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# Open innovation in South African SMEs:

# A business model perspective

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

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# ABSTRACT

In today's networked world, and with ubiquitous access to the internet, knowledge is fast becoming. This phenomenon has resulted in a globalised economy, highly mobile workforce and more informed customers. Furthermore, this trend has necessitated that businesses adapt the ways in which they innovate, moving from closed to collaborative, open innovation practices. A firm's business model is central to its open innovation practices.

SMEs, which are characterised by constrained resources, can benefit significantly from leveraging knowledge and ideas from external value networks. To increase the sustainability of SMEs, the business model also needs to be leveraged, especially in a turbulent environment where SMEs need to make the most of their resources. A review of the extant literature reveals that the role of the business model in the use of open innovation is unclear. An understanding of how its building blocks relate to the adaptability of the existing business model to make use of open innovation was also found to require exploration.

This qualitative research study, by way of semi-structured interviews, explored the concept of open innovation with 17 SMEs in the ICT sector in order to provide insight into the role of the business model in the use of inbound open innovation. Further, the adaptability of the SME business model in the adoption of inbound open innovation was also investigated by analysing the business model at a building block level.

The results of this study show that the existing business model of an SME positively influences the use of inbound open innovation, acting as an enabler. Secondly, it revealed that the maturity of the business plays a role in determining the SMEs openness and adaptability to inbound open innovation. Lastly, cost drivers, key partners, revenue streams and value propositions were ranked most adaptable when taking advantage of inbound open innovation; while key resources, customer relationships and customer segments were ranked least adaptable. This finding was applicable across all business model maturity stages in SMEs.

The study concludes by proposing a new model designed to assist SMEs with their decision making process around the use of inbound open innovations, the Open Innovation Business Model (OI-BM) Flexibility Framework.





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**KEYWORDS**: Open Innovation, Business models, In-bound Open Innovation, SMEs, ICT Sector





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# DECLARATION

I declare that this research project is my own work.

It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Student Name: Ushal Moonsamy

Date: 07 November 2016

Signature: _____





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# LIST OF ABBREVIATIONS

| | |
|---|---|
| CIPRO | Companies and Intellectual Property Commission |
| DTI | Department of Trade and Industry |
| GEM | Global Entrepreneurship Monitor |
| ICT | Information, Communication, and Telecommunication |
| IP | Intellectual Property |
| NDP | National Development Plan |
| SEDA | Small Enterprise Development Agency |
| SME | Small Medium Enterprises |
| SMME | Small, Medium and Micro Enterprises |





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# 1 INTRODUCTION TO THE STUDY

## 1.1 Definition of Problem and Purpose

Small and medium sized enterprises (SMEs) in South Africa experience a success rate of only 57.5%, mainly due to poor profitability caused by a lack of demand for their products by the target customer segments (Herrington, Kew & Kew, 2014; CBInsight, 2014).

This often happens because the founder's original idea alone was not sufficient to cross the chasm from invention to innovation. Inventions by businesses are important, but these only become a potent innovation when firstly, these solve a real customer need; and secondly, they have a business model that creates or captures value, propelling it to what it defines as success (Teece, 2010). SMEs often face many shortcomings, for example, resource constraints and lack of funding, making it difficult to generate the profits (value) the company needs to survive or grow (Herrington, Kew & Kew, 2014). This phenomenon is referred to as "liability of smallness" (Parida, Westerberg, & Frishmmar, 2012, p. 283)

SMEs can overcome their "liability of smallness" (Parida, et al., 2012, p. 283) through engagements with external parties such as partners, customers and universities, allowing them access to inputs, including knowledge, ideas, technology and intellectual property (IP) to help them stay relevant in the fast-paced economy our world faces today (Chesbrough, 2003; Eftekhari & Bogers, 2015; (Konsti-Laakso, Pihkala, & Kraus, 2012), 2012; Sisodiya, Johnson & Grégoire, 2013; Tucci, Chesbrough, Piller, West & Fe, 2016; West & Bogers, 2014).

It has been argued that external collaboration combined with an innovative business model are the ingredients to growth and success of organisations (Chesbrough, 2006). This may be exactly what is required to overcome the high failure rate in SMEs (Wynarczyk, 2013). The phenomenon of using inputs from external sources to innovate products, services or processes to derive commercial benefit is referred to as a new paradigm in innovation called "Open Innovation" (Chesbrough, 2003) and has been welcomed as a novel way to improve profitability, time to market and the longevity of businesses. The business model is the central construct to the open innovation era, defining how a firm creates and captures value from these innovations, implying the

profit making capability of the firm that is central to business success (Teece, 2010; Zott, Amit, & Massa, 2011).

The purpose of this qualitative exploratory study is therefore to understand the role of a business model in how SMEs innovate, specifically through open innovation, as well as to understand the adaptability of the existing business model when engaging in inbound open innovation.

## 1.2 Context of the Study

In this day and age, with the trend of decreasing product lifecycles, rapid technological advancements, high workforce mobility, and customers having a world of choice at their fingertips, it has become extremely important for businesses to find ways to develop compelling products to be profitable and sustainable (Chesbrough, 2003).

This is especially relevant for SMEs, as it was found that their success depends on their ability to develop products with compelling value propositions for their target customers (CBInsight, 2014). This is corroborated by the Global Entrepreneurship Monitor (GEM) South Africa Report (2015), which confirmed that approximately 42.5% of SME business ventures fail due to lack of demand for their product. This failure rate is exacerbated in low growth economies, such as South Africa, where GDP growth is estimated at close to 0% for 2016 (Industrial Development Council, 2016).

Survival of SMEs around the world is a macroeconomic imperative, as it drives the productivity of a country, creating the much-needed jobs and socio-economic welfare a nation requires to be progressive (Bureau for Economic Research, 2016; Herrington et al., 2014; Schwab & Sala-i-Martín, 2014; Singer, Amorós & Moska, 2015).

It is argued by many, that businesses, especially businesses who lack resources, can improve their chances of survival by leveraging their external environment; extracting knowledge and ideas about changing customer needs, industry trends and social advancements, to create value that is attractive to its customers and capture profits in return (Robertson, Casali & Jacobson, 2012; Tucci et al., 2016; West, Salter, Vanhaverbeke & Chesbrough, 2014). This is known as open innovation (Chesbrough, 2003). These external sources could be suppliers, customers, social media, and even competitors. Bill Joy (as cited in Tucci et al., 2016), once said that “No matter who you are, most of the smartest people work for someone else”. These words have epitomised the open innovation movement.

In the open innovation paradigm, another emphasis is a mechanism required to execute the idea for successful commercialisation, in order to generate profits or value in some other way (Chesbrough, 2003, 2006). The underlying commercial mechanism for execution of an idea is the business model, as this is what churns these ideas and knowledge into value for the customer and the organisation (Teece, 2010; Zott, Amit, & Massa, 2011).

Many scholars advise that the business model often needs to be adapted or innovated to take advantage of an idea, which requires financial investment (Teece, 2010; Zott, Amit & Massa, 2011). On the other hand, being cognisant of the fact that SMEs experience a lack of skills, access to small markets and constrained access to financial resources (Eftekhari & Bogers, 2015; Mcgrath & Toole, 2013), it is argued that, by SMEs understanding the role of their inherent business model in the use of open innovation, they will be in a better position to understand the leveraging and limiting points of their business model to take advantage and monetise ideas from inbound open innovation.

## 1.3 Significance of the Study

While open innovation has attracted overwhelming attention in the last thirteen years, extant studies on leveraging open innovation and its link to SMEs are very limited (Eftekhari & Bogers, 2015; Kafouros & Forsans, 2012; Schillo & Walter, 2010; Scott & Chaston, 2013). Further to this, studies on the role of the business model in the use of open innovation and the internal processes thereof are non-existent (West & Bogers, 2014).

Understanding the relevance of open innovation to SMEs, considering the frugal conditions under which they operate, specifically from a perspective of the business model, the researcher aims to:

- Explore the role of the business model in the use of open innovation in SMEs to clarify this relationship.
- Establish an understanding of adaptability of the business model in the adoption of inbound open innovation.

This qualitative exploratory study seeks to provide an understanding on the above constructs to SMEs.

Furthermore, this study aims to provide insight to SMEs on which building blocks of their business model are generally easy to adapt and which building blocks are more difficult to adapt, giving them a sense of control when trying to improve their business model to leverage inbound open innovation.

Lastly, this study aims to fill the identified gaps in the existing body of academic knowledge on open innovation in SMEs, providing a business model perspective.

The subsequent sections in this document provide a review of the literature on open innovation, business models, and SMEs, which form the basis of the research questions that are then defined. This is followed by the research methodology and design, results of the study and a discussion thereof, and a conclusion with future recommendations on the topic.

