor is to prove if the business has market feasibility (Shome, 1999).

When analysing the demand of a business, there are three steps that must be followed. These steps include; identifying the market segments, identifying market factors, estimating market potential (Stevens & Sherwood, 1982).

3.2.1.1 Market segments

One of the most important concepts that the demand analyses is based on, is that a market for a product or service is made up of several smaller markets, that each has identifiable characteristics. A good example can be the automobile market. When referring to the automobile market, it is referred to a large market that consists of different smaller submarkets or segments. The automobile market can be divided in various submarkets, like the class of car different consumers want. This characteristic can be divided into at least four different segments: family cars, sports cars,

economy cars, commercial cars, etc. The process of breaking down up a market into smaller submarkets, is usually called market segmentation(Stevens & Sherwood, 1982; McDonald *et al.*, 1995; Baloglu & Uysal, 1996).

The basic concept of market segmentation, is that the consumer in one market segment is different from the consumer in another market segment. The rationale behind market segmentation, is to break down big markets into smaller markets, because big markets are too complex and diverse to classify all the consumers in these markets as similar consumers. When breaking down a big market into a smaller market segment, the smaller market segment must be studied on its own. The big market consists of different market segments, but these market segments must not be studied at the same time, because the characteristics of the consumers in each market segment is different.

Markets are usually segmented by a few common bases. These bases are not the only way a market can be segmented, but these bases can be used as a guideline. The bases include: demographic, geographic, product benefits and product usage(Stevens & Sherwood, 1982). Table 9 below explains each base in detail.

Table 9 - Market segmentation bases

Bases for market segmentation	**Description**
Demographic segmentation	Demographic segmentation together with geographic segmentation are most commonly used bases for market segmentation. Variables such as age, sex, income, educational level, etc. are used as the bases for demographical market segmentation. These variables are appropriate for many products and services.
Geographic Segmentation	Geographic segmentation, the other most commonly used bases for market segmentation, uses cities, countries, regions or trade areas as basis of segmentation. For many products or services, this is a very logical framework.
Benefit segmentation	Benefit segmentation refers to the certain benefits that consumers expect from purchases or use of a product. A good example is in the toothpaste market that can be segmented in market segments like flavour, product appearance, brightness of teeth, decay prevention and price. Each of these benefit segments is composed of consumers with different demographics, personalities, geography etc. Each of these represent a distinct market segment.
Segmentation by product usage	Product usage patterns of costumers can also be used as the basis of market segmentation. Consumers can be classified as recurring users or non-recurring users and recurring users can be further classified as light, medium and heavy users. For some products or services, a small number of users account for the majority of the purchases. These products include air travel, car rental, dog food hair products etc. In these cases, product usage rates can be a very important market segment base.

3.2.1.2 Market factors

The demand of a product is caused by a certain reality in the market and these realities are referred to as market factors. When looking at baby beds, the market factor is the number of babies born each year. A market can be defined as merely people with money and a motivation to buy. This means that population figures and income figures can be seen as market factors (Doyle, 2017).

The easiest way to identify market factors, is to follow a three-step process. The first step is to identify the factors that influence the demand for the product or service. After identifying the demand, the relationship between the factor and the product or service must be determined. Lastly the market factor for future years must be forecasted. It can be very difficult and time consuming to accurately forecast market factors. Since many products and services are dependent on the same market factors, much of the forecasting work has already been done and only needs to be located. Forecasts like population forecasts are available and does not require any additional forecasting (Stevens & Sherwood, 1982; Fama & French, 1995).

There are various techniques available that can be used to determine and analyse the impact of market factors on a certain product or service. Regardless of all the techniques that can be used to analyse market factors, the most important part of market factors, is to understand the factors influencing the demand for a product or service and the historical and future trends of those factors (Bird *et al.*, 2005).

3.2.1.3 Market potential

After the market has been divided into different market segments and all the factors that affect these segments have been computed, the next step is to determine the market potential. The market potential refers to the size of the market and the expected sales to this market. The market potential looks at the market as if everyone in the market buys product or service. According to Stevens & Sherwood (1982), market potential can be defined as a quantitative measure of the markets capacity to consume a product in a given time period. The market potential is essential if the profitability of a business needs to be determined (Hanson, 2005; Best, 2012).

For e-business start-ups there are factors that affect the market potential. These factors have arisen because of the change that the internet and the e-business landscape have created. Acquisition cost in Section 2.1.5 and customer life cycle in Section 2.1.3 are the two factors that influence the market

potential of an e-business life cycle. Factors like competitive analysis and industry overview can also help when determining the market potential of an e-business start-up.

3.2.2 Competitor analysis and industry overview

A competitor can very simple be defined as identifying the competitors and evaluating the strategies of the competitor to help determine their strengths and weaknesses (Competitive Analysis, 2017). This information can then be used to compare the strategies of the competitor to your own product or service.

There are lots of tools and types of competitor analyses that has been used through the years (Chen, 1996; Bergen & Peteraf, 2002) These tools are not the best and most effective way of doing a competitor analysis for an e-business start-up. A quick effective competitor analysis that provides enough information about the competitor to compare their service or product to your own will be much more efficient (Competitive Analysis, 2017).

An industry overview goes hand-in-hand with a competitor analysis. The industry overview does not focus on the competitors, but on the industry that the product or service will fall under (Nigudkar, 2016). The main reason for doing an industry overview include to understand how to compete in the industry, to be prepared for the possible changes that the industry will undergo and to make sure that the entering the industry is possible and has benefits (Abraham *et al.*, 2012).

Industries change constantly and it is important to consider the driving forces that are causing the industry to change. These driving forces may include competition intensifying, technological evolution and innovation, globalisation, regulation changes or customer needs and taste changes (Abraham *et al.*, 2012).

3.3 Financial feasibility

The insights provided in this section were synthesised from the elaborative research done for sections 2.1.5, 2.2.3 - 2.2.5, 2.4.6 and 2.4.7. This section provides the authors conceptualization of financial feasibility for an e-business start-up.

This section explains the financial aspects of a feasibility study. It ranges from the different types of costs to the final return on investment or ROI of the business. The bottom line of any business is significantly affected by the underlying cost structure of the business. The cost analysis is closely

linked with the demand analysis and these analyses are needed for a risk analysis and finally to determine the ROI of a start-up. The ROI is the final and perhaps the overriding factor when it comes to feasibility.

3.3.1 Cost analysis

A cost analysis is a complex process that is used to determine the costs when conducting business operations. When analysing cost for feasibility, a cost analysis is very important for the rest of the feasibility study. The final product or service of a business does not always show the different types of costs that went into the product. However, costs are traced through the business operations as the assets and resources of the business is converted into the final product or service. The feasibility of a start-up depends on various factors, but the financial feasibility is measured through, among other things, the revenue and the cost. This means that the business cannot be determined as feasible without dependable cost estimates (Stevens & Sherwood, 1982).

There are many different types of costs. Costs can be categorised together by placing the costs together that have the same purpose. This process can be very difficult and must be done with care. The specific application of each cost is the part that must be understood. Some of these categories will be instrumental when developing the cost summary that will help determine the financial feasibility of a project. Table 10 shows different types of costs.

Table 10 - Cost Types (Stevens and Sherwood, 1982; AccountingTools, 2015)

Cost Type	**Explanation**	**Example**
Period Costs	Period costs are measured by time intervals and not by goods or services.	Equipment rental
Product Costs	Product Costs are the costs that is used to create a product.	Factory overheads, employee benefits
Fixed Costs	Fixed costs are the costs that are expected to stay the same over a period of time regardless of the activity levels.	Rent and salaries.

Cost Type	**Explanation**	**Example**
Variable Costs	Variable costs are costs that vary closely with the production.	Direct labour and material
Semi variable costs	Semi variable costs are costs that fluctuate with volume, but are not directly in relationship with production.	Market research
Direct Costs	Direct Costs are those costs that are distinguishable with a particular product, department or activity.	Direct materials, commission, piece rate wages and manufacturing supplies.
Indirect Costs	Indirect Costs are those costs that are not directly distinguishable with any particular product, activity or department.	Supervision salaries, insurance and depreciation.
Controllable Costs	Controllable costs are costs that can be controlled.	Type of supplies used
Uncontrollable Costs	Uncontrollable costs are costs that cannot be controlled.	Promotional costs
Sunk Costs	Sunk costs are costs that are already spent and is irrelevant to any further decisions.	Development costs, earlier investment costs
Differential Costs	Differential costs are costs that can be defined as the difference between the cost of two alternative decisions or a change in output level.	The difference in cost between a fully automated system and a system that requires manual labour
Opportunity Costs	Opportunity costs are costs that can be seen as the cost of not selecting the next best choice when investing resources in an	A good example of opportunity costs, is the cost that would have

Cost Type	Explanation	Example
	activity. Opportunity costs does not appear in the financial records, but can be useful when doing financial analysis.	been earned during a training period.

Many of the cost types motioned in Table 10 overlap. A fixed cost can also be categorised as a period cost, an uncontrollable cost or even a sunk cost. Judgement must be used in identifying specific cost when developing cost estimates (*AccountingTools*, 2015).

3.3.2 Sensitivity analysis

Sensitivity analysis is a valuable technique that is used to illustrate how the costs of a start-up will be affected by changes in variables or by errors in the data input. Sensitivity analyses are often referred to as "what if" analyses, because this is the question that a sensitivity analysis aims to ask. A sensitivity analysis usually starts establishing a base of the situations that are most likely to happen. Once the most likely elements or the base cases are established, the key variables can be selectively changed to determine the results of the impact. The variable with the most negative as well as the variable with the most positive affect can also be determined. The bigger the affect that a variable has on the start-up, the more sensitive this variable must be estimated. Thus, the purpose of a sensitivity is to determine the variables that has the biggest impact on the outcome the start-up's financial feasibility. Sensitivity analysis can be used effectively to determine the consequence of change in a variable.

There are a lot of different types of sensitivity analyses methods. These methods can range from the simple breakeven method to the complex quantitative model-independent method for global sensitivity analysis(Stevens & Sherwood, 1982; Saltelli *et al.*, 1999). This study does not provide information on different types of models and what models work the best.

3.3.3 Risk analysis

The risk analysis goes hand in hand with a sensitivity analysis and picks up where the sensitivity analysis stops. A sensitivity analysis only asks the question what if, but cannot identify the likelihood of a change in a variable occurring. A risk analysis is the process of identifying and determining the degree of likelihood of changes in variables and the affect that this change will have on the feasibility

of a start-up. In information technology, a risk analysis is often used to align the technology-related objectives with the business objectives of a company (Stevens & Sherwood, 1982; Vose, 2008).

There are two types of risk analyses, namely qualitative and quantitative risk analyses (What is risk analysis? - Definition from WhatIs.com, 2010). A quantitative risk analysis can be done by using various numerical methods that determine the probability of various events and the likely loses of that each of these events can cause (Rider *et al.*, 2000; Vose, 2008)

The qualitative analysis model is used more often and easier to use than the quantitative risk analysis. Instead of involving numerical methods, the qualitative analysis simply involves defining the various risks that can occur and determining the extent of each risk and how each risk can be mitigated (Rider *et al.*, 2000; Vose, 2008). This method will be much more efficient for e-business start-ups, because it is much more time efficient and requires a lot less data.

3.3.4 Return on investment

Return on investment or more commonly referred as ROI, is simply put how much the investment returns on an annual basis. ROI can help to measure the performance of an investment, start-up or any project and then evaluate the efficiency of the investment. It can be seen as the most meaningful and popular measure of financial success. The ROI itself however does not measure the risk of the investment, it only focusses on the performance that is expressed as a percentage or a ratio. In other words, ROI is very helpful in determining the health of a start-up, because it measures the amount of return on an investment relative to what the investment cost.(Stevens & Sherwood, 1982; Phillips, 2002)

To calculate the return on investment, the net profit is divided by the total investment required to generate the profit. The formula for calculating return on investment is:

$$Return\ on\ investment\ (ROI) = \frac{Net\ Profit}{Total\ investment}$$

Return on investment is a popular and easy to use metric, because it is very versatile and simple. Essentially, ROI can be used as a basic funnel for the profitability of an investment, making it applicable for a wide variety of different investments. This metric only applies if the investment does not have a positive return on investment (Stevens and Sherwood, 1982; *Return On Investment - ROI*, 2017).

There are however a few limitations when calculating the ROI of an investment. This can lead to incorrect conclusions about the profitability of an investment. The biggest limitations that ROI has, is that it does not inherently account for the amount of time during which the investment is taking place. This limitation can be prevented by comparing other metrics with return on investment. These metrics include, net present value and internal rate of return. Both these metrics are explained in Section 3.3.5. Another limitation is that ROI can easily be manipulated to suit the user's purpose and the results can be expressed in various ways. It is important to not just look at the ROI, but also at the bigger picture (*Return On Investment - ROI*, 2017).

3.3.5 Financial analysis

When analysing an investment there are other methods that can be used to further explain the performance of an investment and provide additional information that the return on investment does not provide. There are two types of methods when measuring the value of an investment, time value methods and non-time value methods. Return on investment is a non-time value method and as mentioned in Section 3.3.4, this method has some limitations. Three concepts commonly associated with time value methods are net present value, internal rate of return and present value index. These methods along with their advantages and disadvantages are explained below:

3.3.5.1 Net present value (NPV)

The net present value's basic idea is to overcome the disadvantages of the non-time value methods, by providing the perfect balance between the investment cost and the future benefits that the investment may provide over a time period. Simply, the net present value can be explained as the difference between the present value cash inflows and the present value cash outflows. The net present value can be calculated by the following formula:

$$Net\ present\ value\ (NPV) = \sum_{t=1}^{T} \frac{C_t}{(1+r)^t} - C_0$$

$$C_t = net\ cash\ inflow\ during\ period\ t$$

$$C_0 = total\ initial\ investment\ cost$$

$$r = discount\ rate$$

$$t = number\ of\ time\ periods$$

The net present value formula determines the present value of the net investment cost, estimates the future cash flow as well as discounting the estimated cash flows to present value and then subtracting the net investment costs from the present value of the estimated discounted cash flows. The amount that is derived from the formula can determine if the investment is profitable or not. If the amount derived from the formula is a positive NPV will be profitable and if the amount is a negative NPV will result in a net loss. A positive NPV thus indicates that the project earnings projected over a certain period is more than the net investment. It can be assumed that the investment should only be made if the net present value is positive.

NPV is a fairly simple to understand and easy to use method, that considers the time value of money as well as concentrates on the value of costs and profits in a comparable time frame. This method however assumes that cash flows can be estimated for the lifetime of the investment. It is also very sensitive to changes the interest rate that is used discount the values.

3.3.5.2 Internal rate of return (IRR)

The internal rate of return can simply be seen as the yield of the investment. It is the discounted rate that it takes to make all the net present values of the cash flows from an investment equal to zero, meaning that internal rate of return is the discounted rate that makes the future cash flows equal to the investment cost. The IRR is also a time value method and can be calculated with the same formula as net present value with a slight variation. Instead of calculating the NPV, the NPV is made zero and then the discount rate is solved. The discount rate in this instance will be the IRR.

When looking at the internal rate of return of an investment, the higher the IRR, the better this investment will be. The internal rate of return is closely related to the net present value, making it easy to use with the NVP method. This method is very difficult to calculate without software programmed to calculate IRR. The length of life of an investment also influences the IRR considerably, making it misleading if used alone.

3.3.5.3 Present value index (PVI)

The present value index method is similar to the net present value method. The only difference is that the instead of subtracting the net investment cost from the present value of the estimated discounted cash flows, the present value of the estimated discounted cash flows is divided by the net investment costs. This method can be seen as the benefit over cost ratio of discounted cash

flows. The only reason that the PVI is important, it can show the difference between several alternative investments that have similar NVP.

3.3.5.4 Net profit and revenue

Revenue simply put, is the total amount of money that a company make by selling a product or a service. The amount of goods sold multiplied by the actual cost of goods sold equals the revenue. Top line or gross income are other terms that can be used to describe revenue (Porter, 2001; Revenue, 2017, revenue Meaning in the Cambridge English Dictionary, 2017).

The net profit of a company is the amount that is left after the total expenses are deducted from the revenue. Net income, net earnings or the bottom line are all common terms that can be used to describe the net profit of a company. The total expenses that must be deducted from the revenue to determine the net profit consist of operating expenses, interest expenses and taxes (Net Profit Definition & Example | InvestingAnswers, 2017, Gross Profit Vs. Net Profit | Chron.com, 2017).

3.4 Conclusion to Chapter 3

This chapter integrated the research domains through the authors conceptualization of Chapter 2, to provide literature on the overlapping part of all three research domains. The literature in this chapter was used to create the rest of the framework requirements necessary as building blocks to create the framework.

4 DEVELOPING THE FEASIBILITY STUDY FRAMEWORK FOR E-BUSINESS START-UPS

In this chapter, the requirements that were subjectively extracted from the literature to help develop the feasibility study framework for e-business start-ups, are presented and explained. These requirements are categorised to help further break down into different types of requirements that could be used to help develop the framework. The literature in the preceding chapters provided an extensive overview that helped create the requirements after which the requirements were categorised to support the development of the feasibility study framework for e-business start-ups. Figure 19 summarises the chapter layout and mentions the sub-research, as seen in Section 1.3 that is addressed in this chapter.

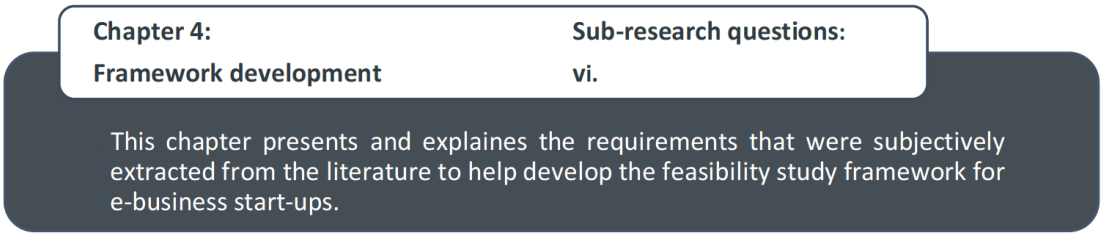

Figure 19 - Chapter 4 layout adapted from Figure 5

4.1 Need for framework design

Feasibility for start-ups needs the requirements to build the framework. This framework will be the result of the research. It is thus important to ensure these requirements align with the research conducted earlier as they were aligned to the purpose of fulfilling the problem statement.

4.2 Requirements for framework design

The requirements are categorised as by the categorisation method created by van Aken et al. (2007) and used by Brockmöller (2008), Weber (2011) and Krause et al. (2015). The following sub-chapters firstly explain the different requirement categories and then categorise the requirements. The requirements are stated under each category with a motivation for each requirement.

4.2.1 Requirement categories

Before the framework can be designed and developed, the requirements first need to be created. The requirements are divided into five different types as designed by van Aken et al. (2007). These categories can be defined as:

1. User requirements (U): Specific requirements from the viewpoint of the user which explains the constraints as well as how the user will use the framework.
2. Functional requirements (F): This forms the core of the requirements specifications. These requirements are in the form of performance or result demands for the framework that needs to be designed. The functionality that the framework is designed to have.
3. Design restrictions(R): These are the restrictions that the preferred solution will have, but this framework will not have. Elements that are not covered in the design as well as the limits and the exclusions of the design.
4. Attention points (A): These are requirements that are relevant for the framework, but does not have to be met and does also not restrict the design of the framework.
5. Boundary conditions (B): These requirements are rules that must be met unconditionally and can under no circumstance be altered in any way. Examples may include legislations, ethical habits, code of conduct, etc.

There are some requirements that can be categorised as more important than others, e.g. functional versus the attention points, but providing a requirement is showing us that it is one that requires consideration. The assignment of the requirements can be seen as subjective, because it was done by an educated guess and with the perspective of the literature study. This is the reason for some requirements categories being more important than others in some cases. Nevertheless, each requirement is important for the framework and cannot be deemed more important than another requirement in the same category.

4.2.2 User requirements

The users that were considered in the user requirements were the founders of e-business start-ups and the liaison managers of start-up incubators. As previously mentioned in Sections 2.2.3 and 2.2.4, the knowledge of a liaison officer and entrepreneur varies for each case, but the framework will be designed for a liaison officer with the ground level experience and an entrepreneur with no

experience. The requirements in Table 11 are verified in Chapter 6 to ensure that the framework satisfies its goal. The user requirements with its motivation and reference to its extraction in literature are listed in Table 11.

Table 11 - Feasibility study framework for e-business start-ups - User requirements

Requirement ID	**Type of requirement**	
U1	Requirement	The Framework should consider the environment of e-business start-ups.
	Motivation	The e-environment can be different for all types of e-business start-ups. The difference between each start-up can be tremendous. The framework should allow for e-business start-ups that differ in constraints, such as number of employees, access to resources, education, etc. The difference of the e-environment can be seen in Sections 2.1 and 2.3.1.
U2	Requirement	When using the framework, a user should be allowed to apply their own discretion.
	Motivation	The framework should be designed, so that it can be used for all the different circumstances of the e-business start-up founders or incubator liaison officers that use the framework. (Sections 2.2.3 & 2.2.4)
U3	Requirement	The framework should be user friendly and straight forward.
	Motivation	The framework should consider the e-business start-up is still in the idea phase and as seen in Section 2.3.4 the founder does not necessarily have the knowledge or background for a complex framework.

Requirement ID	Type of requirement	
U4	Requirement	The framework should be considered as a decision-making tool for the user of the framework.
	Motivation	During the idea phase of a start-up, there can be lots of uncertainty about the future and the possible success of the start-up as seen in Sections 2.2.3 and 2.3.4. The framework needs to help founders as well as incubator liaison officers decide if it's worth taking the risk.
U5	Requirement	The framework should provide clear definitions and explanations for at least a liaison officer to understand completely.
	Motivation	In other words, the framework should provide enough information to ensure correct application, clear explanations on what each component needs to be determined (Sections 2.2.3 &2.2.4).
U6	Requirement	The framework should allow for all the different sectors of the e-business landscape.
	Motivation	The e-business landscape consists of various industries and the framework should allow for all the different industries that an e-business can function in (Section 2.1)
U6	Requirement	The framework must be able to evolve as the e-environment evolves.
	Motivation	With the ever-changing e-environment as mentioned in Section 2.1, there will constantly come new factors that will have a big influence on e-business start-ups. This

Requirement ID	Type of requirement	
		framework must also be able to evolve and adjust to accommodate new factors.

These requirements provide the basis to guide the design of the framework for the specific user's experience. The user experience will consist of constraints as well as how the user will use the framework.

4.2.3 Functional requirements

The functional requirements provide the core of the performance and demands of the framework. In other words, this means the functional requirements provide the guidelines of what the framework must allow the user to do. To make this process easier the functional requirements can be separated into two groups, the essential- and the desirable functional requirements. The essential requirements of the framework, are the requirements that must be addressed by the feasibility study framework for e-business start-ups and the desirable requirements are the requirements of the framework that do not place strict controls on the framework, but shows requirements that can become best practice one day. In other words, desirable requirements will add value to the way the users use the framework, but the framework will not fail if these requirements are excluded. The functional requirements for the feasibility study framework for e-business start-ups with motivation are listed in Table 12.

Table 12 - Feasibility study framework for e-business start-ups - Functional requirements

Requirement ID	Type of requirement	
Desirable functional requirements		
F1	Requirement	The framework should determine if an e-business start-up will have the potential to be feasible.
	Motivation	This is the main goal of the framework and should be a requirement to ensure that the framework determines

Requirement ID	Type of requirement	
		potential feasibility to help an e-business start-up improve its chances of survival (Section 2.2.2).
F2	Requirement	The framework should support the continued use of the framework.
	Motivation	If the framework determines that an e-business start-up does not have the potential to be successful and this start-up pivots in another direction (Section 2.2.2), then the framework must be easy to use again.
F3	Requirement	The framework must provide enough information to help an e-business start-up determine what it will take to potentially be feasible.
	Motivation	It is very easy for a start-up to fail and the framework must be thorough enough to help an e-business start-up to see what it will take to potentially be feasible in such a harsh environment (Sections2.1.1 & 2.2.2).
F4	Requirement	The framework should promote a learning capability on e-business start-ups and the e-environment.
	Motivation	The framework should make it possible for e-business start-up founders to learn about the e-environment that they will start their business in as well as the market demand and the different market segments (Sections 2.1.1 & 3.2.1).
F5	Requirement	Framework must determine potential ROI.

Requirement ID	**Type of requirement**	
	Motivation	As seen in Section 3.3, the ROI is the main factor that determines the potential feasibility of a business.
F6	Requirement	To help determine the ROI it is important to determine the demand analysis.
	Motivation	Section 3.2 explains that before determining the ROI of a business the market potential must be determined by doing a demand analysis.
F7	Requirement	Framework needs to include other important aspect that make it applicable for specifically e-business start-ups (Acquisition cost. Customer life cycle etc.).
	Motivation	It is important that the framework includes aspects that is only applicable for e-business start-ups, to ensure that the framework is focussed on e-business start-ups and not on all start-ups (Sections 2.1.3 & 2.1.5).
Desirable functional requirements		
Requirement ID	**Type of requirement**	
F8	Requirement	The framework should recommend extra components that can assist the ideal user or other users with determining the potential feasibility of an e-business start-up.
	Motivation	It is very important to help the user as much as possible and by recommending tools that can help the user complete the framework it also speeds up the process

Requirement ID	Type of requirement	
		considerably. Although not meant to be an exhaustive manual, a proposed list of tools would support reaching the goal of the framework.
F9	Requirement	The framework should be useable for start-ups that are past the idea phase.
	Motivation	Some start-ups can already be functional and still do not know if the start-up will be feasible. The framework should make adjustments for start-up past idea phase (Section 2.3.4).
F10	Requirement	The framework should follow and effective and efficient process and design.
	Motivation	This framework should not be a timely process. The idea phase of the start-up should not take too much time. The quicker the start-up can start, the better. This should also be a quick process for the liaison officer. The liaison officer does not have a lot of time and needs to help more than just one start-up (Sections 2.3.4 & 2.2.4).
F11	Requirement	The framework should be structured that a start-up founder can use the framework without the help of an incubator liaison if the founder has the necessary knowledge.

Requirement ID	Type of requirement	
	Motivation	If the founder is not a first-time founder, then the founder has the potential to use the framework without the help and knowledge of an incubator liaison officer. (Chapter 2.2.3 & 2.2.4)
F12	Requirement	Framework must at least determine one of the following to assist the ROI – NPV, IRR, PVI.
	Motivation	In some cases, ROI will not give the exact picture of the potential feasibility of a start-up and that is why these other financial methods can contribute when conducting a financial analysis of a start-up (Section 3.3.5).
F13	Requirement	The framework should determine a risk analysis as well as sensitivity analysis, to ensure a more accurate result.
	Motivation	These analyses can only improve the accuracy of the framework by taking other important factors that can influence the result of the framework into account (Sections 3.3.2 & 3.3.3).
F14	Requirement	The framework should consider the e-customer behaviour.
	Motivation	As mentioned in Section 2.1.6, e-customer behaviour can provide important metrics that can help founders to understand the whole customer life cycle.

Requirement ID	Type of requirement	
F15	Requirement	A competitor analysis and industry overview must be conducted to improve the accuracy of the demand analysis and give the founder more informed about how to enter the market.
	Motivation	Section 3.2.2 explains the importance of a competitor analysis and an industry overview. Highlighting the fact that these components can only be beneficial for the founder.

These requirements provide the basis to guide the design of the framework for the functionality that the framework needs to have. The functionality is the core of the framework and therefor has the most requirements.

4.2.4 Design restrictions

The design restrictions of the framework should provide the limits of the design. In this case, the design restrictions focus on the preferred solution space of the feasibility study framework for e-business start-ups that must be designed. The design restrictions can limit the usefulness of the framework making the framework too narrow or too broad. The design restrictions for the feasibility study framework for e-business start-ups with motivation are listed in Table 13.

Table 13 - Feasibility study framework for e-business start-ups - Design restrictions

Requirement ID	Type of requirement	
R1	Requirement	The framework is not meant to include an exhaustive set of components and methods to reach the objective of the framework, but should be complete enough to suggest sufficient components that can help to achieve the goal of the feasibility study framework for e-business start-ups.

Requirement ID	Type of requirement	
	Motivation	It is very important to help the user as much as possible and by recommending components that can help the user complete the framework. Although not meant to be an exhaustive manual, a proposed list of components would support reaching the goal of the framework.
R2	Requirement	The framework is intended for e-business start-ups, but some principles or suggested components may be applicable for all types of start-ups.
	Motivation	The focus of the framework should be only relevant to e-business start-ups, but some of the concepts might be relevant to start-ups that does not use technology or even for tech start-ups. The difference between tech-start-ups and e-business start-ups are explained in Section 2.1.2.
R3	Requirement	The framework is not a legal or legislative guide. This type of guide requires specialists.
	Motivation	All e-business start-ups must have some sort of legal aspects and tax legislations in place. This framework however does not take account of tax or any legal issues such as terms and conditions for the e-business component of the start-up.
R4	Requirement	The framework does not guarantee that an e-business start-up that is potentially feasible will be successful.
	Motivation	As mentioned in Section 2.2.2, start-ups fail very often. Being potentially feasible does not mean that the start-up will be successful. There are a lot of other factors that also play a role in the survival of a start-up.

Requirement ID	Type of requirement	
R5	Requirement	The framework does not focus on management- or team-feasibility of an e-business start-up, only on the market- and financial-feasibility.
	Motivation	There is a big difference between a start-up being successful and being feasible. This study will only focus on the feasibility and not on all the components that make a start-up successful (Section1.3).
R6	Requirement	The framework is intended for e-business start-ups in South Africa, but may have some principles or suggested components can be applicable for e-business start-ups in other countries.
	Motivation	E-business start-ups in other countries have a different landscape and thus have different characteristics than e-business start-ups in South Africa. The framework should be relevant for e-business start-ups in South Africa. E-business start-ups in other countries will still be able to use the framework to some extent.

4.2.5 Attention points

The attention points of the framework are requirements that are relevant to the design and should be noted, but differ from the design restrictions of the framework. The attention points do not constrain the design of the framework, because they are not hard requirements. The attention points for the feasibility study framework for e-business start-ups with motivation of each requirement are listed in Table 14.

Table 14 - Feasibility study framework for e-business start-ups - Attention points

Requirement ID	Type of requirement	
A1	Requirement	Some of the factors included in the framework may vary for different types of e-business start-ups.
	Motivation	An e-business start-up can be any type of business with an online component as mentioned in Section 2.1. This means that there can be variability between e-business start-ups and different elements effecting the decision making of the start-up. The framework will allow for flexibility in the process.
A2	Requirement	Feasibility study frameworks are not easily available and there is no clear expert in the field of feasibility studies. This framework was set up without clear guidelines of how to create a feasibility study.
	Motivation	As mentioned in Section 1.2 there are not a lot of proper set up feasibility study frameworks available. The framework will be guided by the design requirements to present a properly structured framework.
A3	Requirement	The framework should be used to determine the potential feasibility of an e-business start-up for the founder of the e-business start-up.
	Motivation	The framework must not be used by investors or other stakeholders to determine the potential feasibility of an e-business start-up.

4.2.6 Boundary conditions

The boundary conditions are more rules of use than requirements. This means that the boundary conditions must be met unconditionally for the design of the framework. The boundary conditions

are not supported by the literature review, they are created from the guidelines and work from van Aken et al. (2007). The attention points for the feasibility study framework for e-business start-ups with motivation of each requirement are listed in Table 15.

Table 15 - Feasibility study framework for e-business start-ups - Boundary conditions

Requirement ID	**Type of requirement**	
B1	Requirement	The framework should be used in an ethical and legal way by e-business start-up founders as well as incubator liaison officers.
	Motivation	When the framework is used, the author of the framework has no control about how the framework is used. The framework should be used in a legal and ethical way, also adhering to corporate governance and other relevant restrictions.
B2	Requirement	The framework should be beneficial for all stakeholders and potential stakeholders.
	Motivation	The main goal of the framework should be to determine the potential feasibility of e-business start-ups. The process as well as the result must help all parties that are involved to decide about the e-business start-up. Thus, being beneficial to both parties.
B3	Requirement	The framework should not be used negatively towards any party involved in using the framework.
	Motivation	Nobody should be exploited or overpowered by the other involved party. The framework should be used with the aim of benefitting both parties involved (Weber, 2011).

Requirement ID	Type of requirement	
B4	Requirement	The framework assumes that the technology of the e-business start-up is feasible. No need for any technology to be built for e-business start-up to work in terms of technology that does not exist.
	Motivation	The fundamental difference between a technology start-up and an e-business as explained in Section 2.1.2 is the technology. An e-business does not build new technology, it uses technology that already exists.

4.3 Conclusion to Chapter 4

The literature gives enough background about feasibility and e-business start-ups as well as the e-environment to draw up the framework requirements. Now that the requirements have been drawn up, the design and development of the feasibility study for e-business start-ups can be initiated.

5 FEASIBILITY STUDY FRAMEWORK FOR E-BUSINESS START-UPS

The research objective is to create a feasibility framework for e-business start-ups that can determine the possible feasibility of an e-business start-up before the start-up has left the idea phase. Chapter 5 documents the development of the feasibility study framework for e-business start-ups. Requirements for the framework were set out in Chapter 4 and were constructed by an extensive literature review in Chapters 2 & 3. These requirements were constructed as building blocks and served as the foundation of the framework. The methodology that was used to create the framework is explained in Section 5.1.3. The framework is presented as a diagram in Section 5.2. The main objectives of the framework are summarised in Section 5.1.1. After the framework, an illustrative example of the framework follows in Section 5.3. Figure 20 summarises the chapter layout and mentions the sub-research, as seen in Section 1.3 that is addressed in this chapter.

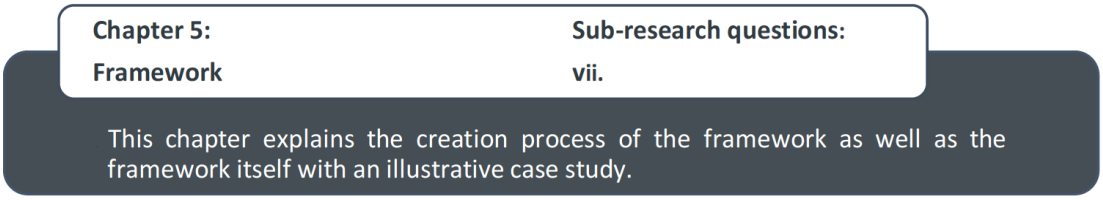

Figure 20 - Chapter 5 layout adapted from Figure 5

5.1 Introduction

The introduction briefly explains the objectives, the ideal users and the methodology of the framework. It is important to understand all these sections before the framework creation process can be explained in Section 5.2.

5.1.1 The main objectives of the framework

As mentioned in Section 1.2, it is difficult for start-up founders to determine if it is feasible to start a start-up, this can be due to various factors. Together with this, the number of start-ups that fail is significantly higher than the number of start-ups that are successful as mentioned in Section 2.2.2.

As mentioned in Section 1.2 there is a real lack of feasibility study examples and guidelines and this highlights the need for a feasibility study framework for e-business start-ups. There is no predominant expert in this field of study and no clear academic research that shows the correct way of conducting a feasibility study for e-business start-ups.