# 2 LITERATURE REVIEW

## 2.1 Introduction

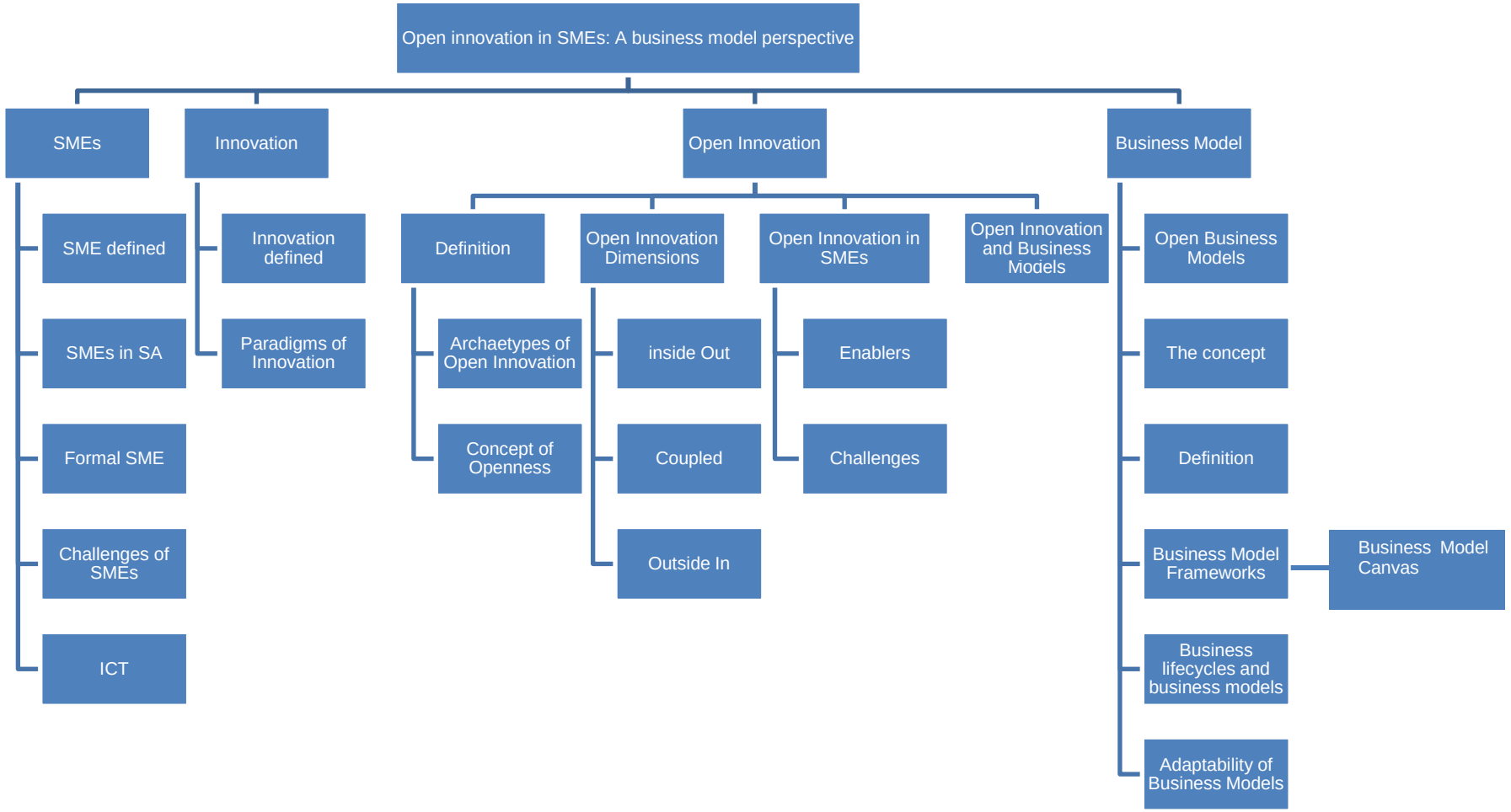
As explicated in Chapter 1, the aim of this study is to understand the role of the business model in the use of inbound open innovation and understand the adaptability of the business model in the adoption of inbound open innovation within the context of SMEs. This aim informed the analysis of three intersecting constructs which were: SMEs, open innovation and business models. The review of the current literature provided an enriched foundation and direction for the research on the above-mentioned constructs. This was done by:

- Outlining the topic of SMEs and the value of its contribution to economic development.
- Evaluating the differences between formal and informal SMEs, subsequently focusing on the factors that contributed to SME failure or success.
- Investigating the concept of innovation and its paradigms.
- Discussing the emergent theory of open innovation, detailing its different forms and processes.
- Investigating the current understanding of the concept of business models and evaluating the various elements that underpin a business model
- Extrapolating the concept of open business models.
- Explaining the gap in the literature and how this supports the aim of the study.

Figure 1 contains an outline of the structure of this literature review. The chapter then closes explaining the gap in the literature, re-iterating the aim of this study.

## 2.2 Taxonomy of Literature Review

Figure 1: Taxonomy of Literature Review



## 2.3 Small and Medium Enterprises (SME)

According to the World Bank (2015), 600 million jobs are needed in the next 15 years to absorb a growing global workforce. Consequently, SMEs have received immense attention around the world in both developed and developing countries, even at institutional levels, due to their contribution to a net increase in employment around the world (Buculescu, 2013; Fierro, 2015; OECD, 2010; Rösle, 2015; Schwab & Sala-i-Martín, 2014; Singer et al., 2015). Recently, SMEs have played a noteworthy role as the driver of growth and prosperity in the economy and are estimated to account for approximately 90% of firms and employ 63% of the workforce in the world (OECD, 2010). SMEs are able to make such contributions to the economy due to their entrepreneurial nature and it is agreed that they play a budding role in innovation, creating value adding products and services (Brunswicker & Vanhaverbeke, 2015; Chesbrough & Bogers, 2014; van de Vrande, de Jong, Vanhaverbeke & de Rochemont, 2009). Understanding the importance of SMEs in growing an economy and its innovativeness, SMEs formed the basis of the context for this study. The next section defines SMEs.

### 2.3.1 Definition of SME

With a rising interest in SMEs, there have been many attempts to define SMEs globally. However, looking at OECD, the European Commission, the World Bank Group and in wide consultation with many individual countries, an absolute definition still remains elusive (Berisha & Pula, 2015; Buculescu, 2013). There are perhaps three perspectives that have contributed to the difficulty in attaining an absolute global meaning of SME, which are “definitions by international institutions, definitions by national laws and definitions by industry” (Berisha & Pula, 2015, p. 18). Due to the imprecise definition of SME, the terms small business, small medium enterprises (SME) and small, medium and micro enterprises (SMME) have all commonly been used interchangeably and often refer to entrepreneurial ventures in a country that fall outside the domain of large enterprises (Amra, Hlatshwayo & Mcmillan, 2013). For consistency purposes, the term SME is used throughout this study.

Importantly, a consensus does appear to have been reached on the qualifying criteria for SMEs as a distinction from other business types. This is based on the number of employees, asset value of the company and gross turnover (Ayyagari, Beck & Demirgüç-Kunt, 2005; Berisha & Pula, 2015; Buculescu, 2013; International Finance

Corporation, 2012; Kushnir, 2010; Web, 2008). This consensus is also true in South Africa as seen in the table below. Table 1 classifies SMEs into subgroups based on their size in South Africa, as guided by the National Small Business Amendment Act of 1996, which was thereafter amended by the National Small Business Amendment Act of 2003.

**Table 1: Classification of SMEs in South Africa**

| Enterprise Size | Number of Employees | Annual Turnover | Gross Assets excluding fixed property |
|---|---|---|---|
| Medium | 100 to 200 | R5m to R64m | R5m to R10m |
| Small | Fewer than 50 | Between R2m to R5m | Between 3m to R4.5m |
| Very Small | Fewer than 20 | Between R200,000 to R500,000 | Between R150,000 to R500,000 |
| Micro | Fewer than 5 | Between R150,000 | Between R100,000 |

The National Small Business Amendment Act of 2003 was released due to inflationary pressures between the year 1996, when the act first came into force, and 2003. As an example, the threshold for a medium enterprise's annual turnover was increased from R50m to R64m while the number of employees remained constant. This suggested that number of employees was a more reliable measure for SMEs due to the volatility of the annual turnover and asset value based on economic performance. Mahembe (2013, p. 65) also asserted that, "the easiest, reliable, and most popular small business categorisation is a number of full-time employees, as the businesses tend to be secretive with their financial information". Hatten (2011) affirmed that the most common criterion to distinguish between large and small businesses is the number of employees.

Following the observation from the National Small Business Amendment Act of 2003, and guidance from Mahembe (2013) and Hatten (2011), it was decided that, for this study, the number of employees would be the only basis used to classify a business as an SME in South Africa. Hence, an SME was defined as a business with fewer than 200 employees.

### 2.3.2 SMEs in South Africa

As the context of this study was SMEs in South Africa, a view into the SME landscape in South Africa has been provided. South Africa is a developing, efficiency-driven economy (Schwab & Sala-i-Martín, 2014). The country has been plagued with low levels of economic growth (estimated at 0.9% for 2016) and a high unemployment rate (estimated at 26% for 2016) (Industrial Development Council, 2016). The National Development Plan (NDP) for 2030 envisaged a reduction in unemployment to 14% by 2020 and 6% by 2030. Considering the unemployment rate was 26% in 2016, there is a long way to go to meet these targets, hence the immense focus on SME support, to help create and grow them (National Planning Commission, 2012). This was corroborated by the Global Entrepreneurship Monitor Report for South Africa, who reported that South Africa had not been able to depend on the corporate and public sectors to create jobs (Herrington et al., 2014). Consequently, emphasis had been directed too small to medium sized enterprises for job creation as a priority on the national agenda (South African Government, 2014). SMEs in South Africa have been significant contributors to the GDP (approximately 42%) (Bureau for Economic Research, 2016). Following this focus, South Africa put in place many institutional interventions, such as the National Small Business Act of 1996 (followed by the 2003 and 2004 amendments) and various organisations to provide well-rounded support, in order to promote a flourishing SME business sector, as shown in the table below (Bureau for Economic Research, 2016).

**Table 2: Organizations Supporting SMEs in South Africa**

| Name of Institute | Purpose |
|---|---|
| Small Enterprise Development Agency (SEDA) | "Implement government's small business strategy, design and implement a standard and common national delivery network for small enterprise development, and integrate government-funded small enterprise support agencies across all tiers of government."(Bureau for Economic Research, 2016, p. 6 ) |
| Small Enterprise Finance Agency (SEFA) | "SEFA offers bridging finance, revolving loans, term loans, asset finance and funds working capital needs." (Bureau for Economic Research, 2016, p. 6 ) |
| National Youth Development Agency (NYDA) | "To assist young South Africans between the ages of 14 and 35 years to start businesses and to finance existing businesses." (Bureau for Economic Research, 2016, p. 6 ) |

| | |
|---|---|
| Technology and Innovation Agency (TIA) | "In order to enable and support technological innovation, as well as to enhance the global competitiveness of South African businesses, the Department of Science and Technology established the Technology and Innovation Agency (TIA)" (Bureau for Economic Research, 2016, p. 6 ) |
| National Empowerment Fund (NEF) | "National Empowerment Fund (NEF) was founded with the intention of offering financial and non-financial support to black empowered businesses." (Bureau for Economic Research, 2016, p. 6 ) |
| Business and Innovation Incubators | Promote entrepreneurship to drive up the birth and growth of SMEs |

As seen from the Table 2 above, there has been a collaborative approach between government and individuals to try their hand at entrepreneurship, by providing the mechanisms for funding, regulation, empowerment and innovation to build small businesses, in order to create the much needed employment South Africa requires.

### 2.3.3 Formal and Informal SME's

Like in many developing countries, South Africa has a formal and an informal sector. The informal sector is generally characterised by survivalist micro enterprises who are unregistered with the Companies and Intellectual Property Commission (CIPRO). According to the Department of Trade and Industry (DTI) (2008), informal SMEs took the form of street trading enterprises, backyard manufacturing and services, and occasional home-based evening jobs and were generally difficult to pinpoint. They further stated that these enterprises had very little growth potential and were less likely to hire staff (DTI, 2008). Formal SMEs on the other hand, were at minimum registered with CIPRO, were entrepreneurial in nature and employed more people (Amra et al., 2013).

FinScope (2010) determined that in South Africa, 86% of SME businesses belonged to the informal sector. This is a concern, based on the finding by Ayyagari et al. (2007) that there was a negative correlation between a large informal SMEs sector and GDP growth. This suggests that in order to grow the economy, South Africa needs to convert its survivalist SME businesses to a vibrant formal SME sector. Hence, there is a need to curb the failure rate of formal SMEs, which stands at 42,5% (Herrington et al., 2014). Considering the findings of Ayyagari et al. (2007) and the argument of Heimonen (2012) that there was a positive correlation between innovativeness and growth of

businesses, this study concentrated on gathering insights from the formal sector of the SME market only, in order to understand their open innovation practices.

Literature on business lifecycle suggests that, SMEs just like any other business can find themselves at different lifecycle stages depending on their age, and performance. With the growing body of studies on entrepreneurship, technology start-ups in particular have become a highly researched segment of SMEs (Trimi & Berbegal-mirabent, 2012).

### 2.3.4 Challenges faced by SMEs

SMEs are known to be agile, have flat management structures that reduce bureaucracy and implore quick decision making due to their smallness (Rosenbusch, Brinckmann & Bausch, 2011). In the same vein, this smallness poses many challenges for SMEs and often leads to their failure (Herrington et al., 2014). As per the reviewed literature, there are a number of challenges that SMEs face. These include:

- Capability constraints and a lack of Resources injecting capacity (Eftekhari & Bogers, 2015; Brouthers, Nakos & Dimitratos, 2014).
- Individually, SME's have weak control over their external environment due to a lack of clout (Lai, Saridakis, Blackburn & Johnstone, 2016).
- Limited access to financing due to the volatility of their business cycles or newness, often leading to cash flow issues (Lai et al., 2016; Parida et al., 2012).
- The business is not profitable due to lack of a systematic process for discovering markets for their product, identifying customers, and validating assumptions (Herrington et al., 2014; Trimi & Berbegal-Mirabent, 2012).
- Lack of multidisciplinary knowledge due to limited entrepreneur experience and smallness of business (Parida et al., 2012; Chesbrough, 2008).
- Lack of structured processes as SMEs are known to be agile and informal in their business operations (Parida et al., 2012).
- Lack of research and development spend, due to the smallness of their operation (Eftekhari & Bogers, 2015).

According to the GEM South Africa Report (2014), lack of access to finance and poor profitability were among the most significant challenges SMEs faced in South Africa. Poor profitability was on a sharp upward trend, pointing to businesses either not having markets or trading in over-commoditised spaces, that is, having an undifferentiated

business model or product. Lack of finance results from inadequate collateral by the business or entrepreneur, a lack of credit history, the inability to produce an acceptable business plan, poor market research, the absence of a viable business idea, and finally a lack of access to vibrant markets (Bureau for Economic Research, 2016). These are commonly faced challenges by small businesses often referred to as "liability of smallness" (Eftekhari & Bogers, 2015; Parida et al., 2012; Rosenbusch et al., 2011).

SMEs often fail due to their liability of smallness, however some SMEs overcome this challenge by opening up their innovation process (Chesbrough, Enkel & Gassmann, 2010), leveraging their networks to find missing resources, innovate and survive (van de Vrande et al., 2009). Konsti-Laakso et al. (2012) argued that these networks provide an opportunity for the SMEs to build understanding of their capabilities and gain access to knowledge of other businesses with minimum investment(Konsti-Laakso et al., 2012)(Konsti-Laakso et al., 2012)(Konsti-Laakso et al., 2012)(Konsti-Laakso et al., 2012)(Konsti-Laakso et al., 2012)(Konsti-Laakso et al., 2012) (Konsti-Laakso et al., 2012). This concept of open innovation (Chesbrough, 2003) will be discussed in section 2.5.

### 2.3.5 Information, communication and telecommunication (ICT) sector

The research aims of this study were specifically to comprehend the role of the business model in the use of open innovation and the adaptability of the existing business to take advantage of externally sourced innovations in SMEs. In order to explain this phenomenon, industries that have a higher propensity to innovate were used to provide the much-needed insight. According to Thomson and Reuters (2015), the ICT sector was found to be the most innovative industry. It is for this reason that SMEs of the ICT sector were chosen for this study. The ICT sector is a rapidly evolving sector and one of the main enablers of the move to a more connected and information rich world. It has played an avid role in the erosion factors of closed innovation, giving rise to the open innovation paradigm (Chesbrough, 2003).

### 2.3.6 Summary on SME

Based on the research presented, it was decided that South African SMEs should form the context of this study. SMEs are classified as formal businesses (business's registered with CIPRO) with fewer than 200 employees. The aim of the study was to understand the role of the business model in the use of open innovation, hence to

make the relevant observations, this study was further narrowed to an industry that was found to be innovative by Thomson and Reuters (2015), namely, the ICT sector.

It was also explained that SMEs play a fundamental role in driving the economic prosperity of a country, however, they are faced with the liability of smallness often posing several challenges, which sometimes leads to their demise. It was suggested that one way to address these challenges, was to open up their innovation process to facilitate increased value or strategic benefit through interactions with external parties (Chesbrough & Crowther, 2006; Chesbrough, Vanhaverbeke & West 2006; Gassmann 2006; Laursen & Salter, 2006; Lee et al. 2010; Parida et al., 2012).

Before exploring the concept of open innovation, a fundamental understanding of innovation is required.

## 2.4 Innovation

### 2.4.1 Introduction

The concept of innovation is a popular topic amongst academics and businesses, as it is considered one of the most vital activities for achieving renewal, survival and growth of a firm, due to its value creating ability for the business and its customers (Jørgensen & Ulhøi, 2010; Frishammar, Kurkkio, Abrahamsson & Lichtenthaler, 2012). Innovation is evident in many forms, ranging from complex scientific principles to the invention of radically new technologies and small incremental changes made to existing solutions (Paradkar et al., 2015).

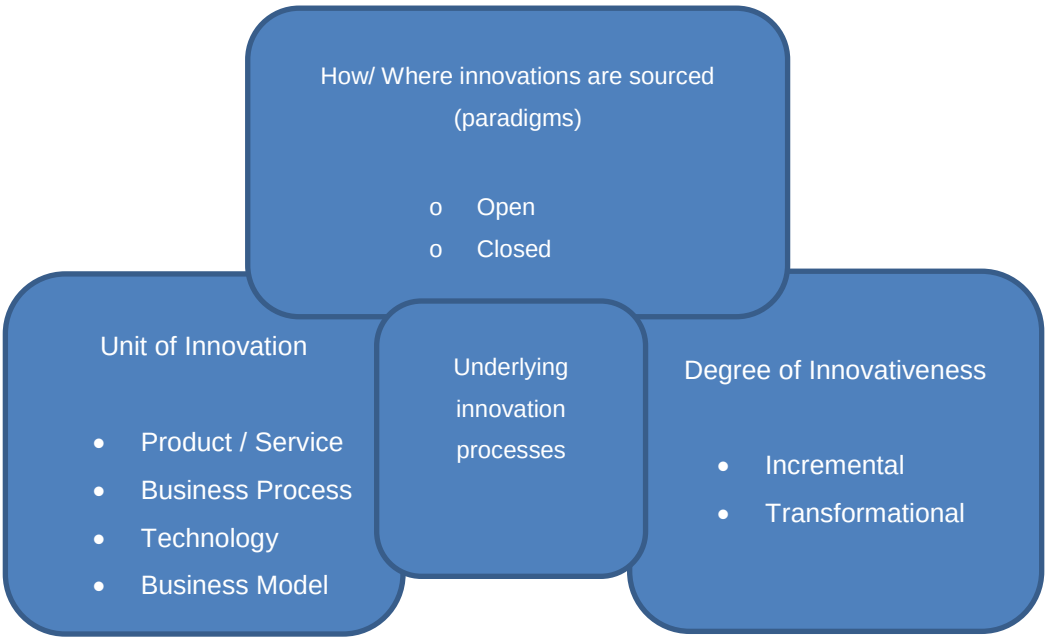
Innovation is therefore a broad topic, manifesting itself over time in various interrelated forms depending on the nature and context of business operation. Figure 2 illustrates these manifestations, describing what is being innovated to what degree the innovation occurs e.g. incremental or transformational and how or where innovations are sourced from e.g. open or closed paradigms of innovation (Baregheh, Rowley & Sambrook, 2009; Lee, Park, Yoon & Park, 2010; Parida et al., 2012).

As these models of innovation have evolved over time, so too has its definition, starting from Thompson's (1965) early definition (as cited in Baregheh et al., 2009, p. 1325), which stated "Innovation is the generation, acceptance and implementation of new ideas, processes, products or services"; to a more refined definition which states "Innovation is the multi-stage process whereby organisations transform ideas into

new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace" (Baregheh et al., 2009, p. 1334).