Recently, start-ups have grown more and more popular and it is starting to become part of the current economy (Section 2.1.1). With the high failure rate as well as the difficulty of starting an e-business start-up the feasibility study framework for e-business start-ups can be used by the founders of the start-up to increase the chances of survival.

With the increase in start-up popularity, there has been an increase in the growth of start-up incubators. As seen in Section 2.2.4 start-up incubators can also contribute by filtering the vast number of start-ups that apply for incubation. This tedious task has not been streamlined by a very easy system that filters through start-ups. By having a framework that the liaison officer of an incubator can use to not only stream line the task of choosing start-ups that can join the incubator, but also helping a start-up to determine potential feasibility liaison officers can contribute more to their incubator.

The framework can also be beneficial for potential investors that are interested to invest in early state start-ups. By increasing the changes of an early stage start-up to secure investors, the changes of a start-ups survival drastically improve.

It is clear that a feasibility study framework for e-business start-ups can be beneficial for more than one user. The objective of the feasibility study framework was to determine the potential feasibility of an e-business start-up. By answering the research questions in Section 1.3, the framework reached the research objective.

5.1.2 Potential users

It can be difficult to identify one clear user for the framework. The framework solves a problem for more than one type of user and this makes it possible for the framework to have more than one user.

Even though the framework is designed for start-ups, the ideal user is not necessarily a start-up founder. To use the framework with the best possible outcome, the user of the framework must at least have background or experience in the e-business start-up environment. This makes it very

difficult for a first-time start-up founder to use the framework to its full potential. The framework is designed to be used when the start-up is in its idea phase, this means that some founders might have no experience at all. If a start-up has more than one founder, the framework might be easier for them to use. In this case, the potential ideal user will be if a team of more than one founder of an e-business start-up that use the framework together.

Start-up incubators generally have a liaison officer or mentor that has a close relationship with the all the start-ups in the incubator. Another example of the potential ideal user for the framework is an e-business start-up founder that is assisted by a liaison officer. The framework can be explained or simplified by the liaison officer if necessary.

The third and final potential user can be investors. Investors can ask start-ups that they are interested in for potential funding, to complete the framework. This can help investors and start-ups with potential early stage funding.

5.1.3 Framework methodology

The methodology followed to create the feasibility study framework for e-business start-ups was followed to create a framework that can evolve over time as the e-environment changes. The e-business start-up environment is an ever-changing environment that changes as technology develops and innovation is used to improve current processes. Section 2.1.1 explains the e-environment and how easy it can change. In Section 4.2.2, it is also mentioned as a requirement that the framework must be able to evolve as the e-environment changes. This feasibility study framework for e-business start-ups can easily be adjusted to accommodate innovation and changes in the e-business start-ups environment.

The process starts with an extensive literature review about all the factors that affect the feasibility of an e-business start-up. Chapters 2 and 3 cover the literature for e-business start-ups as well as the feasibility for this research study. After an extensive literature review, the framework requirements are set up according to the method created by van Aken et al. (2007) and used by Brockmöller (2008), Weber (2011) and Krause and Schutte (2015). The requirements for this research study was created in Chapter 4. The framework requirements are used as the building blocks of the framework. If something a new component arises that affects the feasibility of e-business start-ups, it must be added as a requirement before it is added in the framework. After the

new requirement has been added, the new component must be added to the framework. This can be done by adding it a new step in the creation process. The new framework can then be verified and validated to make sure the new component is added in the right place. The framework for this research study can be seen in Section 5.2.

5.2 Feasibility study framework for e-business start-ups creation process

The components as well as the creation process of the framework is explained in this section. The framework creation process consists of five steps. Each step explains how a part of the framework fits into the final framework as well as mentions the requirements that is applicable for each step.

5.2.1 Components

The main components are all the components that work together to determine the potential feasibility of an e-business start-up. There are four different groups of components that are required to determine the feasibility of an e-business start-up. These component groups can be divided into five steps when creating the framework.

The framework creation process as illustrated in Section 5.2.2 to Section 5.2.6 shows all four component groups linked together with a mutual component, namely market potential. The market potential is the central component of the framework that links all four main components of the framework. The central component links differently with all four main components. This is explained in each step of the process. The rest of Section 5.2 illustrates how all four component groups are linked together in the five creation steps as well as the process. Step 4 of the creation process shows all the factors that can have an influence on the feasibility of an e-business start-up, but these are not essential functional requirements as mentioned in Section 4.2.3. This means that these components are not essential when determining the potential feasibility of an e-business start-up, but can add to the knowledge of potential feasibility.

The rest of the components in the framework, step 1 to step 3, all have a direct influence on the potential feasibility of an e-business start-up. These components are clearly mentioned in the essential functional requirements for a feasibility study framework in Section 4.2.3.

As mentioned in Section 5.1.3, the framework methodology was set up to consider the ever-changing environment of e-businesses. If any there are any changes in the e-environment, new components that affect the feasibility of e-business start-ups can arise. These components can be added to the framework by adding a new step to the framework.

5.2.2 Feasibility study framework creation process step 1

The framework creation process starts with the most important factor for determining the potential feasibility of an e-business start-up, the ROI. Step 1, Figure 21 illustrates all the components needed to determine the *ROI* as well how these components link with the central component, *market potential*. As explained in Section 3.3.4 ROI can be determined if the *total investment* as well as the *net profit* are determined.

First, the total investment is calculated as explained in Section 2.2.5 by looking at the entire *input* of the founders in the e-business start-up. The input can be explained as the total contribution that is needed to get the e-business start-up started. This contribution can be divided in two components on the one hand it can be a *capital investment* and on the other hand it can be a non-financial investment, like the *time and expertise* that the founder will invest. The capital investment can be an internal or external investment. Internal means the founding team investing their own money and external means getting an independent investor.

Second, the net profit must be calculated as explained in Section 3.3.5.4 by calculating the *gross profit* and *operating expenses*. The operating expenses will have two sides. The one side will include operating expenses such as *rent*, *salaries* and *utilities*. On the other side of operating expenses will be the *marketing cost*. Marketing cost is a component used in step 1 as well as step 3 that are explained in Section 5.2.4. To determine the gross profit, the *revenue* and *cost of goods* are used.

Revenue is the component that links ROI to the central component, market potential. For the revenue of an e-business start-up to be determined, the market potential needs to be determined as mentioned in Section 3.2.1.3 and Section 3.3.5.4. This is the only component that links with the central component in this way. What this means is that revenue relies on market potential making it essential for the Market potential to be determined before the ROI component can be determined.

Step 1 of the creation process is illustrated in Figure 21 and was created using requirements in Section 4.2. The specific requirements used for step 1 are requirement F5 from Section 4.2.3 and requirement U1 from Section 4.2.2.

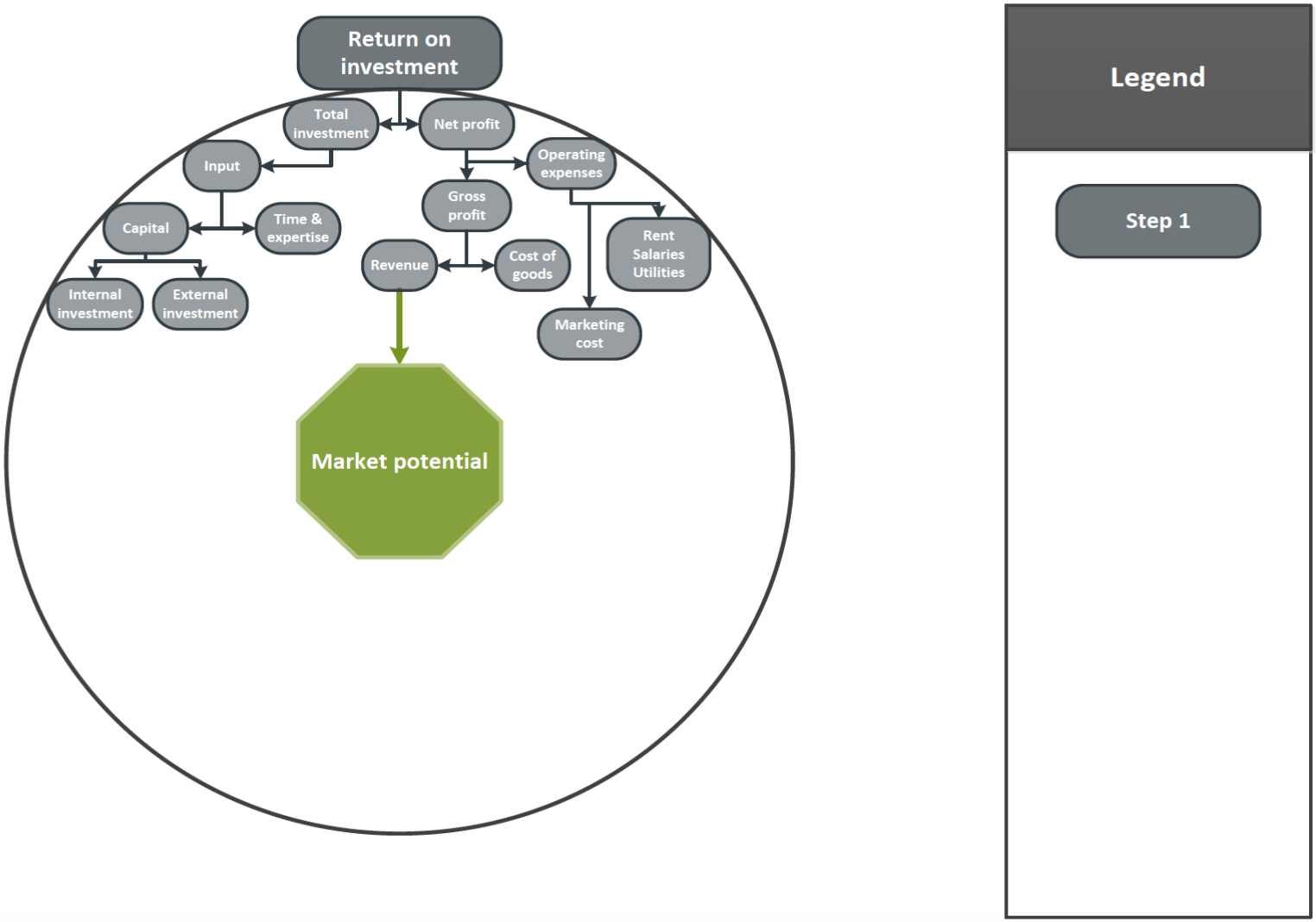

Figure 21 - Step 1 of the framework creation process

5.2.3 Feasibility study framework creation process step 2

Step 2 of the framework creation process starts with the second most important factor for determining the potential feasibility of an e-business start-up, the *demand analysis*. Step 2, Figure 22, illustrates all the components needed to determine the demand analysis as well how these components link with the central component, market potential. As explained in Section 3.2.1, the market potential is what the demand analysis aims to determine.

The demand analysis is divided into two components, namely *market segments* and *market factors*. These components are explained in Section 3.2.1.1 and Section 3.2.1.2 respectively. Both these components are linked with the central component market potential. As mentioned in Section 3.2.1.3, both the market segments and market factors are needed before the market potential can be determined.

Step 2 of the creation process is illustrated in Figure 22. The specific requirement used for step 2 is requirement F6 mentioned in Section 4.2.3.

Framework

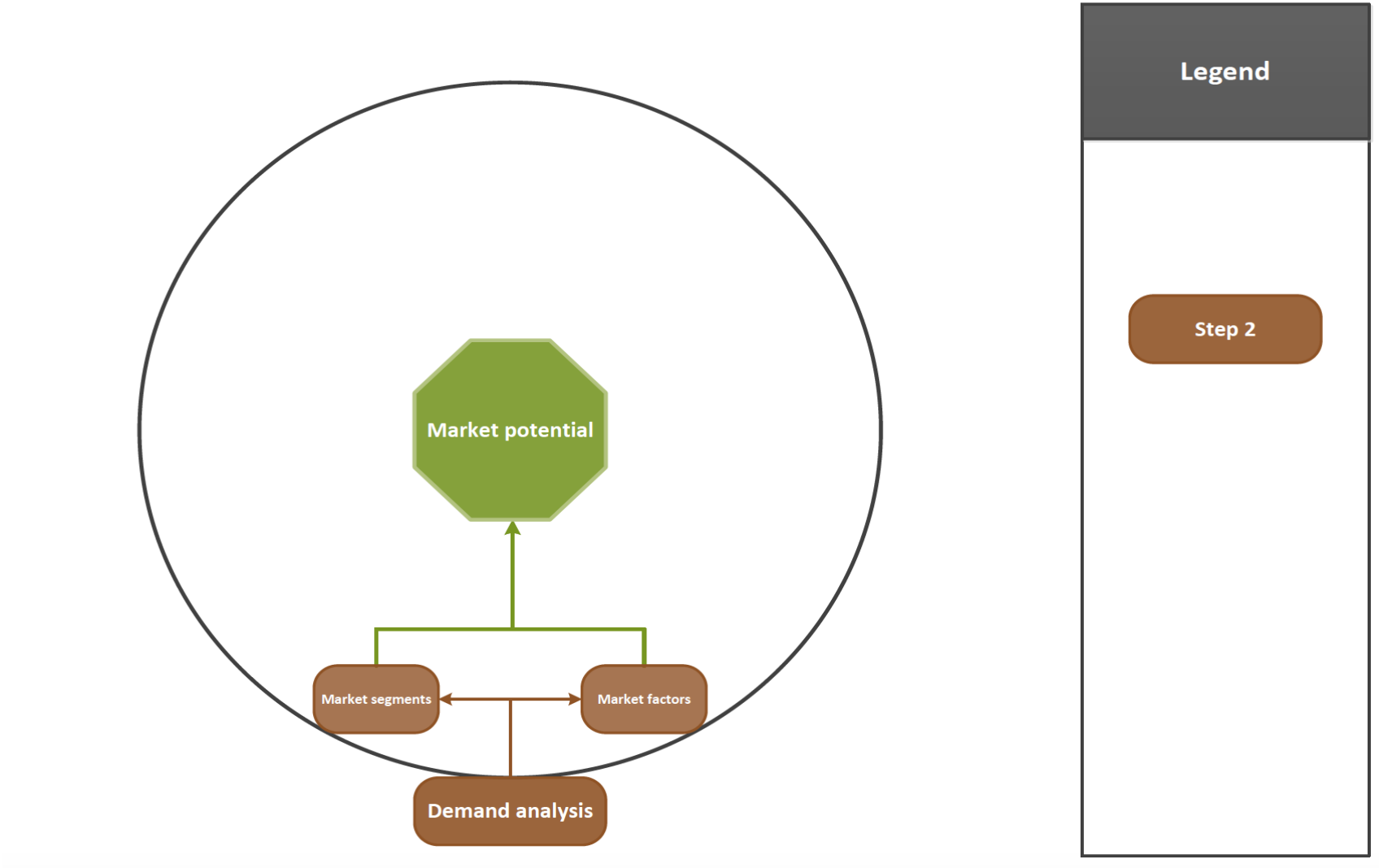

Figure 22 - Step 2 of the framework creation process

5.2.4 Feasibility study framework creation process step 3

For Step 3 of the framework creation process, there are two components that need to be determined, *customer life cycle* and a*cquisition cost*. Step 3, Figure 23, illustrates all the components needed to determine the customer life cycle as well as the acquisition cost as well how these both these sets of components link with the central component, market potential.

The acquisition cost on the right side of the framework is divided into two components, the *marketing cost* and the *number of conversions*. This is explained in Section 2.1.5. The number of conversions is the component that links acquisition cost to the central component, Market potential. As mentioned in Section 5.2.2, the component marketing cost is used in step 1 of the framework creation process as well as in step 3. This component links the return on investment component with the acquisition cost component.

The customer life cycle as described in Section 2.1.3 consists of five different components that influences the feasibility of an e-business start-up. These five components are in sequence in the framework. The customer life cycle starts with the component *reach*, then comes the component *acquisition*, the next component is *conversion* and the penultimate component for the customer life cycle is *retention*. The final component of the customer life cycle is *loyalty*, this is also the component that connects the customer life cycle to the central component.

Step 3 of the creation process is illustrated in Figure 23. The specific requirements used for step 3 are requirement F7 from Section 4.2.3 and requirement U1 from Section 4.2.2.