The process of transforming ideas into new improved products, services or processes is known as the value creating process and is normally reinforced by the firm's business model (Baregheh et al., 2009; Lee et al., 2010; Teece, 2010). These ideas can be sourced through secretive internal research and development (R&D) processes, referred to as closed innovation, or alternatively in collaboration with parties external to the internal R&D processes, referred to as open innovation (Chesbrough & Bogers, 2014). The degree to which the business innovates its products, services, technologies can be referred to as either transformational innovation (also known as radical innovation) or incremental innovation (Parida et al., 2012). Transformational innovation refers to the firm's ability to develop products that are new to the world or industry, while incremental innovation refers to the firm's ability to enhance existing products or develop products that are new to the firm, making use of the current assets (Lee et al., 2010; Parida et al., 2012).

**Figure 2: Nature and Context of Innovation**




***Source: Authors own view of innovation based on the reviewed literature***

Figure 2 above, shows how the constructs of innovation fits into the larger scheme of innovation. Innovation is made up four constructs, which are, what is being innovated

(unit of innovations), where innovations are sourced from (paradigms of innovations), degree and what is being innovated and the underlying processes to facilitate innovation. This study focuses on the construct of open innovation. In order to understand this study's focus on open innovation, it is important to unpack its meaning and types of open innovation that exist, as well as its history. This is unpacked in the sections below.

### 2.4.2 Moving from "closed" to "open" innovation paradigm

Chesbrough's (2003) seminal book "Open Innovation - The New Imperative for Creating and Profiting from Technology", described a dramatic shift in the way innovation activities were carried out, after the innovation activities at a few large companies, such as IBM and Xerox, were observed. Chesbrough (2003) suggested a shift from the traditional "closed" innovation model, where most R&D was carried out in-house, to a more collective and cooperative way of innovating with external parties and the R&D teams, inside or outside the organisation. This became known as the concept of "open innovation", coined by Chesbrough (2003). This was fundamentally based on the notion that companies should make greater use of external ideas and technologies in their own business, and let unused internal ideas and technologies be used outside in other businesses.

The reasons for the paradigm shift from closed innovation to open innovation were referred to as the "erosion factors" of closed innovation (Chesbrough, 2003, p.7). These erosion factors were due to changes such as "increased mobility of workers, more capable universities, declining US hegemony, and growing access of start-up firms to venture capital" (Chesbrough, 2003, p. 7). One of the most profound erosion factors remains the escalating phenomenon of distributed knowledge sources that could be leveraged anywhere, through real-time global collaboration, due to the rise of the internet and social media (Chesbrough, 2003; Gassmann & Enkel, 2004).

Chiaroni, Chiesa & Frattini (2010) found that moving from closed to open innovations required the firm to undergo step-wise transformational change in four dimensions over a period of time. These dimensions were "inter-organisational networks, organisational structures, evaluation processes and knowledge management systems" (Chiaroni et al., 2010, p. 222 ), all of which required stringent management and control. This suggests that while there are benefits in moving from closed to open innovation, it does

have a trade-off in terms of active management intervention, resource capacity, and time lag.

## 2.5 Theory of Open Innovation

### 2.5.1 Definition of Open Innovation

Since the publication of Chesbrough's 2003 seminal book, where he coined the term "Open Innovation", there has been tremendous interest in the topic (Hossain, Islam, Sayeed & Kauranen, 2016; West et al., 2014) by both scholars and practitioners. This has led to refinements as other scholars have contributed to the burgeoning topic. The table below presents the definition of open innovation and its refinement over time.

**Table 3: Evolution of the Definition of Open Innovation**

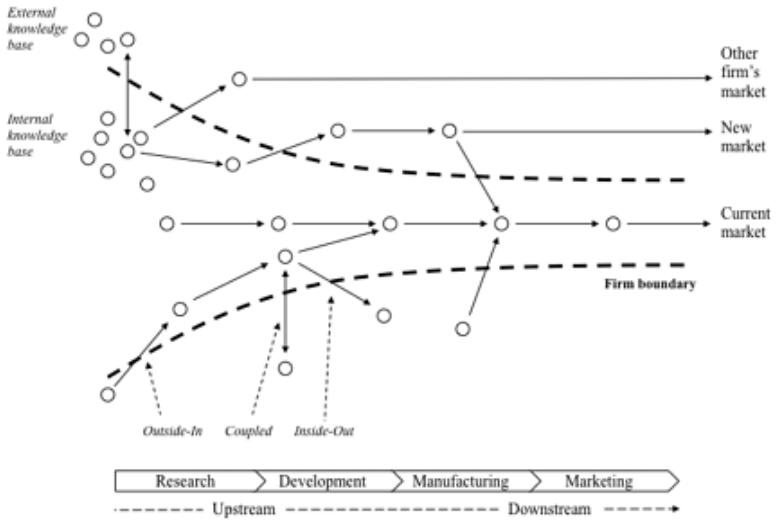
| Term | Definition |
|---|---|
| Original definition | "Open Innovation means that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well. This approach places external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths" (Chesbrough, 2003, p. 43). |
| Refinement 1 | "Open Innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively" (Chesbrough, 2006: p. 1). |
| Refinement 2 | "Open innovation is a distributed innovation process based on purposively managed knowledge flows across organisational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organisation's business model. These flows of knowledge may involve knowledge inflows to the focal organisation (leveraging external knowledge sources through internal processes), knowledge outflows from a focal organisation (leveraging internal knowledge through external commercialization processes) or both (coupling external knowledge sources and commercialization activities)" (Chesbrough & Bogers, 2014, p.12). |

Knowledge flows in the context of open innovation refers to "interactions with direct and indirect customers", "interactions with suppliers", "interactions with universities and other research organisations", "interaction with experts on intellectual property rights" and "interaction with network partners" (Brunswicker & Vanhaverbeke, 2015, p. 1245).

It is argued that the fundamental difference between other innovation types that involve networking, for example collaborative innovation, and open innovation, is that open innovation does not only focus on the networking aspect of developing innovation, but also extends to the strategic procurement mechanism and commercialisation aspects (business model) of innovations to create and extract value from such innovations (Enkel, Gassmann & Chesbrough, 2009)

Figure 3 below illustrates the concept of open innovation, showing how knowledge flows can be inward, outward or in both directions simultaneously across the firm's boundaries. Either these go on to be commercialised downstream by the focal firm or another firm to satisfy a market need. The archetypes of the various knowledge flows are discussed below, as well as the concept of the business model.

**Figure 3: Open Innovation Paradigm**



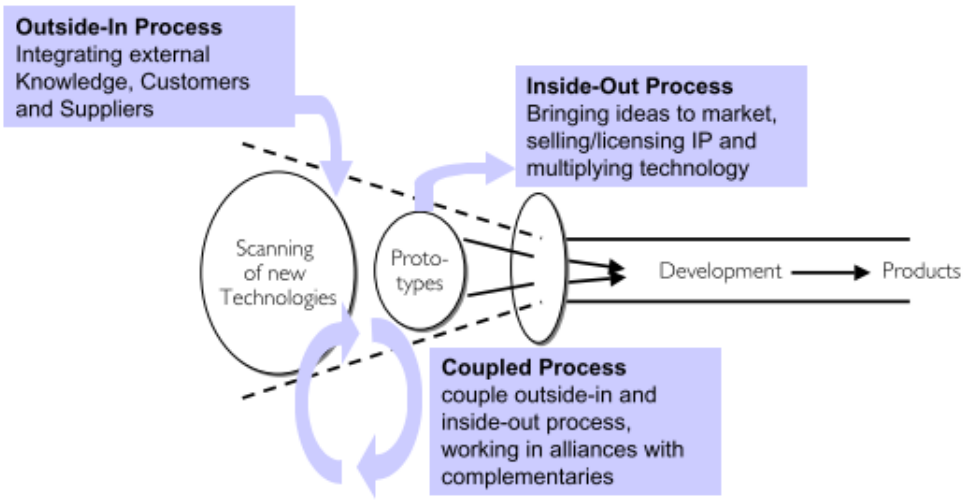

*Source: Chesbrough & Bogers 2014, (p.31)*

It should be noted that while the theory of open innovation was contested as not being a new ideology as its origins lay in the antecedents of 3 sets of prior work; it has given innovation practitioners a common language to make reference to the nature of R&D, helping to shift the prevailing logic from predominantly internal sourcing of ideas or knowledge toward external engagement including focusing on new ways to generate and commercialize innovations (West et al., 2014).

### 2.5.2 Archetypes of Open Innovation

Based on the definition above, there are three archetypes of open innovation which describe the direction in which knowledge or ideas flow across the firm's boundaries (Chiaroni et al., 2010; Gassmann & Enkel, 2004; West & Bogers, 2014):

**Figure 4: Archetypes of Open Innovation**




***Source: Gassmann & Enkel, 2004, (p. 7)***

- Inbound (outside-in) is described as the practice of engaging with external organisations or individuals with the purpose of accessing their technical and scientific competencies for improving internal innovation performance using pecuniary or non-pecuniary mechanisms
- Inside-out (outbound) is described as the practice of establishing relationships with external organisations with the purpose of exploiting internal idle knowledge, either through pecuniary or non-pecuniary mechanisms, allowing the external firm to commercialise the shared knowledge.
- Coupled open innovation refers to co-creation with (mainly) complementary partners through alliances, cooperation, and joint ventures during which give and take are crucial for success (Gassmann & Enkel, 2004).

A study conducted by van de Vrande et al. (2009) to investigate the adoption of open innovation in SMEs, revealed that SMEs do undertake open innovation, albeit mainly inbound open innovation. Since this study focused on the role of the business model in open innovation in SMEs, it has been narrowed to investigating the role of the business model in the use of inbound open innovation in SMEs.

As openness forms the central construct of open innovation (Chesbrough, 2003), a deeper understanding of what openness means in the context of inbound open innovation is required. This is discussed in the section below.

### 2.5.3 Concept of openness

The concept of openness in inbound open innovation refers to businesses' use of external sources of innovation by collaborating with other businesses or institutions, like universities, or persons (experts) (Dahlander & Gann, 2010).

A few scholars have debated the concept of openness, how it should be measured, and pitfalls in terms of innovation. In an early paper, Cohen & Levinthal (1990) explained that a firms level of openness is related to its absorptive capacity in terms of their competence to gain access, absorb and incorporate external ideas, technology and various forms of knowledge inputs for innovation . This was later corroborated by (Bianchi, Croce, Era, & Benedetto, 2015). Lichtenthaler & Ernst (2009) suggested that a firm's degree of openness could be established through their tendency to acquire external technologies.

Fey & Birkinshaw (2005) revealed that the greater the firm's openness to new ideas, the higher the firm's R&D performance. However, Laursen & Salter (2006, p. 132) soon after demonstrated that there actually was an optimum level of openness in terms of breadth and depth, where the "benefits to openness are subject to decreasing returns, indicating that there is a point where additional search becomes unproductive."

In a study conducted by Drechsler & Natter (2011, p. 438), they found that the factors that prevented firms from being open were knowledge gaps related to the market and technological awareness, as well as "ineffective intellectual property (IP) protection mechanisms, and competitor threats such as market entries and imitation" were identified. They also found that the biggest drivers in the decision to be open are a firm's need for additional resources such as funding for innovation activities and the effectiveness of a firm's IP protection mechanisms."

Regarding openness in SME, Brunswicker & Vanhaverbeke (2015) claim that SMEs are more often that not, open to collaboration with external parties as part of their innovation processes due to lack of resources and capacity on their part. As a suggestion for future research though, they requested that more insight be sought on factors that limit or positively influence a firm decision to make used of external sources

of knowledge from an organisational or industry point of view (Brunswicker & Vanhaverbeke, 2015).

This is corroborated by Aloini, Pellegrini, Lazzarotti, & Manzini (2015) and Drechsler & Natter (2011); Enkel et al. (2009) who infers that the emerging literature on the concept of openness still needs further investigation, as only little is known on the topic especially from the determinants and decision drivers of openness degree.

### 2.5.4 Open Innovation in SMEs

While the "open innovation paradigm" was born out of the observation of large corporates such Xerox, Proctor and Gamble (P&G) and IBM, it was argued by many scholars that it might also be beneficial to SMEs (Lasagni, 2012; Lee et al., 2010; West et al., 2014; Wynarczyk, Piperopoulos & McAdam, 2013). One of the earliest studies on open innovation in SMEs conducted by van de Vrande et al. (2009), deduced that open innovation was relevant for much broader groups of enterprises than just large and multinational enterprises, SMEs included.

Scholars have suggested that using open innovation practices can increase SMEs' propensity to create maximum value through innovation, be it product, process or technology, either incrementally or in a transformational way, by opening up the innovation process for collaboration with external networks (Baregheh et al., 2009; Chesbrough & Bogers, 2014; Jørgensen & Ulhøi, 2010; Lee et al., 2010; Parida et al., 2012; Rajala, Westerlund & Möller, 2012; West et al., 2014). Scott & Chaston (2013) found in their study that open innovation in SMEs resulted in higher sales growth. They also found that SMEs involvement in open innovation spanned initiatives to reduce operating costs and improve internal processes, including exploiting the process to assist the development of new or improved products, increasing profitability.

Recent studies done on the engagement of SMEs with external parties has raised the importance of partnering or collaborating outside the firm's boundaries to enhance the firm's innovative performance, as it provides these SMEs with access to a wider set of technological prospects through information sharing and resource pooling (Tomlinson & Fai, 2013). It has also been argued that SMEs, by nature, are open to collaboration with external parties either through personal ties or inter-organisational relationships to ensure survival and growth, mainly due to the challenges faced, such as lack of

resource skills, field specialisation and lack of financial resources (Brunswicker & Vanhaverbeke, 2015; Parida et al., 2012).

Despite it being established that open innovation is important for the success of SMEs, very few studies have been conducted on open innovation in SMEs, resulting in many gaps in the literature (Hossain & Kauranen, 2016). Some of the identified gaps include: factors that stimulate the success of open innovation activities in SMEs, factors that affect adoption of open innovation practices, understanding of the developing country context and balancing openness in SMEs (Hossain & Kauranen, 2016; Parida et al., 2012; Wynarczyk et al., 2013). Furthermore, only 20% of studies conducted on the theme of open innovation in SMEs are of a qualitative nature, while a staggering 57% are quantitative in nature. More qualitative studies are required to deeply understand the nature of open innovation in SMEs (Hossain & Kauranen, 2016).

Based on the limited literature on open innovation, the main reasons for the use of open innovation in SMEs appeared to be searching, networking and collaborating, as well as extending their product innovation and technology innovations.

#### 2.5.4.1 Drivers for Open Innovation in SMEs

According to the literature, SME's turn to open innovations for the following reasons:

##### 2.5.4.1.1 Searching, Networking and Collaborating

Searching refers to the acquisition (absorption of external knowledge) and exploitation (commercialising technologies) strategies of SMEs. SMEs were found to employ searching strategies for new knowledge, innovative Ideas, partners for product development, partners for access to markets (Spithoven et al., 2013; Wynarczyk 2013).

##### 2.5.4.1.2 Innovation and Technology Management

Csath (2012) found that SMEs are more active in product and technology innovations than in services and business model innovations. This is due to their focus on their specialisation and their drive to change their business lines to more promising high-tech areas (Hossain & Kauranen, 2016). From the literature, the business model implications of this have not been studied and hence remain unexplored.

#### 2.5.4.2 Main challenges facing SME in the adoption of open innovation

**Table 4: Challenges Faced by SMEs in Adopting Open Innovation**

| Challenges | Source |
|---|---|
| Resource scarcity in terms of expertise and finance | (Kim and Park, 2010; Abouzeedan et al., 2013) (Konsti-Laakso et al., 2012) |
| Unsystematic innovation activities making selection and development of open innovation difficult | (Kim and Park, 2010) (Konsti-Laakso et al., 2012) |
| Lack of knowledge on fields outside SMEs specialization | (Bocken et al., 2014) |
| Lack of co-ordination in operationalizing open innovation activities among functional areas | (Guräu and Lasch, 2011)(Konsti-Laakso et al., 2012) |
| IP Protection for related to technology or creativity derived from the innovation when collaborating especially with larger organisations | Kim and Park (2010), Chesbrough (2006), (Dahlander & Gann, 2010) |
| The size of the SME and organisational stage and ability to identify partners with complementary resources | (Lichtenthaler, 2008; Guräu and Lasch, 2011) |
| Founder or management's mindset to open innovation | (Abouzeedan et al., 2013) (Laursen & Salter, 2006), (Eftekhari & Bogers, 2015) |
| How open to be and who to be open with – a curvilinear relationship between openness and return | Chesbrough (2006), (Laursen & Salter, 2006) |

As seen from the Table 4 above, challenges experienced by SMEs in adopting open innovation spanned multiple aspects of the business, ranging from skills and capabilities, through to decision-making on which idea or technology to take on and with whom to partner. It also suggests that operations were a limiting factor together with leadership of the SMEs. Many of these challenges are due to the smallness of SMEs, which is inherent in their nature. This therefore poses an interesting paradox, as while the smallness of the SME gives them many benefits, it also poses many challenges.

### 2.5.5 Business Model realm of Open Innovation

The business model directs the commercialisation processes between capturing external knowledge and delivering value of a product, service or technology in the market for economic benefit (Chesbrough, 2006). Scholars agree that the business model is a systematic and inclusive construct that explains how firms "do business" (Zott, Amit & Massa, 2011, p. 1019). The theory of open innovation states that in order to create and capture value, businesses must "open" up their business models to purposefully scout and leverage outside ideas and deliberately allow idle internal

knowledge or inventions to flow to the outside, where other businesses can unlock their latent economic potential (Aranha, Abudd, Garcia & Corrêa, 2015; Chesbrough, 2006; Chesbrough, 2012; Tucci et al., 2016). Opening up a firm's business model is referred to as an "Open Business Model" which is further discussed below (Chesbrough, 2006).

### 2.5.6 Open Business Model

An open business model is a concept that explicates how a firm uses the assets of external parties to develop value-creating innovations and commercialise these for market consumption; and/or how they capture value from partners through trading idle internal inventions that they in-turn commercialise, ultimately for economic benefit (Chesbrough, 2006, Chesbrough, 2012).

Chesbrough (2012) argued that where companies were experiencing shorter product development cycles and increased development or production costs, they could experience tremendous benefit by opening up their business model, giving them the flexibility to leverage the technology or knowledge of other firms in a more efficient way, reducing their input costs and time to market and creating more innovative solutions.

However, opening up the business model requires organisational-wide changes and speaks to the firm's dynamic capabilities to adapt, integrate, build and re-arrange both internal and external capabilities to respond to the identified idea, knowledge or technology (Aranha et al., 2015). This was corroborated by Chiaroni et al. (2010) in their longitudinal study which showed how a firm evolves over time. It has also been found that adapting a business model can be expensive and time intensive to undertake (Almirall & Casadesus-Masanell, 2010; Dahlander & Gann, 2010; Osterwalder & Pigneur, 2011; Schaltegger, Lüdeke-Freund & Hansen, 2012). From the above arguments, it is understood that while there are benefits in opening up the business model, there are trade-offs in the form of active management intervention, resource capacity, and time lag, which requires a balancing act between the firm's open innovation strategy and business model (Cheng & Huizingh, 2014).

The intensity of the cost-benefit relationship is argued to be more pronounced in SMEs due to their organisational size. (Rosenbusch et al., 2011).

Therefore, while leveraging open innovation gives the firm access to resources and knowledge to improve economic performance, at times, it may become overwhelming, especially for SMEs who are plagued by resource constraints. It can also be a costly

exercise from both a revenue and time perspective. This makes it imperative that the knowledge flow is purposively guided by the firm's strategy and potential economic benefits (the related business model) before undertaking such a journey. This study therefore aims to provide insight into the role of the business model and its adaptability in the use of inbound open innovation to understand how the two constructs fit together offering benefits to the SME.

As explained in section 2.5.5 and 2.5.6, the business model of the firm, and in this case SMEs, is the construct that explains how the SME creates and capture value. Following on from the challenges listed above in section 2.5.4.2, the researcher contends that some of the challenges SMEs faced were due to how the firm goes about its business (for example, resource capacity, partnering decisions, and the process of taking an idea to a product in the market) and so could be linked to the firm's business model. This makes it imperative to understand the business model as an actor in the open innovation paradigm in more detail. The business model concept is therefore unpacked below.