Framework

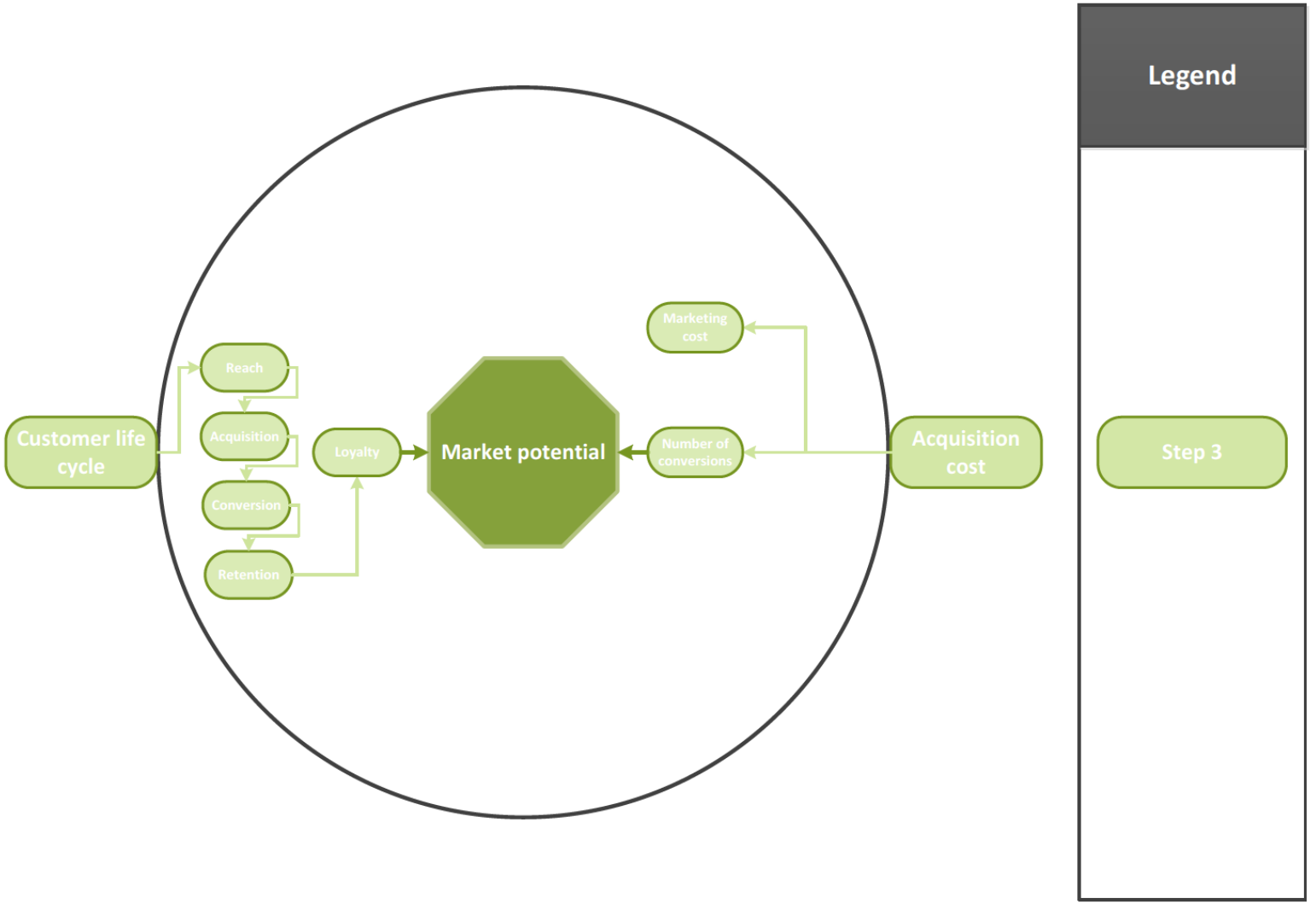

Figure 23 - Step 3 of the framework creation process

5.2.5 Feasibility study framework creation process step 4

Step 4 of the framework creation process is different than the previous steps. This step does not add a component that is linked with the central component. This step only shows all the components that can influence the feasibility of an e-business start-up, but were categorised by the literature review to be outside the immediate impact zone of the framework as seen in Figure 24.

The immediate impact zone means that everything on or inside this zone affects the feasibility of e-business start-ups enough to take it into account. If all the factors outside the immediate impact zone also gets considered, the framework will be too complex and according to requirement U3 in Section 4.2.2 the framework must be simple and easy to use.

In step 4 there are eight components that are not inside the framework. These components include *present value index*, *net present value*, *internal rate of return*, *e-customer behaviour*, *industry overview*, *competitor analysis*, *sensitivity analysis* and *risk analysis*. These components are believed to not have a big enough effect on the feasibility of a start-up to be added into the framework. These components still need to be considered and can be computed to broaden the view on the feasibility of an e-business start-up.

Step 4 of the creation process is illustrated in Figure 24. The specific requirements used for step 4 are requirements F12, F13, F14 and F15 from Section 4.2.3 and requirements U1 and U2 from Section 4.2.2. Requirements F12 – F15 are all desirable functional requirements, as explained in Section 4.2.3.

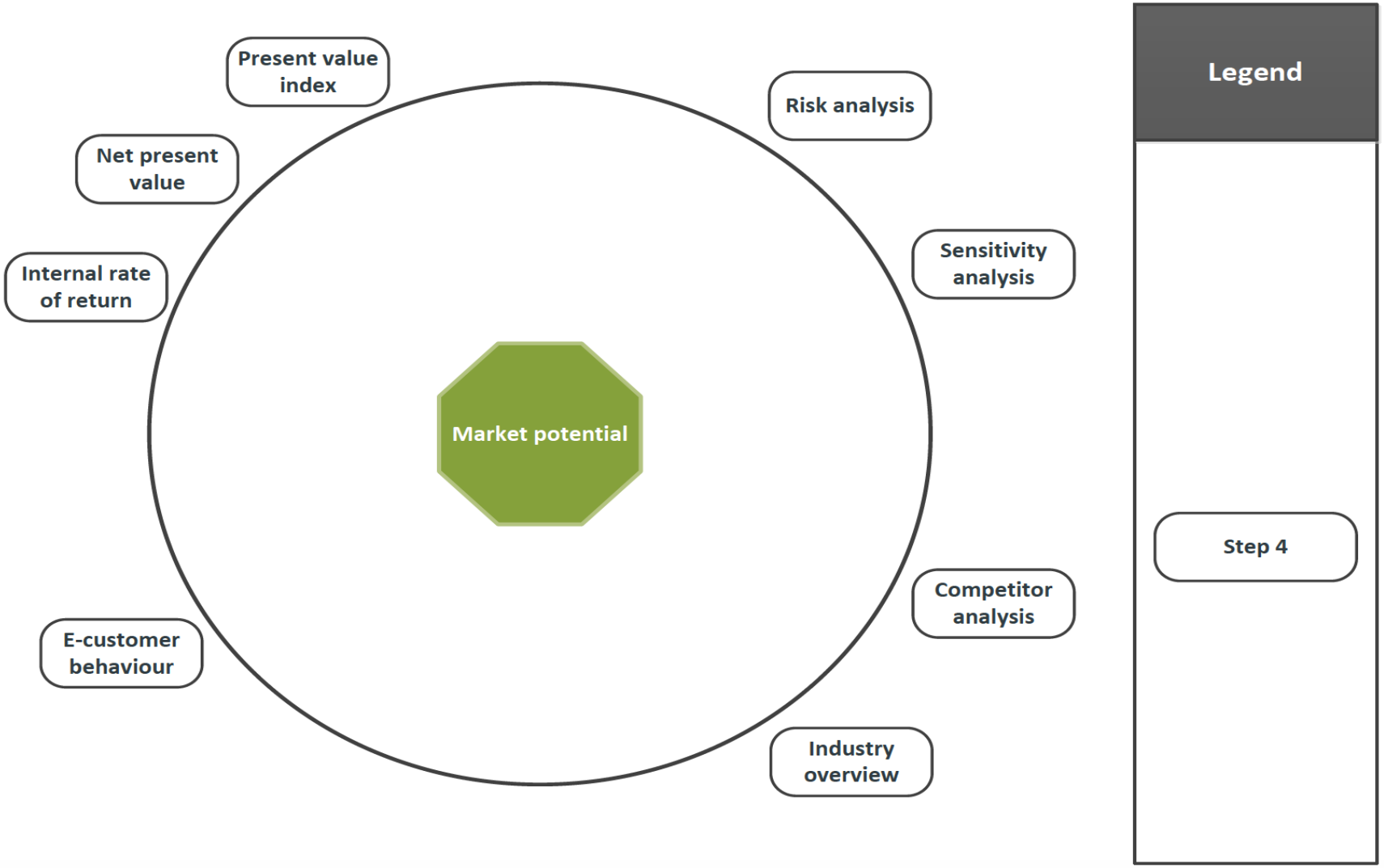

Figure 24 - Step 4 of the framework creation process

5.2.6 Feasibility study framework creation process step 5

For Step 5 of the framework creation process looks at the complete framework. This step made sure that step 1 to 3 links up at the central component and brings together the components in step 4 that is not in the framework.

Requirements that were used throughout the feasibility study framework for e-business start-up creation process can be found in Section 4.2. Step 5 of the creation process is illustrated in Figure 25. The specific requirements used for step 5 are requirements F1, F2 and F3 from Section 4.2.3, requirements U2 and U6 from Section 4.2.2, requirements R1, R2, R4, R5 and R6 from Section 4.2.4 and finally requirement B4 from Section 4.2.6.

Framework

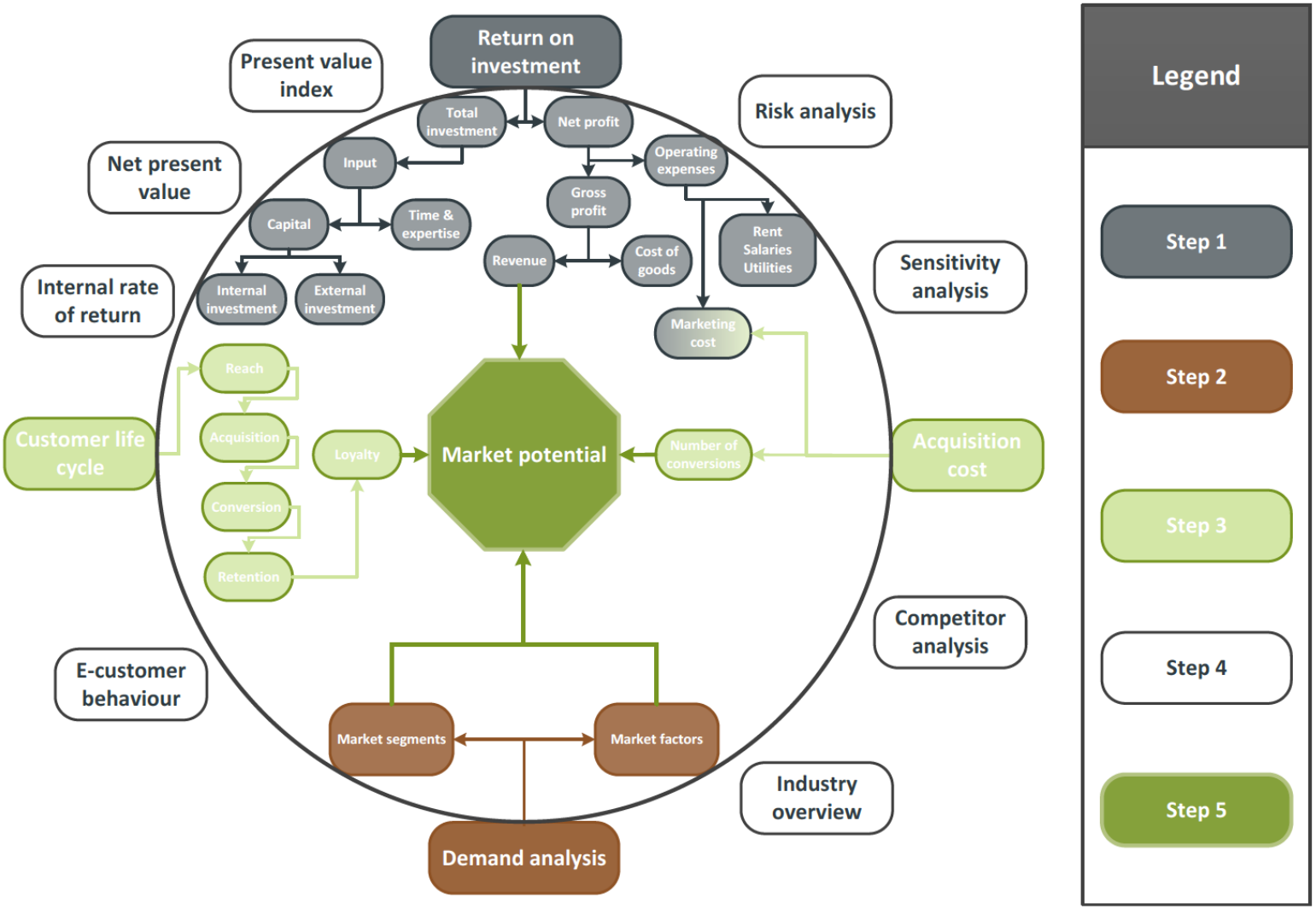

Figure 25 - Step 5 of the framework creation process

5.3 Framework method and illustrative example

Section 5.3 consists of five phases. Each phase explains how a step of the framework is used with an illustrative example of an e-business start-up. The phases are different from the framework creation process steps, because the order is different. How the framework is used differs from how it was created mainly because the steps and phases order are not the same. The e-business start-up that was used as an example to illustrate this process is the e-business start-up called Sxuirrel storage.

Sxuirrel is a peer-to-peer self-storage company that uses an online web platform and interactive mobile application to make the process more accessible to everyone. Efficiently providing a platform for both storage-space providers, and those in need of storage-solutions through the online web platform and interactive mobile application, Sxuirrel aims to revolutionise the self-storage industry.

As mentioned in Section 4.2.2 and Section 4.2.3, requirements U3 and requirement F10 state that the framework must be set up to be user friendly, straight-forward and have an effective and efficient process. To make the framework as user friendly and straight forward there must be an effective and efficient process that needs to be followed. Therefore, the five-phase framework methodology is set out to help the user of the framework.

5.3.1 Phase 1

The first phase of the framework computes the central component of the framework, the market potential. It is important to determine the central component of the framework first, because all the factors of the framework link with the central component. Figure 26 illustrates all the factors needed to determine the market potential. The demand analysis determines the market potential by first determining the different market segments and the market factors that can influence these segments.

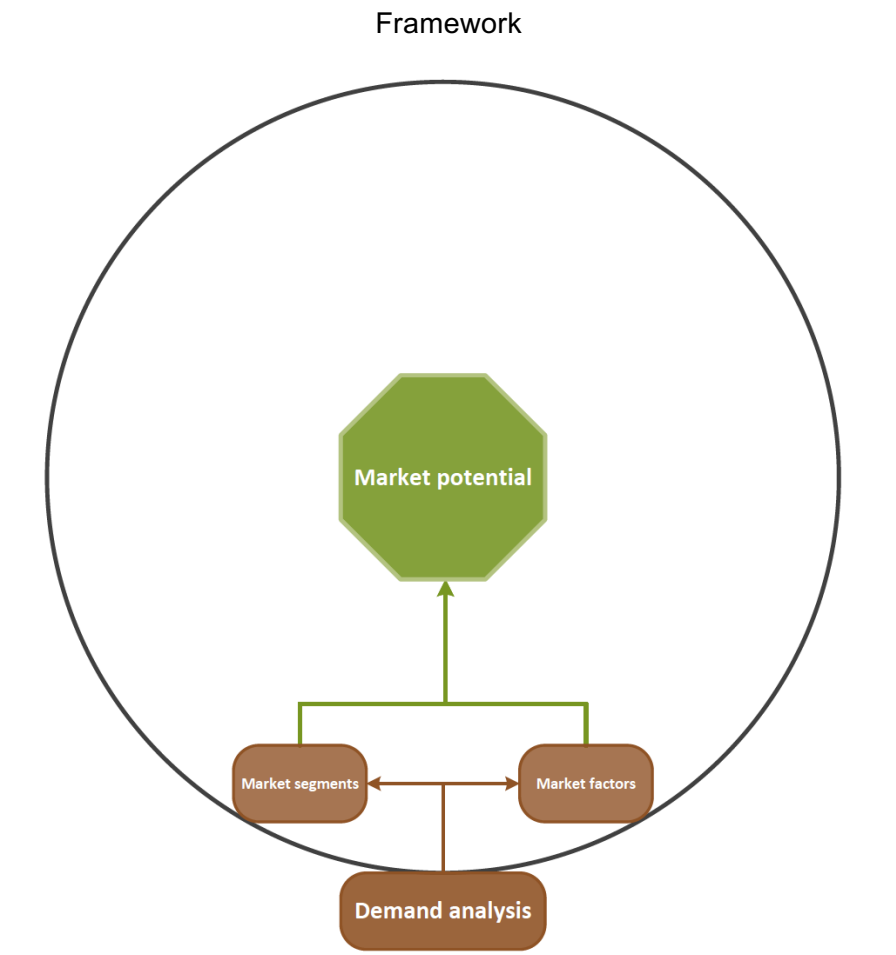

Figure 26 - Phase 1 of the framework methodology

For Sxuirrel, market can be divided into two different market segments, namely the supply side and the demand side. The supply side is people with available space and the demand side is people in need of available space. The illustrative example only focusses on the demand side. There are a lot of market factors that needs to be considered. These factors include the fact that not all people are accustomed to e-businesses. The peer-to-peer market raises a lot of safety issues and a new brand must first build trust in its users.

The South African self-storage industry is a billion-rand industry. Sxuirrel will unfortunately not be able to use the whole market as a potential market, because of the market factors that can affect the market potential. This market can be segmented into different age groups. The oldest market segment, people older than 65, will be left out of the potential market, because of their low technology adoption rate.

This means that the billion-rand self-storage market will be reduced by 90 percent, meaning that the potential market of Sxuirrel is 100 million rand. This market potential will further be reduced by phase 2 and phase 3, before the final market potential can be determined.

5.3.2 Phase 2

Phase 2, Figure 27, of the framework methodology will compute the acquisition cost of customers. This component affects the market potential by looking at the percentage of market that will be converted by the marketing. Acquisition cost consists of two components namely number of conversions and marketing cost. The number of conversions component links with the market potential. Marketing cost will be used during phase 4 of the framework methodology.

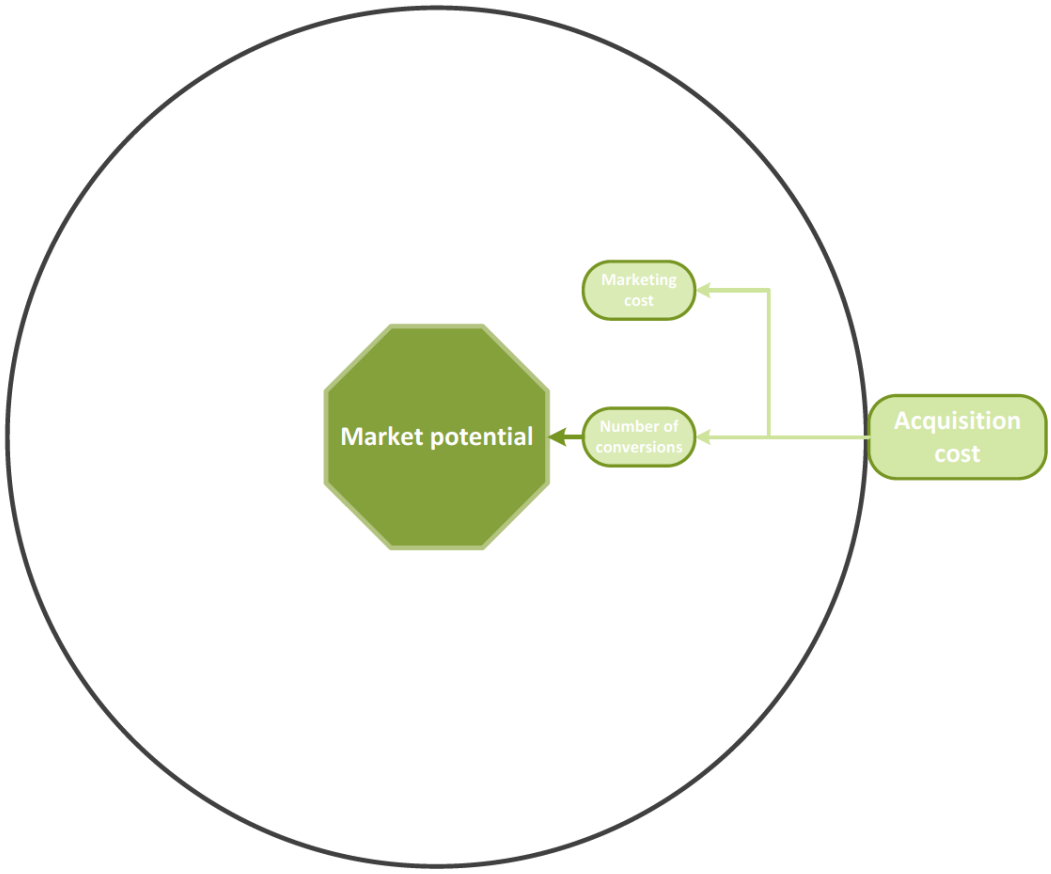

Figure 27 - Phase 2 of the framework methodology

The market potential of Sxuirrel is currently a R100 million, this market potential will be further reduced. The reason for this is, that Sxuirrel is a start-up with a limited marketing budget and not the entire market potential will be converted into users. If Sxuirrel aims to get a good conversion

rate, the number of conversions will be 20 percent of the market potential. This means that the market potential of R100 million will now be R20 million.

5.3.3 Phase 3

Phase 3 of the framework methodology will compute the customer life cycle. This component affects the market potential by looking at the percentage of market that will be loyal. Loyal users are the type of users that e-business start-ups are looking for, because they can spend much more than one-time customers as mentioned in Section 2.1.3. Figure 28 illustrates the second phase of the framework methodology.

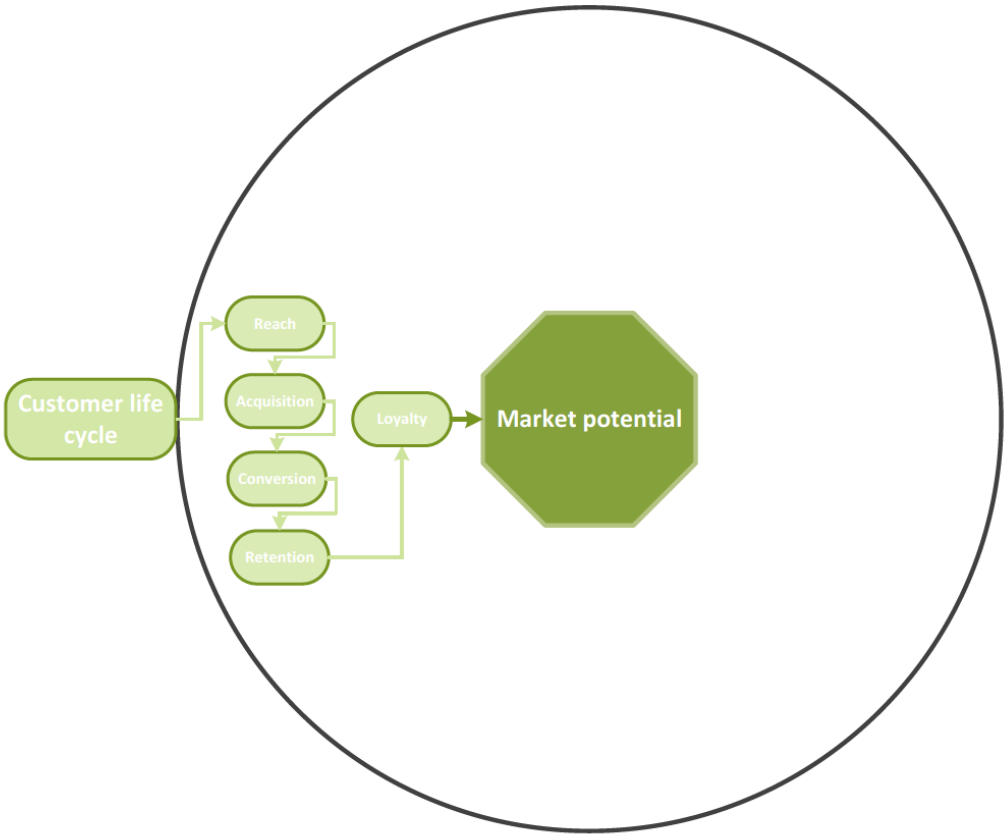

Figure 28 - Phase 3 of the framework methodology

For e-businesses, the customer life cycle is important. Loyal customers are much more valuable than once of customers. Sxuirrel aims to have 15 percent of the market potential as loyal users that will use their service for their entire life cycle. This means that the market potential of R20 million will now be reduced to R3 million per year.

5.3.4 Phase 4

The fourth phase of the framework methodology computes the ROI. This is the most important component and will be used as the main factor when determining the potential feasibility of an e-business start-up. The central component can be used to determine the revenue, which is the component that links market potential with ROI. Marketing cost will also be used to determine the ROI. This component was determined in Section 5.3.2. Figure 29 shows all the components that are necessary to determine the ROI.

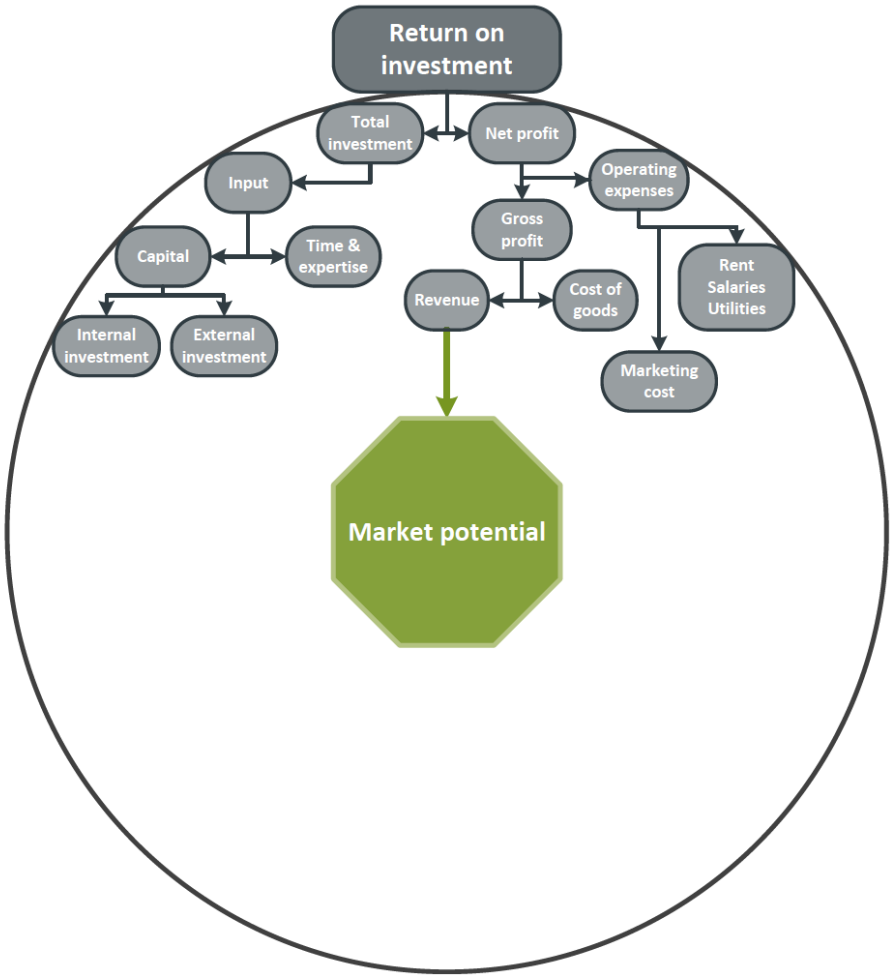

Figure 29 - Phase 4 of the framework methodology

By the calculations made during phase 1 to phase 3, the revenue can now be determined from the market potential as R3 million per year. The cost of goods in Sxuirrel's case is the transaction cost. The transaction cost can be determined as R4 per transaction and close to 3 000 transactions per month to get a revenue of 3 million per year. This means that the cost of goods will be R140 000 per

year. The salaries can be estimated by the number of employees necessary, in this case it will be R840 000 per year. The rent and marketing are estimated as R1.02 million per year. The operating expenses adds up to R1.86 million and the gross profit adds up to R2.86 million per year. The net profit can be determined as R1 million per year.

The total investment of Sxuirrel can be calculated as R5 million. The ROI can then be determined by dividing the net profit with the total investment. The ROI for Sxuirrel was determined as 20 percent.

5.3.5 Phase 5

The final phase of the framework methodology, is a look at the whole framework and all the components that are outside the framework. This is an important phase that will ultimately determine the potential feasibility of an e-business start-up.

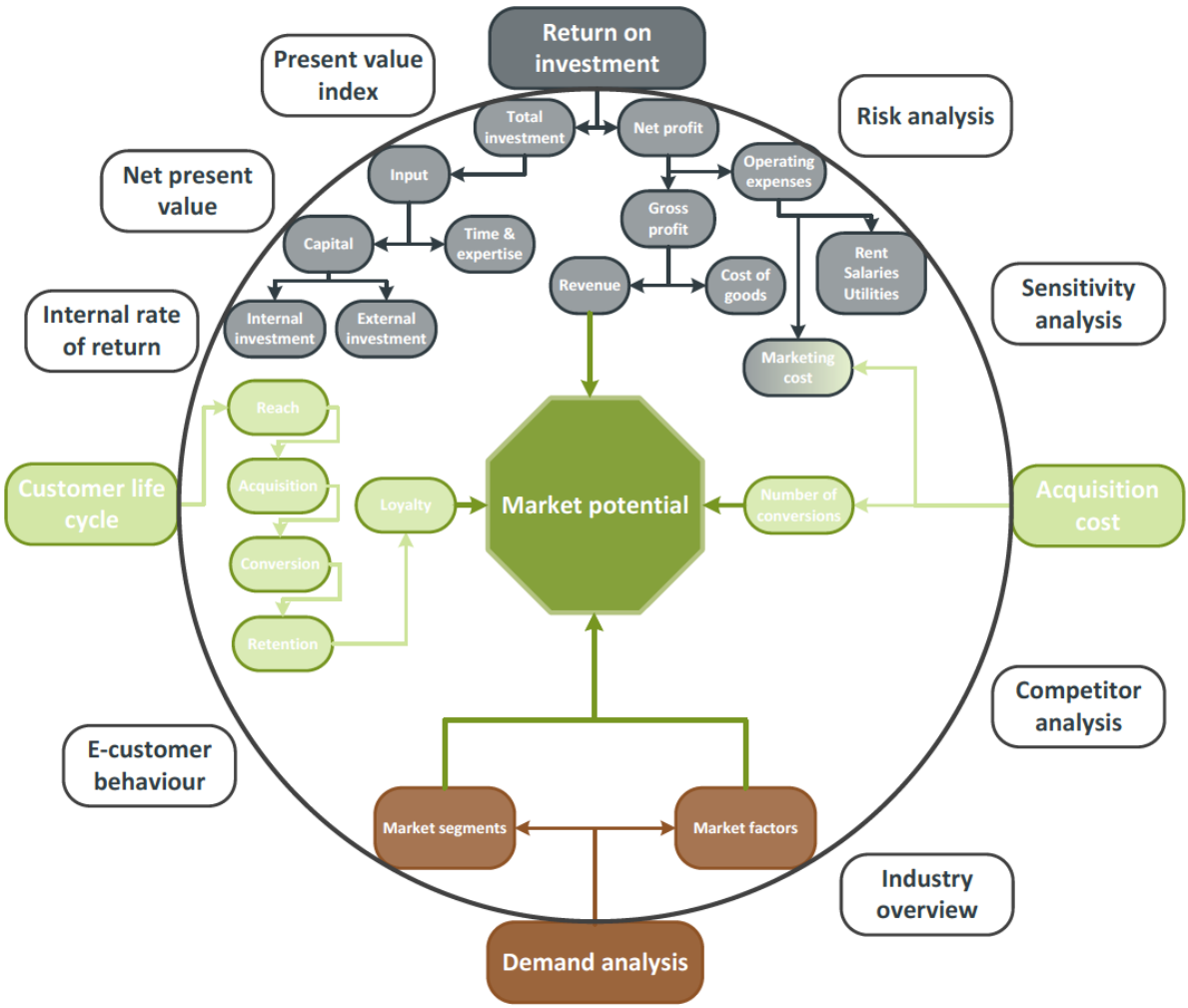

Figure 30 - Phase 5 of the framework methodology

With a return on investment of 20 percent Sxuirrel is potentially feasible. Other factors can influence the potential feasibility of Sxuirrel. It is important to be aware of these factors. When looking at the whole framework, Sxuirrel will be potentially feasible. With a 20 percent ROI, a big demand analysis, acquisition cost that is not to high and a good customer life cycle Sxuirrel can be classified as potentially feasible.

5.3.6 Illustrative case study result

The illustrative case study done on Sxuirrel, determined that Sxuirrel will be feasible. A lot of assumptions had to be made, but the whole case study illustrated the practicality of the framework. However, the case study only focussed on the demand side of the start-up. The framework did not incorporate the supply side of the e-business start-up. The framework can be adjusted to incorporate the supply side of an e-business start-up in future research.

5.4 Conclusion to Chapter 5

This chapter explained the creation process of the framework step by step. By including the requirements that was used in each step of the creation process, the framework can easily be verified in the following chapter. The illustrative case study example in this chapter explains how the framework must be used in 5 phases and serves as the first step of the validation process.

6 VERIFICATION AND VALIDATION OF THE FEASIBILITY STUDY FRAMEWORK FOR E-BUSINESS START-UPS

This chapter deals with a verification and validation process that seeks to establish that the framework has achieved the stated goals of this study. Focussing on the set-out framework requirements, this chapter ensures that the framework satisfies the set-out requirements through the verification process. The validation process will consist of the illustrative example done in Section 5.3 and a round of interviews with experts. There will also be improvements that can be made to the framework based on the feedback obtained from the validation process that was done in this chapter. Figure 31 summarises the chapter layout and mentions the sub-research, as seen in Section 1.3 that is addressed in this chapter.

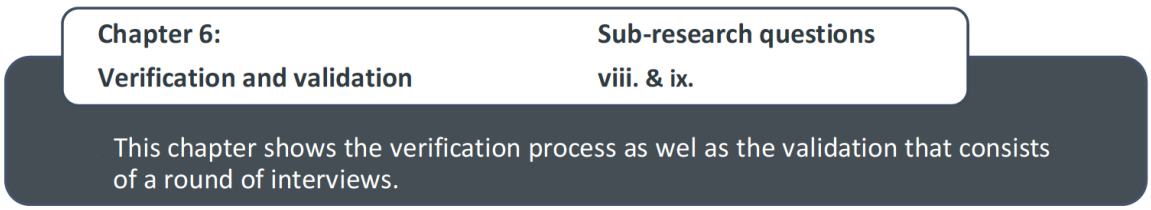

Figure 31 - Chapter 6 layout adapted from Figure 5

6.1 Verification of the feasibility study framework for e-business start-ups

The difference between the verification and the validation of a framework can be explained as follows. Verification is building the system right and verification is checking whether the right system was built (Boehm, 1984). Certain specifications were set out before the framework was built and the verification process must check if the framework has been developed according to the specifications. The requirements in Chapter 4 were set out as specifications for the framework.

The requirements in Chapter 4 were set out in five different categories, namely:

1. user requirements;
2. functional requirements;

3. design restrictions;
4. attention points; and
5. boundary conditions.

Each requirement was used to create the framework. The requirements were verified individually by checking if they are satisfied by the framework. A requirement can be satisfied by the framework or by a specific step in the framework creation process. The verification process was done by comparing each requirement to an applicable stage to test whether the requirement has been satisfied.

6.1.1 User requirements

The user requirements, provided in Section 4.2.2, affect the framework as a whole. In some cases, there are certain steps of the framework creation process that are affected by these requirements. Table 16 illustrates the verification of the satisfaction of the user requirements in the feasibility study framework for e-business start-ups, by showing exactly where the requirements are satisfied.