## 2.6 Business Models

The term 'business model' emerged in the 1990s but only started to become popular with the birth of electronic commerce and the rise of internet companies (Chesbrough & Rosenbloom, 2002). "Every company has a business model, whether that model is articulated or not" (Chesbrough, 2008, p. 111). The fascination with the business model was because it was an inclusive concept which explains how firms did business, and the logic behind how the firm commercialised its inventions to derive economic value (Chesbrough, 2006). There has been a rapid acceleration in the number of articles post 2007, signalling its growing importance (Zott et al., 2011). It has also recently been claimed that it is a central building block to business strategy (Spieth, Schneckenberg & Ricart, 2014).

Additionally, scholarly development on business models have developed in silos leading to disparity in the understanding of the concept (Zott et al., 2011). Teece (2010) suggests that this disparity is partly due to the notion that business models lays somewhere between economics and business strategy hence does not have anchoring field giving rise to challenges in theoretical development. Despite these disparities, the literature does provide a more informed view and frameworks to shed light on the construct of the business model.

Every business has a business model (Chesbrough 200) so it has become important to understand its role in the organisation as it reflects the strategic decisions of the company (Zott & Amit, 2008). One such strategic decision is the use of open innovation to define how to create, deliver and capture value in conjunction with external partners be it in the form of customers, universities, suppliers or even competitors (Hienerth et al., 2011; Vanhaverbeke, 2006).

Following the discussion above and understanding that the business model is the epicentre of business strategy, decision making and a central commercialisation construct in open innovation, West & Bogers (2014) has called for explicit clarification of the role of the business model in the use of open innovation, as this is not yet known. The lack of clarity about the phenomenon is caused by inconsistencies in the conceptual framework of business models itself, which resides somewhere between economics and business strategy without possessing a solid theoretical anchoring in either field (Teece, 2010).

To understand the concept of the business model further, its definition is discussed next.

### 2.6.1 Definition of business model

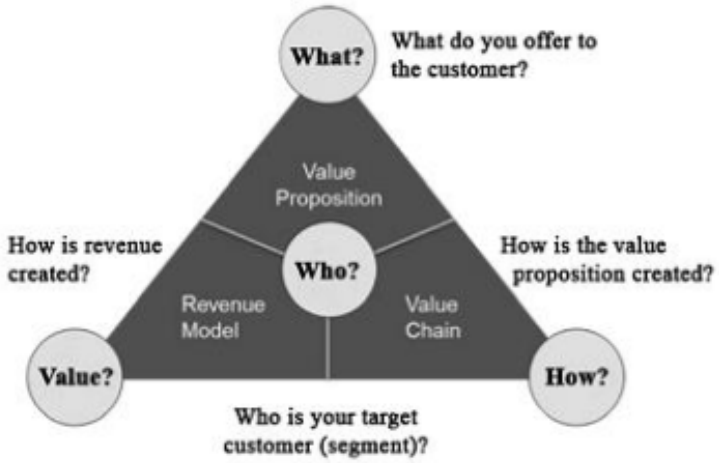
The concept of the business model has become a highly researched phenomenon in the past years. Many iterations of its definition exist due to it being investigated from various angles. The earliest definition of a business model was “stories that explain how enterprises work” (Magretta, 2002, p. 4), which were used to answer the questions:

- Who is the customer?
- What does the customer value?
- How do we make money in the business and what is the underlying rationality that describes how to provide value to customers profitably?

Teece (2010) suggested that the business model explains the logic of the firm, in terms of its value creation mechanisms as well as how to set up viable revenue and cost structures for value capture. Business models have emerged as an important means for firms to “commercialise new ideas and technologies” (Chesbrough, 2010, p. 354).

The most recent definition of open innovation from Gassman, Frankenberger and Csik (2014) is depicted in Figure 5 below, which also known as the Business Model Navigator. Gassman, Frankenberger and Csik (2014) laid out the definition of the business model using a visual model that shows the four core elements of a business. It defines the target customer (Who?); secondly, it looks at what value is provided to the customer (What?), followed by how resources were combined to offer that value to the customer (How?) and finally, how revenue or profit was generated (Value?).

**Figure 5: Recent Definition of a Business Model**




***Source: Gassman, Frankenberger and Csik, (2014, p. 5)***

This definition beds down the notion that a firm's business model that emerges is a series of strategic decisions taken to define how it creates and captures value for itself and its intended market (Hienerth, Keinz, & Lettl, 2011; Spieth et al., 2014).

In order to understand the definition, employ the concept more practically, and create a common vocabulary around business models, frameworks were then developed. For the purposes of this study, it was important to understand the relevant frameworks that have been developed, so that the most appropriate framework could be used to understand the role of an SME's business model in open innovation.

### 2.6.2 Frameworks for understanding business models

Business model frameworks provided formal, conceptual structure that described all the building blocks, elements and relationships of a business model (Zott et al., 2011). It also offered a common vocabulary through which to compare and discuss business

models. While the frameworks help businesses, especially entrepreneurial business design and develop their business model, Chesbrough (2010) also asserted that frameworks were helpful in explaining and understanding a firm's business model, however it must be noted that if used in isolation it did not drive innovation.

Ideally, a business model framework should be easy to understand and simple to use. A business model framework should not only define the elements, but also define the relationships between the elements (Fielt, 2013). At the same time this framework should provide enough direction and focus to effectively capture the strategy and capabilities of the firm. While a variety of business model frameworks exist, this literature review evaluated three frameworks, which feature received attention in the scholarly journals and press. The selected models for discussion are Seizing the Whitespace (Johnson, 2010), the Business Model Canvas (Osterwalder & Pigneur, 2010) and Chesbrough's building blocks of open business model as found in 2006 book, "Open Business Models:

#### 2.6.2.1 The business model canvas

The business model canvas, which was created by Osterwalder and Pigneur (2010), can be used as a guide or systematic approach for firms when creating new business models. Since visualisation is a core facet of the business model canvas, Osterwalder and Pigneur (2010) constructed a graphical representation of the nine building blocks on the Business Model Canvas to guide users (see Figure 6 below). This model has become more popular in entrepreneurial community as well as top-rated universities and business schools as part of their Master of Business Administration (MBA) or entrepreneurial programs. According to Trimi & Berbegal-Mirabent (2012), the business model is described as a conceptual instrument that guided timeous decision making for business model development

**Figure 6: Business Model Canvas**


***Source: Osterwalder and Pigneur (2010, p. 23)***

The authors suggest that the business model canvas was expected to benefit start-ups in four ways: firstly, the graphical visual representation of the business model provided cohesion of all the elements of business model canvas and how the building blocks related to each other; secondly, it allowed key stakeholders such as owners, employees, competitors or customers to understand how the business aligns all the different building blocks and facilitates communication and "creative discussion" of the vision and mission of the firm; thirdly, the integration of the various building blocks was viewed as a significant benefit to entrepreneurs by ensuring attention to all the different building blocks instead of a myopic focus on a limited number of specific parts; and lastly, the graphical tool "incorporate[d] design thinking methodology, which encourage[d] creative developments" focused on the needs of customers (Osterwalder & Pigneur, 2010; Trimi & Berbegal-Mirabent, 2012).

A description of the nine building blocks can be found in Table 5 below:

**Table 5: Description of Nine Building blocks of the Business Model Canvas**

| Name of Building Block | Description of Building Block |
|---|---|
| Customer Segments | The Customer Segments Building Block defines the different groups of people or organizations an enterprise aims to reach and serve |
| Value Propositions | The Value Propositions Building Block describes the bundle of products and services that create value for a specific Customer Segment |
| Customer Channels | The Channels Building Block describes how a company communicates with and reaches its Customer Segments to deliver a Value Proposition |
| Customer Relationships | The Customer Relationships Building Block describes the types of relationships a company establishes with specific Customer Segments A |
| Revenue Streams | The Revenue Streams Building Block represents the cash a company generates from each Customer Segment (costs must be subtracted from revenues to create earnings) |
| Key Resources | The Key Resources Building Block describes the most important assets required to make a business model work |
| Key Activities | The Key Activities Building Block describes the most important things a company must do to make its business model work |
| Key Partnerships | The Key Partnerships Building Block describes the network of suppliers and partners that make the business model work Companies |
| Cost Structure | The Cost Structure describes all costs incurred to operate a business model |

***Source: Osterwalder & Pigneur, 2010;***

#### 2.6.2.2 Seizing the white space

Seizing the White Space (Johnson, 2010), was a business model framework designed by Mark Johnson. The framework suggested that to take advantage of growth opportunities, companies must, unlike the Business Model Canvas that focused on documenting the existing nature and core capabilities of the business, companies must innovate away from their core capabilities (Johnson, 2010).

The nature of the interaction between the elements that he identified was regarded as venturing into the “white space.” Johnson (2010) created a useful four-box framework for understanding the business model.

The differences between the business model canvas designed by (Osterwalder & Pigneur, 2010), and the four box business model as proposed by (Johnson, 2010) are shown in table 6 below.

**Table 6: Comparison of Business Model Frameworks**

| Business Model Framework | Elements of the Framework | Designed by |
|---|---|---|
| Business Model Canvas | • Customer Segments<br>• Customer Relationships<br>• Communication, Distribution & Sales Channels<br>• Value Propositions<br>• Key Resources<br>• Key Activities<br>• Key Partnerships<br>• Revenue Streams<br>• Cost Structure | Osterwalder and Pigneur (2010) |
| Four Boxes Business Model | • Customer Value Proposition<br>o Job-to-be-done<br>o Offering<br>• Profit Formula<br>o Revenue Model<br>o Cost Structure<br>o Target Unit Margin<br>o Resource Velocity<br>• Key Resources<br>• Key Processes<br>o Processes<br>o Business Rules & Success Metrics<br>o Behavioural Norms | Johnson (2010) |

### 2.6.2.3 Chesbrough's view of open business model

According to Chesbrough (2006, p. 109), the business model has six functions which are described below.

1. It articulates the value proposition — that is, the value created for users by the offering.
2. It identifies a market segment - that is, the users to whom the offering and its purpose are useful.
3. It defines the structure of the value chain required by the firm to create and distribute the offering, and determines the complementary assets needed to support the firm's position in this chain (this includes the firm's suppliers and customers and should extend from raw materials to the final customer).

4. It specifies the revenue generation mechanisms for the firm, and estimates the cost structure and profit potential of producing the offering, given the value proposition and value-chain structure chosen.
5. It describes the position of the firm within the value network (also referred to as the “ecosystem”), linking suppliers, and customers, including identification of potential complementors (third-party software developers) and competitors.
6. It formulates the competitive strategy by which the innovating firm will gain and hold an advantage over rivals.

#### 2.6.2.4 Business model framework for this study

Demil & Lecocq (2010, p. 227) advised that there are two ways in which a business model can be analysed in terms of its dynamism. One being a “static approach”, and the other a “transformational approach”. Demil & Lecocq (2010) explain that the static view gives a consistent framework of the business model building blocks and how they are arranged, which can then be easily discussed and create common understanding. The static view is therefore not intended to describe the process of how or why business model need to evolve, rather, this is tackled by the transformational view that measures the relationships and causality providing insight into the process of how and why a firm’s business models evolve over a period.

Considering that this study is not longitudinal in its nature hence a static approach to analyse the business model is take. Further for the purposes of this study, the Business Model Canvas is chosen as the reference model as it is one of the most recent business model frameworks available and it also closely linked to view on open business models as suggested by Chesbrough (2006), where all building blocks that Chesbrough (2006) suggests is also present in the business model canvas. An explicit difference noted though is competitors, however this is considered covered implicitly the value proposition in the business model canvas as value proposition covers the competitiveness of the product (Fielt, 2013). The Business Model Canvas is also one of the most granular frameworks and widely used as a business tool as it consists of nine neatly broken down compartments providing a robust structure to understand the role of business model at a building block level in the use of open innovation (Fielt, 2013). Since this study focuses on being able to provide practical insight to SMEs, the Business Model Canvas was considered most appropriate model to use for this study.

### 2.6.3 Business lifecycle phases and business models

As a business progresses through the life cycle, it tends to change or "adapt its management styles, organisational structures, communication, decision-making processes, reward systems and strategies" (Yazdanfar & Öhman, 2014, p. 556). Furthermore, Yazdanfar & Öhman (2014) indicate that adaptation is a vital requirement for survival, prolonging the eventual decline phase as far as possible.

Early but still relevant literature by Hanks, Watson, Jansen, and Chandler (1993) provide a brief overview of the business lifecycle as follows:

- Stage 1 - Birth: This stage normally consists of a start-up organisation which is new, or very young. At this stage the organisation consists of few employees and an inconsistent growth rate. In addition, customers are few and the firm undergoes frequent product innovations to try to capture a market. Decisions are highly centralised by the organisation owner.
- Stage 2 - Expansion: The stage is also known as the growth stage where the product line becomes broader but is limited, and product innovations are generally incremental. The customer base is more established with growing demand for products. The organisation is still informal but has more structure. Lastly, functional managers are now involved in some decisions.
- Stage 3 Consolidation: This stage is also known as the mature phase. Growth continues but at a slower rate. Productivity and cost management become imperative hence moving the firm's focus from growth to profitability becomes a key focus. There is a shift from product innovation to process innovation, with product innovations becoming incremental. Major investments are put forward to retain market share and maintain operations.
- Stage 4 - Revival: This stage is characterised by diversification of the product and market scope. Expansion of product and market scope can be achieved through strategies such as market segmentation, acquisition of related or unrelated businesses, or developing new products.
- Stage 5 – Decline: Declining organisations normally require that the organisation mission or purpose must be redefined. It is not uncommon for new leadership to be brought in to direct this reconfiguration. Bureaucratic inefficiencies are removed and the organisation redirected toward better meeting the needs of the marketplace. If this is successful, the firm can renew

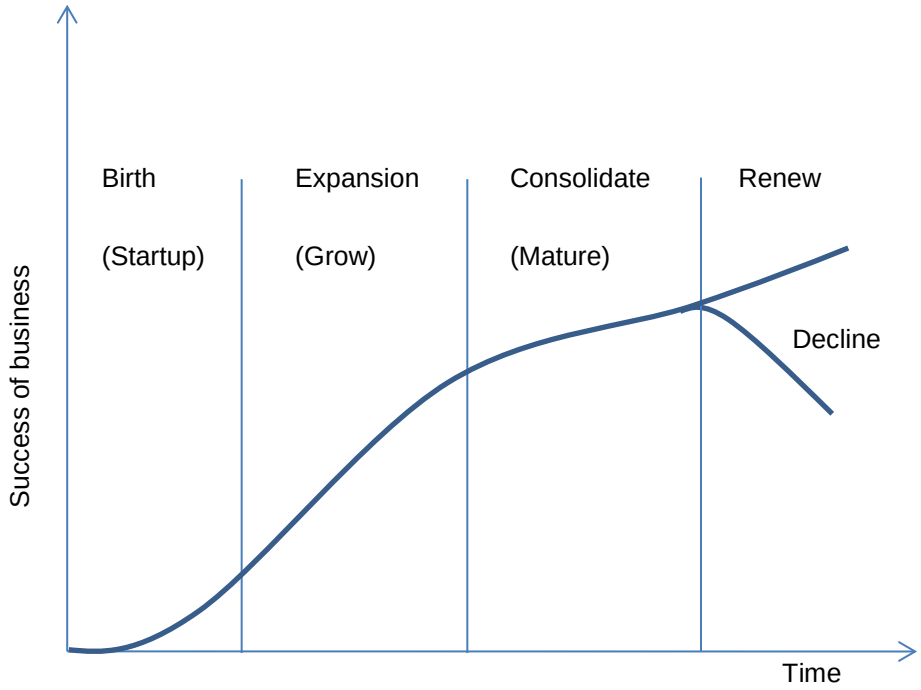
itself preventing death. If not, it could become obsolete and be up for acquisition by another firm or become dismantled.

In the ICT sector, the rapid change in technology is related to the change in the firms lifecycle where innovation plays a significant role (Christensen, 1992; Christensen, 1998). The technology lifecycle , otherwise known as the “S” curve, has been used extensively to explain how products, technology and even business emerge, grow, mature and eventually decline (Chesbrough, 2006). Parallels can therefore be drawn be drawn between the business lifecycle and technology lifecycles.

Chesbrough (2006) indicates in the realms of open innovation, IP management and business models too can be linked to the technology lifecycle curve. He explains that through the various points in the technology lifecycle that practices related to IP management and business models must be aligned to prevent a one-size fits all approach to managing business models and IP. While Chesbrough (2006) alludes to a relationship between the technology lifecycle (which mimics the business lifecycle of a business) and business models, a review of the extant literature of business lifecycles and to the best of the researcher’s awareness, the literature does not clarify how business models manifest at the different life stages.

Based on the findings of (Chesbrough 2006; Hanks, S.H., Watson, C.J., Jansen, E. and Chandler, 1993; Miller & Friesen, 1984; Phelps et al., 2007), the lifecycle curve can be illustrated as follows:

**Figure 7: Business Lifecycle Curve**




***Source: Chesbrough, 2006, Hanks et. Al., 1993; Miller & Friesen, 1984***

### 2.6.4 Adaptability of business models

In keeping with the theme to provide a business model perspective on the use of inbound open innovation, it is key to understand adaptability or limits to adaptability of the existing business model, to take advantage of external innovations. This is corroborated by (Saebi & Foss, 2015), who indicates that firms who fruitfully integrate external sources of knowledge or ideas through open innovation where able to do so by restructuring their existing business model (Saebi & Foss, 2015). A firm's ability to adapt over time by leveraging its internal or external capability, to evolve the way the firm creates and capture value from innovation is referred to as a firms dynamic capability (Teece, 2016). Being able to strategically adapt the business model to do more with what is existing especially in a turbulent economic environment, such as that of South Africa can lead to business survival and increased competitiveness (Schneider & Spieth, 2013), which is key to SMEs.

In their paper, Demil & Lecocq (2010) point out that various studies have been conducted on business model evolution covering topics from why business model should change, how business models change and what are the outcomes if a building

block changes. Their study focussed on the interactions between business model building blocks to understand how to identify business model evolution. Achtenhagen, Melin, & Naldi (2013) looked at what strategising actions and types of leadership are needed for business model evolution. Amit and Zott (2010) argue that in a turbulent environment, firms need to be able to do more with their existing resources and capabilities to be innovative and competitive especially terms of how they create and capture value (i.e. their business model).

From these studies though, it unclear what building blocks of the existing business model are considered adaptable or not adaptable specifically in the context of open innovation to understand its dynamic capability. This implies a gap in research to provide guidance to SMEs on the leverage points and limiters of their existing business model when it comes to taking advantage of an external idea or technology.

## 2.7 Conclusion

Study of existing literature indicates that SMEs are faced with liability of smallness due to challenges such as resource constraints, lack of financial resources and a high degree of specialisation on one hand, while on the other hand establishing that SMEs are naturally open to external sources of knowledge (Eftekhari & Bogers, 2015; Parida et al., 2012; Rosenbusch et al., 2011). Therefore, it can be deduced that it would be valuable to understand the role of the business model in SMEs in the use of open innovation, as SMEs may not always have the luxury to easily adapt their business model to take on opportunities from external innovation.

The inclination to study the role of the business model in SMEs in the current study was due to the lack of clarity provided on this subject by the reviewed literature With reference to SMEs, the review of the literature revealed no studies on the role of the business model in open innovation (Hossain & Kauranen, 2016). Even in the realm of large enterprises, only a handful of studies have been conducted to establish how business models need to be designed in order to move from closed to open innovation practices (Chesbrough, 2006).