Table 16 - The verification of the satisfaction of the user requirements in the framework

Requirements	**Step 1 – Determining ROI**	**Step 2 – Market Potential**	**Step 3 – E-customer components**	**Step 4 – Outside components**	**Step 5 – Complete framework**	**The framework as a whole**
U1 - The Framework should consider the environment of e-business start-ups.	✓		✓	✓		✓
U2 - When using the framework, a user should be allowed to apply their own discretion.				✓	✓	✓
U3 - The framework should be user friendly and straight forward.						✓
U4 - The framework should be considered as a decision-making tool for the user of the framework.						✓
U5 - The framework should provide clear definitions and explanations for						✓

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
at least a liaison officer to understand completely.						
U6 - The framework should allow for all the different sectors of the e-business landscape.					✓	✓
U7 - The framework must be able to evolve as the e-environment evolves.						✓

6.1.2 Functional requirements

The functional requirements, provided in Section 4.2.3, are satisfied by the different steps in the framework creation process. Some of the requirements are satisfied by the framework as a whole. Table 17 shows where the essential functional requirements are satisfied and where the desirable functional requirements will be satisfied in best practice.

Table 17 - The verification of the satisfaction of the functional requirements in the framework

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
Essential framework requirements						
F1 - The framework should determine if an e-business start-up will have the potential to be feasible.					✓	
F2 - The framework should support the continued use of the framework.	✓	✓	✓	✓	✓	
F3 - The framework must provide enough information to help an e-business start-up determine what it will take to potentially be feasible.					✓	

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
F4 - The framework should promote a learning capability on e-business start-ups and the e-environment.	✓	✓	✓	✓	✓	
F5 - Framework must determine potential ROI	✓					
F6 - To help determine the ROI it is important to determine the Demand analysis.		✓				
F7 - Framework needs to include other important aspect that make it applicable for specifically e-business start-ups (Acquisition cost. Customer life cycle etc.).			✓			
Desirable framework requirements						
F8 - The framework should recommend extra components that can assist the ideal user or other users with determining the potential feasibility of an e-business start-up.				✓		
F9 - The framework should be useable for start-ups that are past the idea phase.						✓
F10 - The framework should follow and effective and efficient process and design.						✓
F11 - The framework should be structured that a start-up founder can use the framework without the help of an incubator liaison if the founder has the necessary knowledge.						✓

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
F12 - Framework must at least determine one of the following to assist the ROI – NPV, IRR, PVI.				✓	✓	
F13 - The framework should determine a risk analysis as well as sensitivity analysis, to ensure a more accurate result.				✓	✓	
F14 - The framework should consider the e-customer behaviour.				✓	✓	
F15 - A competitor analysis and industry overview must be conducted to improve the accuracy of the demand analysis and give the founder more informed about how to enter the market.				✓	✓	

6.1.3 Design restrictions

The design restrictions provided in Section 4.2.4 affect the framework as a whole. In some cases, there are certain steps of the framework creation process that are affected by these requirements. Table 18 illustrates the verification of the satisfaction of the design restrictions in the feasibility study framework for e-business start-ups, by showing exactly where the requirements are satisfied.

Table 18 - The verification of the satisfaction of the design restrictions in the framework

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
R1 - The framework is not meant to include an exhaustive set of components and methods to reach the objective of the framework, but should be complete enough to suggest sufficient components that can help to	The framework used the literature in chapter 2, to find the components that will determine the feasibility of an e-business start-up.					

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
achieve the goal of the feasibility study framework for e-business start-ups.						
R2 - The framework is intended for e-business start-ups, but some principles or suggested components may be applicable for all types of start-ups.	Some of the components of the framework applies for all types of start-ups. This does not mean that the framework can be sued to determine the potential feasibility of all types of start-ups					
R3 - The framework is not a legal or legislative guide. This type of guide requires specialists.	The framework assumes that the user of the framework would know the legislative requirements for their decisions and where necessary, that they would know when to obtain an opinion from a legislative specialist in the field.					
R4 - The framework does not guarantee that an e-business start-up that is potentially feasible will be successful.	There are other factors that also determine that are not considered in the framework that determines the success of an e-business start-up.					
R5 - The framework does not focus on management- or team-feasibility of an e-business start-up, only on the market- and financial-feasibility.	The management- and team-feasibility cannot be measured when a start-up is still in the idea phase. The framework just focused on the market- and financial-feasibility that can be measured early on.					
R6 - The framework is intended for e-business start-ups in South Africa, but may have some principles or suggested components can be applicable for e-business start-ups in other countries.	There are components that have been provided that can satisfy use in other countries. The use of the framework in other countries will require an investigation into the characteristics and constraints of the specific country to ensure that the user requirements are addressed in the framework.					

6.1.4 Attention points

The attention points, provided in Section 4.2.5, affect the framework as a whole. Table 19 illustrates the verification of the satisfaction of the attention points in the feasibility study framework for e-business start-ups, by showing that they are satisfied in the framework.

Table 19 - The verification of the satisfaction of the attention points in the framework

Requirements	Step 1 – Determining ROI	Step 2 – Market Potential	Step 3 – E-customer components	Step 4 – Outside components	Step 5 – Complete framework	The framework as a whole
A1 - Some of the factors included in the framework may vary for different types of e-business start-ups.	The framework was designed to be flexible for the user. Each user can apply their own discretion and use to framework to best suit their start-ups characteristics.					

A2 - Feasibility study frameworks are not easily available and there is no clear expert in the field of feasibility studies. This framework was set up without clear guidelines of how to create a feasibility study.	The literature where all three research domains overlap are very limited. The literature of the domains was synthesised from the elaborative research without proper guidelines to set up the guidelines that was used to create the framework.
A3 - The framework should be used to determine the potential feasibility of an e-business start-up for the founder of the e-business start-up.	The founder is the main stakeholder in the e-business start-up and will benefit the most from using the framework. Thus, the framework must be used to help all stakeholders, but the founder must be the main beneficiary.

6.1.5 Boundary conditions

The design restrictions, provided in Section 4.2.6, affect the framework as a whole. In some cases, there are certain steps of the framework creation process that are affected by these requirements. Table 20 illustrates the verification of the satisfaction of the design restrictions in the feasibility study framework for e-business start-ups, by showing exactly where the requirements are satisfied.

Table 20 - The verification of the satisfaction of the boundary conditions in the framework

Requirements	**Step 1 – Determining ROI**	**Step 2 – Market Potential**	**Step 3 – E-customer components**	**Step 4 – Outside components**	**Step 5 – Complete framework**	**The framework as a whole**
B1 - The framework should be used in an ethical and legal way by e-business start-up founders as well as incubator liaison officers.	The framework should be used for the purpose, to determine the potential feasibility of an e-business start-up. Any use of the framework beyond this will be in the control of the user, who controls how the framework is used.					
B2 - The framework should be beneficial for all stakeholders and potential stakeholders.	The framework was created to benefit all stakeholders in the e-business start-up that uses the framework, ensuring that the result of the framework will provide enough information about the start-up to benefits all stakeholders.					
B3 - The framework should not be used negatively towards any party involved in using the framework.	The framework was built to improve e-business start-up survival, ensuring that all involved parties benefit from the framework.					
B4 - The framework assumes that the technology of the e-business start-up is feasible. No need for any technology to be built for e-business start-up to work in terms of technology that does not exist.					✓	✓

6.1.6 Verification conclusion

Each of the 34 requirements in Chapter 4 have been shown to be satisfied through the completion of the Step in the process as seen in Section 6.1. Section 6.1 also shows where the requirements

were satisfied and by doing this verifies all the requirements. The requirements were either satisfied by the framework or by one of the steps in the framework, namely the creation process.

6.2 Validation of feasibility study framework for e-business start-ups

The validation of the framework is evaluating if the correct framework has been developed. The validation process was divided into two parts. The first part of the validation process is the illustrative example done in Section 5.3. The example can be used as a case study to validate the framework, showing that the framework can be applied to a real e-business start-up. The second part of the validation process is a round of interviews with experts.

6.2.1 Illustrative case study

The illustrative example was used in Section 5.3 to show how the framework is used. It can also be used as the first part of the validation process by showing that the framework can be used on a practical level to determine the potential feasibility of an e-business start-up. By using the feasibility study framework on the e-business start-up Sxuirrel, the illustrative case study shows that the framework can be used practically on an e-business start-up. This part of the validation process highlighted that the framework does not account of the supply side of the e-business start-up. For the e-business start-up, Sxuirrel, the supply side is an essential part of the business.

6.2.2 Interview validation

The second part of the validation process was done by interviewing industry experts. The interviewees were chosen to validate the framework by making sure that the three main stakeholders in an e-business start-up was interviewed. This meant that there were three different groups interviewed, namely e-business start-up founders, incubator liaison officers and investors. The people interviewed is shown in Section 6.2.2.1. The interviews were semi-structured, to ensure that the data collected was reliable, comparable and qualitative. The interview also allowed the interviewees to express their views freely (Whiting, 2008).

Each interviewee was given a presentation on the framework as seen in Appendix A - Interview presentations November 2017. The interviewee was also allowed to ask any questions during the presentation to ensure that each interviewee understood the framework completely. Each interview had an allocated time of 30 minutes and this was enough time for all the interviews, but

a further 30 minutes were allowed, if needed. The interview questions and explanation for each question are presented in Table 21.

Table 21 - Interview questions and explanations

Question	**Explanation**
1. What is your role with e-business start-ups? (founder, working with, invested in etc.)	To understand the person that is being interviewed and their role with e-business start-ups and their experience.
2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?	This question can validate the reasoning for the framework and help understand why the person being interviewed needs the framework.
3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?	This question and the following question will validate the framework by first asking different types of users what is important for them in terms of feasibility and then if this framework addresses these factors.
4. Would these factors be adequately addressed by the framework?	This question as well as the previous question will validate the framework by first asking different types of users what is important for them in terms of feasibility and then if this framework addresses these factors.
5. What do you think the framework does not address which would result in it failing in its objective?	This question will highlight what is missing in the framework and what people with experience in the e-business start-ups think the framework needs.

Question	Explanation
6. Valuable recommendations and comments used for framework improvement?	These recommendations and comments can be used to improve the framework.

Some of the interviews had further discussions that were not asked in the questions. These discussions can be seen, as transcripts of all interviews, in Appendix B - Interview transcripts.

6.2.2.1 Interviewees

The list of the seven interviewees as well as the reason why they were chosen to be interviewed can be seen in Table 22. Summaries of all the questions as well as the results of the interviews will be discussed in the rest of this chapter.

Table 22 - Professionals interviewed

Date	Interviewee	Role in an e-business start-up	Rationale for including interviewee in the validation
07-Nov-17	David Krige	Incubator liaison officer	David Krige provides an important perspective, with his engineering background and experience working with e-business start-ups form the idea phase.
07-Nov-17	JD Nel	Incubator liaison officer	JD's experience in coaching start-ups, give him a very good opinion about what they need when still in the idea phase.
07-Nov-17	Brandon Paschal	Incubator liaison officer	Brandon's international exposure means that he can provide a good view from an international perspective.

Date	Interviewee	Role in an e-business start-up	Rationale for including interviewee in the validation
08-Nov-17	Phillip Marais	CEO of incubator and former VC employee	Phillip will provide an opinion out of an investors perspective, while also having a lot of experience working with start-ups.
08-Nov-17	Leonard Brewer	E-business start-up founder	Being an e-business start-up founder, Leonard knows from his experience what an e-business start-up needs to be feasible can be very important to validate the framework.
08-Nov-17	Thinus Pretorius	E-business start-up founder	His engineering background together with his experience as an e-business start-up founder will provide an important point of view when validating the framework.
12-Nov-17	Graham Lombard	E-business start-up founder	With Graham being a former founder, his perspective can provide different feedback than start-up founders that are still involved with their own start-ups.

6.2.2.2 What is your role with e-business start-ups?

As per summary in Table 22 above, all the interviewees explained their role with e-business start-ups. Three of the interviewees were start-up founders, three were liaison officers at an incubator and the last two were investors in start-ups.

6.2.2.3 Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

All the interviewees said that knowing if the e-business start-up they are involved in will potentially be feasible when still in the idea phase, it would improve their role with the e-business. Some of the interviewees use their gut feel instead of a set out process to determine the potential feasibility of

an e-business start-up. They then make decisions based on their gut feel that can influence the e-business start-up.

6.2.2.4 What do you think, are key factors for determining the potential feasibility of an e-business start-up?

There were a lot of similar answers for this question. The most factor that came up the most was the market. Understanding your market and how it works as well as understanding how the customer thinks is the most important factor. Other important factors that was mentioned by the interviewees are competitor analysis, initial investment cost and time needed to start the business.

6.2.2.5 Would these factors be adequately addressed by the framework?

All these factors are addressed by the framework, but some of the factors are only mentioned and not part of the components in the framework that needs to be calculated. The competitor analysis and the risk analysis are included in the framework, but are not one of the key components. Some of the interviewees mentioned that these are the most important factors and that these factors need to move from outside the framework to the inside of the framework. The components of the framework on a high level are adequate, but it is what happens inside each component that is really important. This cannot be measured by just looking at the framework in an interview.

6.2.2.6 What do you think the framework does not address which would result in it failing in its objective?

The first factors that the framework does not address is the competitor analysis and the risk analysis. These factors are mentioned, so they are not neglected, but the importance of these factors should be raised.

The second thing that was mentioned by the interviewees, was the fact that the framework does not cater for the supply side of a market place[4] e-business. A market place start-up can also be an e-business.

Other important factors that can the framework does not address include:

[4] Market place is a business that caters for the supply and demand side of the market (Sacks, 2011).

- The level of importance of each component
- Asses the difficulty of getting funding
- Clearly highlight the starting point and end point of the framework

6.2.2.7 Valuable recommendations and comments used for framework improvement?

The most prominent recommendation was that there must be an iteration system in the framework. The framework must support continuous use and after every time the framework is used, it must allow for change.

A practical recommendation was to change the arrows of phase 4 must be changed. The arrows are pointing from revenue towards the central component market potential. The arrows must be changed to point from market potential towards revenue, to support the flow of the framework.

The final comment was to look at the framework components in phase 5 that does not affect the framework in another way. Each user that uses the framework can use their own discretion to decide what factors are necessary to include in the framework.

6.2.2.8 Other valuable comments

There were a lot of other comments that are very valuable and can be used to improve the framework or to be used for recommendations for further research.

Some of the comments that were made are not applicable for the framework, because it only comes applicable when a start-up is not in the idea phase. These comments include product development and building a prototype to test certain assumptions. It is not always necessary to build a very complicated product, but rather build a simple and unique product.

Most of the interviewees mentioned that the ideal user for the framework will be if the start-up founder uses the framework with the help of an incubator liaison officer.

Another valuable comment was that there must be a user manual that consist of questions behind the framework. These questions can be used to complete the framework more easily and will make sure that the user collects real data, because frameworks are only good if they have real data. The user manual will also help to break down the framework into a step by step guide.

6.3 Results and discussion

From the interviews that were done, it is clear that the framework will improve the role of e-business start-up founders, liaison officers and investors by determining the potential feasibility for e-business start-ups. There is a clear need to determine the potential feasibility of an e-business start-up when still in the idea phase. This need can be solved by using the framework.

Section 6.2.2.3 highlights the fact that incubator liaison officers rarely use a process to determine what start-ups get accepted in the incubator and what start-ups do not get accepted. This means that there is a need for a framework that can help incubator liaison officers.

According to the interviewees the most important factor of determining the potential feasibility of e-business start-ups is market potential and this factor is addressed by the framework as mention in 6.2.2.4. Competitor analysis and risk analysis are not inside the essential part of the framework, but are still considered important to consider by the framework. This means that the factors are not directly addressed by the framework, but are also not neglected by the framework. Overall, the key components according to the interviewees are addressed by the framework.

In Section 6.2.2.5 it is mentioned that it cannot be measured what happens on the inside of the framework. Therefore, the illustrative case study was done. To show the practicality and the nitty gritty of the framework.

The risk analysis was only mentioned by one of the interviewees, but the competitor analysis was mentioned by more than one of the interviewees. Based on the frequent mentioning of the framework not including the competitor analysis, the framework will be adjusted to incorporate this component.

Three more design changes will be made to the framework. The starting point will be clearly indicated by the framework, the level of importance of the components will be indicated and the arrows of phase 4 will be changed to support the flow of the framework.

The iteration process was emphasised by the interviewees. According to framework requirement F2 in Section 4.2.3 the framework must be built to support continuous use. This means that the framework was built to support iteration, even though it is not clearly seen in the framework.

The framework will not be changed to cater for the supply side of a market place. The framework will have to be changed completely and a lot of extra research will be needed. This is recommended for future studies in Chapter 7.

6.4 Framework changes

The pragmatic approach that was followed in the validation process resulted in an improved framework. Figure 32 illustrates the new framework with all the suggested changes mentioned in Section 6.3.

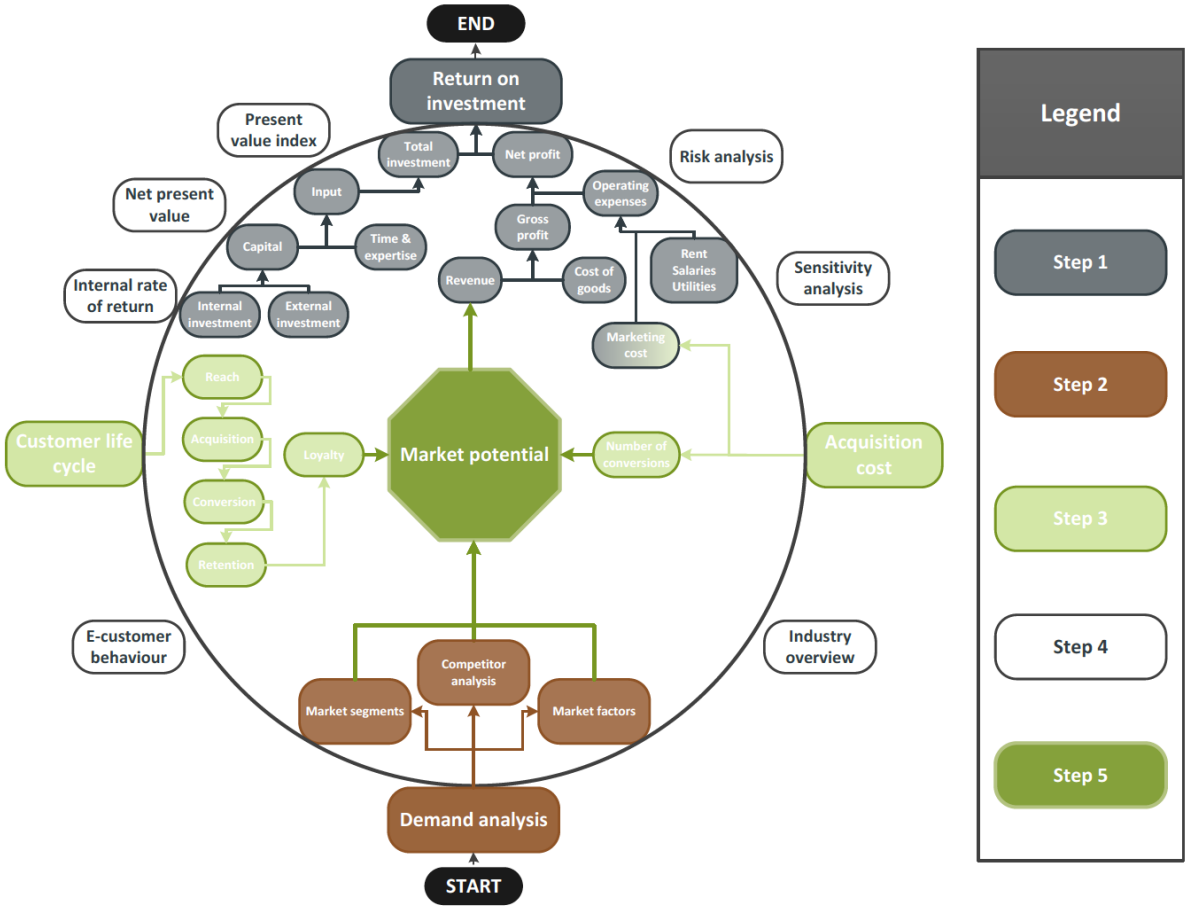

Figure 32 - Changed framework

The framework improvements, mentioned in Section 6.3, resulted in an altered and improved framework. The arrows that lead from market potential to the return on investment have been changed to improve the flow of the framework. The competitor analysis has been added to the demand analysis to improve the factors that the framework takes into account when determining the demand analysis. The start and end points of the framework have been clearly marked. The final

change that was made to the framework, is the level of importance of the components. The importance of the components can be measured by the size of each component on the framework.

6.5 Conclusion to Chapter 6

This chapter illustrated the verification and validation process that was followed to verify the creation process of the feasibility study framework for e-business start-ups and to validate the framework. The verification and validation process shows whether the framework has answered the research question or not and is important to draw a conclusion (Chapter 7).

7 CONCLUSION AND RECOMMENDATIONS

This chapter concludes the study by presenting an overview of the study, discussing the method used for completing the study, drawing conclusions regarding the research objectives and providing some recommendations for possible future research. Figure 33 summarise the chapter layout and mentions the sub-research, as seen in Section 1.3 that is addressed in this chapter.

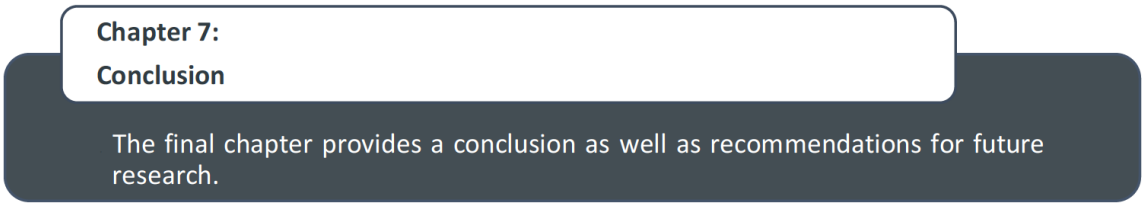

Figure 33 - Chapter 7 layout adapted from Figure 5

7.1 Overview

E-business start-ups have a very high failure rate within the first five years of operation. One of the reasons that contributes to the high failure rate, is the poor evaluation of the idea early on. A solution that can help prevent this problem, can be by conducting a feasibility study. However, there are no clear guidelines, or a proper framework for conducting a feasibility study framework for e-business start-ups. This problem not only effects start-up founders, but also start-up incubator liaison officers and investors.

To solve these problems, the objective of the study was to create a feasibility study framework for e-business start-ups that can help determine the potential feasibility of an e-business start-up when still in the idea phase. For the framework to be successfully created, it had to answer the main research question,

> *How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?*

The research followed a method that will allow the framework to evolve with time as the e-environment changes due to new technology and innovation. The systems engineering process was followed to reach this objective. The set of 32 requirements that needed to be satisfied by the

framework were categorised into five requirement types which was used as the building blocks to create the framework. The five categories included; user requirements, functional requirements, design restrictions, attention points and boundary conditions. Finally, the framework and its requirements were verified and validated.

The three research domains, namely e-business, start-up and feasibility study were investigated to find the requirements that were necessary to create the framework. The three domains were integrated to find the requirements that each domain did not provide on its own and subjective inferences were drawn to provide impetus.

The framework was created with a five-step creation process that used all 32 requirements. After the creation process was completed, the framework was ready to start improvements and validation. The feasibility study framework consists of five phases that can be followed to determine the potential feasibility of an e-business start-up.

7.2 Methodology execution

The research study followed the systems engineering approach that broke down the main research question into sub-research questions in Section 1.3. These sub-research questions were broken down to highlight the fields of study, the research domains, and to ensure that the literature was focussed and specific. The sub-research question also ensured that the framework requirements could be extracted from the literature to create the framework that will lead to the research objective being achieved. After the framework was created, the sub-research questions also ensured that the addressed these requirements.

The sub-research questions are referenced with the sections that answered these questions in Table 23. These questions provided the guideline to each chapter of the research study.

Table 23 - Sub-research questions verification

Sub-Research Questions	**Verification through section(s)**
What is an e-business?	2.1.1
What is the difference between an e-business and a normal business?	2.1.1

Sub-Research Questions	**Verification through section(s)**
What are the most important metrics for an e-business?	2.1.3,2.1.4,2.1.5, & 2.1.6
How has e-business changed the normal way of doing business?	2.1.1
What is a start-up?	2.2.1
What makes a start-up different from a normal business?	2.2.1
Who starts a start-up?	2.2.3
How does a start-up grow?	2.2.4 & 2.2.5
What is an e-business start-up?	2.3.1
What is the difference between a start-up and an e-business?	2.3.1
How difficult is it to start a successful e-business start-up?	2.3.2 & 2.3.3
What is a feasibility study?	2.4
What does a feasibility study entail?	2.4.1, 2.4.2 & 2.4.3
What is the difference between a feasibility study, a pilot study and a business model?	2.4.4 & 2.4.5
What components determine the feasibility of an e-business start-up?	3.1, 3.2 & 3.3
How will the literature of the research study be extracted to create a framework?	4
How can the requirements be meaningfully combined into a framework?	5

Sub-Research Questions	**Verification through section(s)**
Is the framework addressing the requirements as set out by the research domains?	6.1
Will the framework deliver on providing a way of determining the potential feasibility of an e-business start-up?	6.2.1 & 6.2.2

7.3 Results

The verification process determined that the framework satisfied all the framework requirements by checking if each requirement was individually satisfied by the framework as a whole or by a step in the framework, namely the creation process. The validation of the framework was done in two parts, the first was an illustrative case study and the second a round of interviews. The validation process provided feedback for the framework that was either used to improve the framework or as recommendations for future research.

Part one of the validation process was in the form of an illustrative case study on an e-business start-up, Sxuirrel. This part of the validation tested the practicality of the framework as well as how usable the framework is. It also highlighted that the framework was not meant for market place start-ups, as it only focusses on the demand side.

The second part of the validation process was a round of interviews with stakeholders in e-business start-ups. Seven people were interviewed to validate the framework and to gain valuable insight into the shortcomings of the framework. This information was either used to improve the framework or to consider as recommendations for future research.

The validation and verification processes proved that the framework was able to improve the role of the user of the feasibility study framework for e-business start-ups by determining the potential feasibility of the e-business start-up that the user is involved with.

7.4 Conclusions

The research was initiated after the understanding of the high failure rate of e-business start-ups and the failure to solve this problem by the lack of available feasibility study guidelines or

frameworks. The knowledge of the potential feasibility of an e-business start-up in the idea phase can have a positive effect on all the stakeholders of the e-business start-up. These stakeholders include the start-up founders, the start-up incubator liaison manager and the investors of the start-up.

There are many factors that indicate the successful implementation of the framework. The best way to describe a successful implementation is by looking at the goal that the framework was built to achieve. The goal of the framework is to help determine the potential feasibility of an e-business start-up when still in the idea phase. By determining the potential feasibility of an e-business start-up that is still in the idea phase, the stakeholders of the e-business start-up can all improve their role with the e-business start-up.

The feasibility study framework for e-business start-ups will not be successful in all its implementations, because it does not cater for market places start-ups. Market place start-ups are still e-businesses. This does not mean that the framework failed its objective. The framework was built to evolve as technology or innovation change the e-environment. The framework can be changed to incorporate the supply side of market place start-ups.

7.5 Recommendations for future research

The ever-changing environment of e-business start-ups has made it possible for future work as well as the progression of research. The recommendations for future work that have resulted from this study were made clear by the validation process. The recommendations for future work are as follows:

- to do more research on market place start-ups. This must include the difference between e-business start-ups and market place start-ups. The framework can be adjusted to cater for the supply side of market place start-ups. This study is expected to create a whole different framework for the supply side. The supply framework and demand framework can be combined and used as one, to determine the potential feasibility of a market place start-up;
- to write a user manual for the framework than can be used as a list of questions that must be answered by the founder of the start-up. By answering these questions, the founder will complete the framework as well as start developing their start-up. The rationale behind this is that founders will be able to use the framework without any help; and

- to create a framework that looks at more than just financial and market feasibility that can be used by liaison officers to evaluate and help start-ups grow quicker.

8 References

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Appendix A - Interview presentations November 2017

A Feasibility Study Framework
for E-Business Start-ups: A case study on Sxuirrel

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Stellenbosch University

1

Points of order

- Problem statement
- Main research question
- The framework
- Questions

2

Problem statement

Between 30 and 80 percent of e-business start-ups fail within the first five years of operation. This is due to multiple reasons, but one of the reasons have been shown to be poor evaluation of the idea early on. In some cases, the idea is good, but might not always be profitable or bankable.

It is difficult to measure the success of a start-up when still in the idea phase. This can be a problem for the founders of the start-up as well as for other interested parties, like possible investors or start-up incubators. Without the reassurance of possible success, some entrepreneurs will not even take on the process of starting a start-up.

A feasibility study can be an obvious solution to solve this problem, but the lack of proper guidelines to show what a feasibility study should entail as well as how to conduct a proper feasibility study does not make it a viable solution. Literature focusses on a lot of research on feasibility studies, but without any clear model that works and stands out from the rest.

The lack of feasibility study guidelines and the high failure rate of e-business start-ups creates an opportunity for a feasibility study framework for e-business start-ups.

3

Main research question

How can e-business start-ups have a clear view on the potential feasibility of the e-business start-up?

4

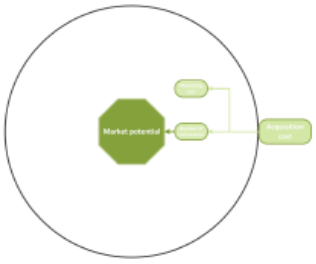
The framework

Step 1

5

The framework

Phase 2



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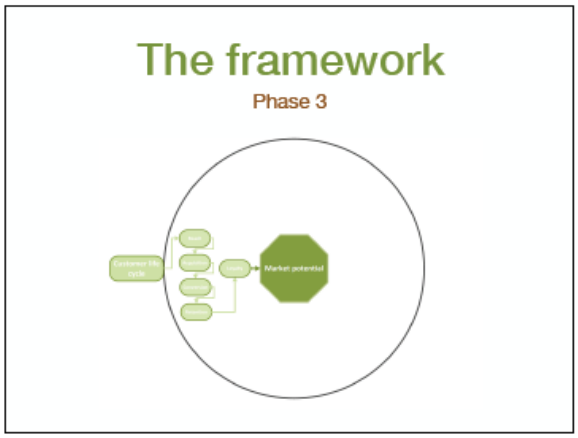

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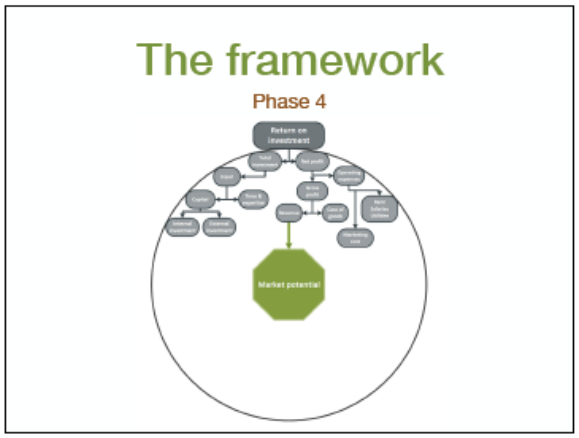

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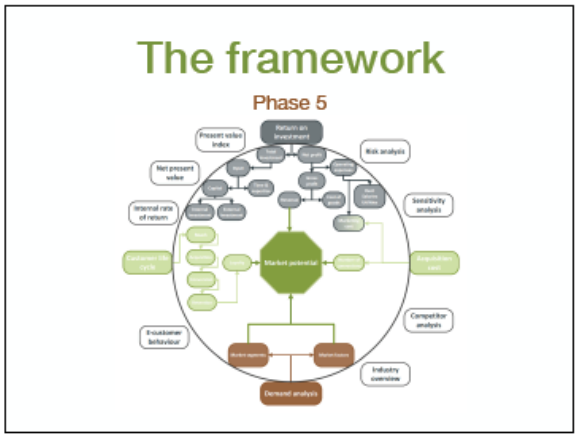

9

Questions

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)
2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?
3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?
4. Would these factors be adequately addressed by the framework?
5. What do you think the framework does not address which would result in it failing in its objective?
6. Valuable recommendations and comments used for framework improvement?

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Appendix B - Interview transcripts

Master's thesis interview – David Krige

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Student number: 17140870

Registered: 2016 (First year)

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: David Krige

Rationale for interview:

David Krige is a liaison officer at the Stellenbosch University Launchlab incubator. He works with e-business start-ups daily and has a Master's degree in Industrial engineering. David might not be a start-up founder, but he has a lot of experience in helping start-ups, especially start-ups that are still in the idea phase. His view on what an e-business start-up needs to be feasible can be very important to validate the framework.

Date of Interview:	7 November 2017
Time of Interview:	09:00 AM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

Appendix B

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?

Responses:

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

I work with them and support them as an incubation portfolio manager/liaison officer. So I give advice, be the shoulder to cry on when they cry.

1. So, you have experience in the field of what does e-business start-ups require?

Yes, I have experienced the mistakes that people have made. I can be the sense check for ideas and ask them questions to make them think a bit harder about their ideas. I also see a lot of people pitching their ideas and bringing forward new ideas and then I myself decide is it worth motivating them or is it not going to work. I don't use a framework or anything, I don't use a framework, I use a gut feeling.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

Yes, definitely. We have a lot of applications a week, even up to five times a week and we don't apply any science to the application process, which you can argue is very rookie of us. Something like this framework will definitely help us understand and to quickly and easily identify idea potential.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

Everything is to do with the market, because you can have the best idea and you can develop it as much as you like into an awesome product, but if the market doesn't want it, you are making it for nobody. So, everything starts at the market, but then secondly it is about execution. How do you execute. You can take too long, the market is there and then somebody else enters the market before you. You can do it incorrectly and poorly and then somebody else sees what you have done wrong and they can improve on that and take over the market before you. I think that's definitely the two things that's completely important for me. It's also to do some market research and to understand how the market works, understand how the customer thinks. It's not just to have an idea and go and execute, you have to validate your idea in the market.

4. Would these factors be adequately addressed by the framework?

The execution factor will not be addressed, but hopefully the learnings you make from this framework will help you execute better. For the market potential, I think the components on a high level is adequate, but it is what you do inside each component that will really matter, because I can do a market segment and call it a market segment by saying I am customer X and you are customer Y and not base it on any facts.

Henri Question: So, you are saying that the ideal use case for the framework will be when a start-up founder gets guidance from a liaison officer when using the framework?

Yes, I think so. You don't know what you don't know.

5. What do you think the framework does not address which would result in it failing in its objective?

It is a difficult one, cause if your research question is "Is this idea viable or not". The question I have, is to what extent do you/How much effort can you apply in this framework before you make that discussion. The iteration process or validation process is missing for me. Use this framework and have a little bit of assumptions and use your ideas in certain ways, but you still need to go and test if that assumption just to verify if it is right or not. You will definitely have to come back make adjustments inside the framework. That is the one thing that is little bit lacking for me. Where does the iteration part fall in? Where are the decision gates in the framework? Some iteration would be cool.

6. Valuable recommendations and comments used for framework improvement?

Iteration definitely. Some other things might be, what role does the internal investments play? The arrows of revenue would make more sense if they are turned around, just for interpretation purposes, because I see this as a pre-curser to return on investment.

These responses were beyond the questioning of the interview, but were valuable and were noted for further investigation.

When can we implement it?

Master's thesis interview – JD Nel

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Student number: 17140870

Registered: 2016 (First year)

Appendix B

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: JD Nel

Rationale for interview:

JD Nel is a liaison officer at the Stellenbosch University Launchlab incubator. He works with e-business start-ups daily and has been a start-up coach for a while. JD's experience in coaching start-ups, give him a very good opinion about what they need when still in the idea phase.

Date of Interview:	7 November 2017
Time of Interview:	03:00 PM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

> *How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?*

Responses:

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

So my role, is as a coach for e-business start-ups, so I act as a sounding board, sometimes also as a consultant in certain roles. When I sit with e-business start-ups, they come with their current challenges. I assist them where they are currently positioned. It speaks to where they are position in the market, who their customers are. How quickly they can get to market etc.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

Yes, definitely. If start-ups can work through a systematic process, so a lot of the time start-ups come into the space and they don't know what they don't know. So there is unconscious incompetence. If you can provide them with a clear network or clear framework rather that can identify the areas of incompetent so they can start practicing and work their way towards become unconsciously competent. This is where you want them to be. It is like riding a bike, the first time you think can do it, but you don't know you can't do it. By the time you are done you are riding the bike and you don't even think about it, but somebody had to show you the steps to get there. So somebody knows the system and the process, so if somebody can show you the system and the process step by step in this way, it should definitely help bringing down the rate of failure and the rate of stress and increase in transparency in order to gain the investment and market access faster.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

Clarity, so what do we need to know. What are the most essential data points that we need to pull out of any business. So it speaks to this unconscious competence that we need to get to. In order to ride a bicycle very well we need to check can a person petal, balance, pull the brakes, indicate what everything is supposed to be. I would say for an e-business start-up it is the same, what are the key data points, what are the key activities that we can measure within the start-up that the start-up founders are actually doing that carries value. So within a framework like this you would probably be able to able to identify certain activities under rent, salary and utilities for example that the people need to do in order to demonstrate. That is the first key point that you will have to demonstrate. That is factor number one.

Factor number two is the communication under all of this. Once you have the data, that is great, but how do you let people know. Whether it is your potential investors or your customers, how do you communicate to them exactly what it is that you have? How do you access that? How do you create a funnel in other word, once you know what you have? So first you build the foundation and then you channel that information to the people.

And I think the third factor, it is building in feedback, because with any start-up there is an iteration process. So, once you have everything done and you do it. In the same way, if you get on your bicycle and you balance, but you don't do enough and you fall, the falling process tells you didn't do it well enough and hopefully you have somebody with you that has observed what you do and can tell you did this wrong and you did that wrong etc. So potentially what that means is, if I am just looking at the framework in front of me is it looks fantastic. It is an amazing tool, but in the same way you can put a bicycle in someone's hand and if you are not there to support them and help them understand the key theories around the business, maybe it is balance on a bicycle or cash flow around a business. Cash flow vs capitol, those difference is key understanding. So, if there is someone that helps you understand and provide the feedback and the interpretation and that is probably where someone like myself would play a role. So, you have a facilitator or coach that gives feedback that utilises a framework like this in order to assist e-start-ups to gain traction much faster.

4. Would these factors be adequately addressed by the framework?

Yes, in so many instances it is not the what, the framework itself can be really amazing and in theory and on paper it can address it, but it comes down to how do we use it. Who uses it, comes down to maybe again communication relationship. How it is utilised in a relationship between a coach and the start-up founders of a business for example. It is not only the what, but the what and the how together that can potentially give this tool the airtime and value that it needs.

5. What do you think the framework does not address which would result in it failing in its objective?

You can go with point one, you'd probably have to give a clear indication, thinking back now to the moment you showed me, I though where is point number one. I mean like a simple thing indicating you would start here and then move out. Like with the business model canvas you start in the centre and move out. That can be point number one. Almost a step by step guide how to use this can be useful. Then maybe also at what point do you use this. Who is qualified to use this? What do individuals need to know before they can find this framework use full, is my question when I look at this. For example, I recently was in contact with another entrepreneur, it was not necessarily an e-business start-up but working on a digital innovation start-up in the world of children's book that uses augmentation and digital sources in order to enhance children's books. I sent through a business model canvas to this individual and another document as well and his reply was he doesn't understand it and does not know how to use it. In a similar why, when do you know is a person ready to use this and it is obviously associated with my previous questions should you put this in the hand of a consultant or coach or does this go directly to the hands of an e-start-up founder.

6. Valuable recommendations and comments used for framework improvement?

As with any e-start-up, any new potentially disruptive technology that comes into the market, there is an iteration process, testing process and I don't know exactly where you are in terms with that. That is probably my next question how do you test this? Can you put it in someone's hand, can you have two three fur people run this in their e-start-ups and get feedback from them? It is difficult to look at something like this and think about its functionality and value or potential lack, just of paper. Once you start putting it with a step by step process in place and somebody uses it, the same way you put somebody behind the wheel of a car etc., in order to get some feedback. The same way this has to be done in order to really understand the power of the framework.

Master's thesis interview – Brandon Paschal

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Appendix B

Student number: 17140870

Registered: 2016 (First year)

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: Brandon Paschal

Rationale for interview:

Brandon Paschal is a liaison officer at the Stellenbosch University Launchlab incubator. He works with e-business start-ups daily and has a MBA. Brandon has visited other incubators world wide and have had international exposure with other incubators and start-ups. This means that he can provide a good view from an international perspective.

Date of Interview:	8 November 2017
Time of Interview:	10:00 AM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

Working with as a liaison manager. I feel invested in, but I don't have money in one yet, but emotionally. Especially this one called Sxuirrel.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

Yes, it would, but there is a lot of assumptions that need to be tested. So, someone coming in with an idea and they have done a long analysis without talking to actual customers. That is not a feasibility study.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

So your comparison between tech and an e-business is helpful. So tech is a brand new technology that you are creating demand for and e-business is there is demand existing for the product, you are just making the delivery of that product more efficient. So if you can sell the value for an e-business without building the actual software for it and doing a bit of concierge service and wizard of Oz service to sell it, then it justified the need or the investment to build an e-business platform. Can I give out an example? So Hartsly is this lady that wanted to be a gourmet chef and she wanted to deliver warm nice wholesome food from kitchen to their dinner table. She built a landing page and a foreman sent an email to her and she was able to sell in two months 500 meals using email and WhatsApp. So, she wanted to prove there was demand for that product and service, but what she was not able to do was mitigate the fickleness of the chefs. There was an outlying variable that se under covered that if it was just that if it was just will people buy it cool. She under covered a supply variable that was not anticipated.

4. Would these factors be adequately addressed by the framework?

This framework does not speak to supply, nor does it speak to substitutes or competitor analysis. It is not just is there another delivery of gourmet meals, it is not just is there another gourmet meals delivery form the kitchen to my table, you're looking at all the alternatives. It is not just healthy food vs healthy food, it is convenience food vs convenience food. Maybe this framework is not ideal for market places.

5. What do you think the framework does not address which would result in it failing in its objective?

It does not address the supply issue

6. Valuable recommendations and comments used for framework improvement?

Simplify it and bring in some sort of way to test it. I think there is too much going on at one glance. If I look at the framework it is like shoot, must I do all that before I can get started? What is step 1? Demand analysis, cool, but if I look at all of this at once it is overwhelming. Break it down step by step.

Master's thesis interview – Phillip Marais

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Student number: 17140870

Registered: 2016 (First year)

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: Phillip Marais

Rationale for interview:

Phillip Marais is the CEO of the Stellenbosch University Launchlab incubator. He previously worked in the venture capital industry. He provides an opinion out of an investors perspective, while also understanding how start-ups work.

Date of Interview:	7 November 2017
Time of Interview:	01:00 PM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

> *How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?*

Responses:

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

I fall in with the working with category. Obviously as the CEO of the LaunchLab and one of the portfolio manager looking after currently sixty odd start-ups. Mentoring and connecting, basically facilitating opportunities and valuable connections for start-ups.

I was also in the venture capital industry for a couple of years. So I have also sat on that side of the fence. I understand the VC seed funding market.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

We don't do an intensive due diligence before we accept a start-up, we go more on a gut fee, unless there is a very limited amount of space and we have to kick somebody out to let the new one in. For a VC this kind of process will be normal. I like the way you done it. Speak to the market and based on that build your financial model, is how I would summarise it. I would just say that the competitor analysis I would bring in earlier rather than later, when you are doing your market segmentation, because it helps you to see how you are different and then helps you to choose your target market. Otherwise I agree with it.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

It is speaking to the market. I think the biggest mistake that entrepreneurs make is figuring it out you know. Get a model like this and filling it in by google searching, you know it is getting out of the office and speaking to potential customers and understanding what that critical factors are for your customer. Once you know what that segment, it is then going and understanding what the acquisition cost is within that segment. Seeing if it is realistic. Yes so it flows naturally this way in the financial model. So yes, it's not trying to do this in theory, its doing it practically. Getting real data, not thinking what you think the answers are.

4. Would these factors be adequately addressed by the framework?

Again, if in your questioning behind the framework you say you know in terms of demand analysis have you spoken to fifty plus potential customers, so that the members using the framework knows it is not a theoretical exercise. This is a get out of the office, it's a "tacky meets the task" kind of exercise. Frameworks are no good if you don't have real data behind them. I totally support the framework, it makes sense to me, but the emphases must be on where you get your data from. That's what decides the success of the framework, is where the data is from. If it is from you own head and not from the market, your framework is no good, because your head is going to give you the wrong answer. If it is from the market, it will guide you. So, your questioning should make sure it gets the entrepreneur out of the office and into the market.

Henri Question: So, you are saying that the ideal use case for the framework will be when a start-up founder gets guidance from a liaison officer when using the framework?

Absolutely. That person needs to tell the entrepreneur to get out of the office and not give them the market information. You want somebody that knows how to ask the right questions without giving the answers.

5. What do you think the framework does not address which would result in it failing in its objective?

The competitor analysis. Well look it's there, so it does not neglect it, I would just maybe raise its importance. What was not obvious to me was what is the questioning behind this framework. As to what are the actions, what will happen. I can't see if it is right or wrong, but it is not apparent when I look at the framework.

6. Valuable recommendations and comments used for framework improvement?

I have pretty much given those in the previous question. These things are not that important, you might not need them initially but an investor might need them (NPV, IRR etc.). The only one I would argue with is the competitor analysis. Don't spend too much time looking at the industry, rather just go speak to people. That's not that important.

Master's thesis interview – Leonard Brewer

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Student number: 17140870

Registered: 2016 (First year)

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: Leonard Brewer

Rationale for interview:

Leonard is an e-business start-up founder that has been working on a start-up for five years. He has been through a lot of ups and downs with his start-up and will be able to provide a good perspective on what to do and what not to do out of a start-up founders perspective. His view on what an e-business start-up needs to be feasible can be very important to validate the framework.

Appendix B

Date of Interview:	8 November 2017
Time of Interview:	09:00 AM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?

Responses:

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

I am the CEO and co-founder of the business.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

Definitely.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

So I mentioned the uniqueness of something and the competitor analysis. Another thing is that you have to have something that is not too complicated. You must focus on doing something well. A mistake that we made in the beginning is that our first product that we made, had all the bells and whistles and our second product we focussed much more narrowly on something that we can do then well and differentiate on. So rather than creating something with many more features than others had, I tried to distinguish by number of features, we concentrated in the core and made sure that we had something unique there that for us was important.

4. Would these factors be adequately addressed by the framework?

No, because I don't think it is part of the framework. You know these are factors that you have to take into account when you design your product. You can't only think about the market, you have to think about how you can enter this market with very few resources. So if you choose to make something with lots of bells and whistles and features, you are going to require more resources the risk is much bigger. These are all elements that will determine how well you do. The other thing that is more about process is the whole thing about MVP. I don't know if it is part of the framework. So, what you want to do with the MVP is you want to test with something that is not necessarily perfect. I am just thinking how this will work in a feasibility study. If you are on the way of course, so what I am taking about is what comes after the framework.

5. What do you think the framework does not address which would result in it failing in its objective?

The competitor analysis. I suppose you have to kind of asses how likely or easy it is to get funding. You know, because it is not all about profit and that is where the risk analysis comes in. So, for instance, in our case and probably in your case, where you have something where you have to spend a lot of money on marketing to get to users to get going and you will only start getting the revenue afterwards that is a situation. A lot of investors will say maybe not. You must look at your ability to get revenue early on. So how are you going to get revenue without having to sink millions into a marketing campaign? I think that is part of the feasibility.

6. Valuable recommendations and comments used for framework improvement?

You got retention that is very important, conversion is very important. Just to come back to competitor analysis that is very important, because you are in e-business. You can get blown out of the water just like that. Somebody can come with something bigger and better and whatever. So, it is probably important to spend a little time on what is out there, which is also part of the competitor analysis. Not just your product that has to be unique, but what are other people busy doing, you know if google glasses comes out and you are planning something similar so maybe not. That is the only thing I can really say. You might want to look at competitor analysis and industry overview a little more.

These responses were beyond the questioning of the interview, but were valuable and were noted for further investigation.

I just want to say the competitor analysis, I do think it is important. I mean one of the things for us, that we really focussed on when we started. We started five years ago and we made a product and the product just wasn't good enough and we then pivoted to something else. So what we then concentrated on, given that the market changed, you know that there were a lot more absent things out there, to make sure that we had something that had unique selling points, that was unique. Or that had differentiating factors, because otherwise you are just another product with the same thing. What are you going to compete on, price? You are a start-up, it is very difficult. So, you know I do

think you need to look at it that it is not only the demand for your product and you know the market factors, but have you got something unique. If you do not have something unique, it is a potential reason for failure.

Master's thesis interview – Thinus Pretorius

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Student number: 17140870

Registered: 2016 (First year)

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: Thinus Pretorius

Rationale for interview:

Thinus Pretorius is an e-business start-up founder with an engineering background. His engineering background together with his experience as an e-business start-up founder will provide an important point of view when validating the framework.

Date of Interview:	8 November 2017
Time of Interview:	11:00 AM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

> *How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?*

Responses:

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

I am a founder of a company and have majority share in it as well.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

Yes, definitely and it will improve the accuracy of the feasibility.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

Dealing with a bunch of unknowns, so the best will be to kill your assumptions. So, for us we stated all our unknowns and then to validate those assumptions as quickly as possible was the main game, before we even thought about putting down money.

Obviously you need to identify if there is a market and if there is a problem that needs to be solved. If your tech company does not solve the problem, nobody wants what you are selling. So you need to identify a problem your e-tech company is going to solve.

4. Would these factors be adequately addressed by the framework?

Yes, I think so. If you look at the demand analysis, the market segments and then the market factors are probably your demographics.

5. What do you think the framework does not address which would result in it failing in its objective?

Numbers are always king. There needs to be some case of allocation of importance. What is more important and what is less important. Obviously if you get investment, the first thing they want to see is revenue and on the framework, it the last thing. So you need to add numbers to each of these and maybe add the accuracy of each. So if you say, you think you have ten thousand potential clients, you need to say that there is a thirty percent chance that we have ten thousand clients. So maybe adding a probability to each segment so that you do expectation to each segment as well.

6. Valuable recommendations and comments used for framework improvement?

Probability is very important. The framework looks very thorough, I think it is a good analysis What I would do is, I would add competitor analysis to the inner circle, because your competitor analysis will validate a lot of your assumptions, because a lot of ecommerce companies don't invent the

wheel, they add value to what is already in use. I would definitely add competitor analysis to the top components.

Master's thesis interview – Graham Lombard

Enrolled: MEng (Engineering Management) (Full Time)

Name and surname: Hendrik Johannes Bam

Student number: 17140870

Registered: 2016 (First year)

Supervisor(s): Mr D Kennon

Topic: A Feasibility Study Framework for E-Business Start-ups

Interviewee: Graham Lombard

Rationale for interview:

Graham Lombard is an e-business start-up founder with an engineering background. He is not a founder anymore for various reasons. With Graham being a former founder, his perspective can provide different feedback than start-up founders that are still involved with their own start-ups.

Date of Interview:	211 November 2017
Time of Interview:	11:00 AM (Central European Summer Time)
Total validation and discussion time:	30 mins
Present:	Henri Bam

Background:

The research objective of the study is to create a feasibility framework for e-business start-ups that can help determine the possible feasibility of an e-business start-up when still in the idea phase. To achieve the research objective main research question must be answered:

> *How can e-business start-ups be guided to have a clear view on the potential feasibility of the e-business start-up?*

Responses:

Appendix B

1. What is your role with e-business start-ups? (founder, working with, invested in etc.)

I am a founder or former founder.

2. Will it improve your role with an e-business start-up if you know the potential feasibility of the start-up before it started?

Yes definitely, that would have changed everything in founding the business.

3. What, do you think, are key factors for determining the potential feasibility of an e-business start-up?

For my specific start-up, I believe time is definitely a key factor, because of the fact that I do an eight to five job, to live and generate money or capitol. My time frame is quite strict, I only have from 5pm until 8 am weekdays and weekends, of course to do the job and that is not always suitable for everybody wanting to use the business. I also believe that cost is a big factor, due to the fact that capitol is not always available and due to the fact that you have to risk it to enter the market and to test it. So it is big capital investment. I also believe that the market you are catering for is very important. In my business, I was not sure what the market was doing or where the market was going. So yes the market is definitely a big factor for e-businesses.

4. Would these factors be adequately addressed by the framework?

Yes, definitely. I think the framework addresses or satisfies all factors in general for starting an e-business start-up or any start-up.

5. What do you think the framework does not address which would result in it failing in its objective?

In my case I believe the risk analysis is very important. In my specific case I did not give enough attention to risk and there is very much risk that you don't think of beforehand that comes to your attention during or when you start your business.

6. Valuable recommendations and comments used for framework improvement?

I believe this framework is very suitable for every start-up in general, if you look at the big picture. I am sitting here with your framework in front of me. I believe that everything outside the circle is suitable or is applicable to a business, but I believe every business has its needs or its own demands that are needed in the business. In my case I believe a risk analysis is very important, other people believe that e-customer behaviour study is important to determine their customers' needs and of course competitor analysis is also very important in having a successful business, I believe.