Business models are imperative for the success of open innovation (Chesbrough, 2006). Since a firm's business model is the central to the creation of open innovation, therefore West & Bogers (2014) remarks that the role of the business model in the use of open innovation needs to be clarified. So, various business models have been discussed to try to align a business model framework that will best suit the purposes of

this study. Chesbrough & Bogers (2014) also affirmed in their review of the topic of open innovation that more insight on the business model within different contexts and industries is required.

Based on the gaps demonstrated above, the researcher set out to understand the role of the business models in SMEs in the use of inbound open innovation as the building blocks of the business model that influences its adaptability. The Business Model Canvas is chosen, as it is one of the most recent business model frameworks available and closely linked to view on open business models. Also, the business model canvas provides a granular framework as it consists of nine neatly broken down compartments providing a robust structure to understand the role of business model at a building block level in the use of open innovation. Additionally, by using visual thinking it stimulates a holistic approach and storytelling of the business model, and it is also more widely used in the real business world (Fielt, 2013).

Since the topic on both business models and open innovation are emerging fields of study with many under researched topics, the notion of adding novel views on the topic and building onto literature was another reason for research into this topic.

# 3 RESEARCH QUESTIONS

As outlined in Chapter 2, appreciating the importance of open innovation and the role it plays in a firm's survival, pertinent literature demonstrated that it is not yet fully understood how open innovation is used inside the organisation, especially from a business model point of view (Hossain et al., 2016; West & Bogers, 2014). The associated literature also calls for a deeper understanding of open innovation in SMEs. As explicitly stated by Westerberg & Frishammar (2012, p. 288), "it is practically and theoretically relevant to investigate how different open innovation activities may influence innovation performance in the context of SMEs". This guided the study's focus on SMEs.

Having identified the above existing knowledge deficiencies, and the associated potential for contribution to the academic field of innovation, this study aims to address the following research question:

**Research Question 1: What role does the business model play in the decision to use inbound open innovation in SMEs?**

Furthermore, as discussed in Chapter 2, to the best of the researcher's knowledge, a gap exists in understanding the adaptability of the business model from a building block perspective, specifically in the context of inbound open innovation. This study aimed to provide insight into the adaptability of the existing business model, by taking a static approach, as discussed by Demil and Lecocq (2010, p. 227). The aim was to identify which building blocks of the business model were considered easy to adapt and which building blocks were considered difficult to adapt for an SME in the ICT sector, by using the Business Model Canvas to pinpoint such building blocks.

The research question put forth to shed insight on this topic is therefore:

**Research Question 2: Which building blocks of the business model are the most adaptable and least adaptable to inbound open innovation in SMEs?**

# 4 RESEARCH METHODOLOGY AND DESIGN

This chapter describes the research methodology that was employed in this study. It addresses the rationale for the chosen methodology and design. It includes the population under study, sample size and data collection methods. Thereafter the data analysis processes that were used are discussed in detail and aspects of trustworthiness of the study clarified. The chapter concludes with an acknowledgement of the limitations of the methodology chosen and ethical considerations for this study.

## 4.1 Research Method and Design

The concept of open innovation and its relation to the firm's business model is an under-explored area, as illustrated in chapter 2 of this study. Considering this, the researcher elected to use an exploratory qualitative research methodology, as suggested by Yin (2011), which afforded a comprehensive exploration within the research context of SMEs, gathering relevant findings and necessary recommendations to move this topic forward. Streb (2010, p. 372) also states that an exploratory study "investigates distinct phenomena characterized by a lack of detailed preliminary research, especially formulated hypotheses that can be tested." Further to this, Blaxter, Hughes and Tight (2006, p. 64) corroborate that a qualitative approach focuses on exploring in as much detail as possible with smaller numbers to achieve "depth" rather than "breath".

In line with the exploratory qualitative nature of this study, the researcher made use of in-depth face-to-face, semi-structured interviews as a data collection mechanism. Through such a design, the researcher was able to "explore in detail the experiences, motives and opinions" of the participants and "learn to see the world from their perspective" as also described by Rubin & Rubin (2012, p. 3). The semi-structured interviews were guided by an interview schedule containing key questions and themes. Marlow & Boone (2011) suggest that semi-structured interviews as a preferred method of data collection allows the interviewer more freedom to pursue hunches. Moreover, they maintain that during the semi-structured interview, an interview schedule consists of general type of questions to ask, but they are not in a questionnaire format. In addition, while the interview schedule provided structure to the interview, it also provided sufficient flexibility to allow the participants to reflect and provide insight on their business model as well as their processes and procedures that provided

comprehensive insight into the operations of open innovations (Bloomberg & Volpe, 2012; Saunders & Lewis, 2012).

In summary, a qualitative exploratory study was conducted, making use of a series of semi-structured face-to-face interviews, to allow for the understanding of the role of an SME's business model in open innovation, as well as gain an understanding of the adaptability of the existing business model to take advantage of the externally sourced innovations.

## 4.2 Population and Sampling Frame

### 4.2.1 Population

According to Daniel (2012, Pg. 5), the population is "the set of elements one desires to apply the findings of the study". It is also defined as the group where answers to the research questions lie. Therefore, the population for the study was chosen carefully to ensure the right members were consulted, which forms the primary basis for the trustworthiness of the study (Yin, 2011) .

As motivated in chapter 2, this study focuses on SMEs due to the paucity of studies in the SME business context. The study was limited to South Africa due to the access proximity of the researcher and time constraints. Adhering to Yin (2011), the population was tapered according to the research aims of this study to look at the formal SME market, which is made up of official, VAT registered businesses (making them simpler to find) and further narrowed to the ICT sector, which is considered to be a highly innovative sector (Thomas and Reuters, 2015).

In line with the definition of a population provided by Daniel (2012), the population under study in this paper consists of all formal SMEs in the ICT sector in South Africa in the year 2016.

### 4.2.2 Sampling frame

In a 2016 study commissioned by SEDA, the Bureau of Economic Research (a subsidiary of Stellenbosch University) found that in 2015, there were an estimated total of 667,433 formal SMEs in South Africa. According to SARS VAT data (2015), approximately 4778 of the formal SME is in South Africa fell into the ICT sector. While

an approximation of formal SME businesses in the ICT sector is available for 2015, an exhaustive list of SME names and contact details were not readily available at the time of this study. Due to time, financial constraints, and practicality reasons, such an exhaustive list could not be created within the context of this study; hence, an accurate sampling frame of the population could not be established. The absence of a sampling frame, and the fact that the nature of this study is qualitative, informed the researcher's decision to resort to non-probability sampling as a sampling method, as recommended by Saunders & Lewis (2012) in a case such as that explicated here.

## 4.3 Sampling

### 4.3.1 Sampling method: non-probability, purposive sampling

The researcher employed a non-probability, purposive sampling technique on the basis that judgement needed to be applied in the selection of formal SMEs based on the identified population. This was done in order to ascertain the most useful and information rich cases on the role of the business model and its adaptability in the use of open innovation, under the guidance of Daniel (2012). To ensure high quality data, direct experience was required on the topic under study. Hence, the selection criteria used to draw the sample was that the business had to be VAT registered, have less than 200 staff, be in the ICT sector, and the participant must be either a founder or senior manager.

### 4.3.2 Sampling size

Using judgement, the researcher invited potential participants, based on the above-mentioned criteria, to join the study through associates in existing networks and platforms such as LinkedIn and company websites. The researcher contacted 25 potential participants by email and/or telephone to explain the context of the study and invite them to participate. Of the 25 identified participants, 19 responded favourably and interviews were set up based on the participants' and researcher's availability. Of the 19 participants, the first two available participants were used as pilot interviews (see section 4.5.3 for more details on the pilot interviews); hence, the sample size was made up of 17 SMEs.

According to Saunders and Lewis (2012), in the case of non-probability purposive sampling, the heterogeneity or homogeneity of the sample plays a role in determining

an appropriate sample size. A minimum of 10 for a homogeneous sample and 15 for a heterogeneous sample is suggested (Saunders and Lewis, 2012, pg. 139). The researcher considered the sample homogeneous, as the study looked specifically at the ICT sector, and therefore aimed for a minimum of 10 participants. However, through the interviews, it immerged that the sample was actually heterogeneous due to the different business stages in which the different SMEs found themselves (these included unproven, mature and diversification phases). It was therefore fortunate that the researcher had a sample size in excess of 15 participants, adhering to the recommendation of Saunders and Lewis (2012) for heterogeneity.

## 4.4 Unit of Analysis

According to Marlow and Boone (2011), there are typically three types of unit of analysis, namely, individual, group, and social artefact. Focusing on the individuals in the SME, the experience and seniority of the person interviewed within the SME was key to the reliability of this study, as the participants interviewed were required to be in a position to share first-hand experience with the SMEs business model and open innovation practices thereof. The researcher therefore limited the unit of analysis on an individual basis to the founders of, or senior managers within the SME to provide the insights required.

## 4.5 Data Collection Method

### 4.5.1 Semi-structured interviews

The data collection method used for this study was semi-structured face-to-face interviews as described in section 4.1 above. The interviews with the participants took place over a period of a month. The researcher initially envisaged an interview duration of 60 minutes per participant based on the pilot interviews, however the interviews varied from 40 minutes to 110 minutes, depending on the enthusiasm of the participant to share their insights on the topic of business models and open innovation in their firm. Each participant was adequately informed of the nature of the research, either through an introductory email or through a telephone call. To improve the chances of a meaningful in-depth interview through the convenience and comfort of the participant, the researcher met with the participant at a date, time, and place suggested by the participant. To build rapport, the researcher guaranteed confidentiality prior to the interview both verbally and through the letter of informed consent, confirming that the

participant may exit the interview at any point. To further develop rapport, at the beginning of each interview, the researcher employed a conversational approach to discuss the history and journey of the participant's firm. This approach was used to put participants at ease and to encourage them to openly share their experience.
Where face-to-face interviews took place, the participants signed the informed consent letter immediately. Due to access and time constraints on the participants' side, four of the interviews took place over Skype. Here, the participants sent the signed informed consent as a scanned copy a few days later. An example of the letter of consent can be viewed in Appendix 1.

With the participants' permission, the interviews were audio recorded to ensure more comprehensive data collection. After each interview, the signed informed letter of consent, audio recording and interview log summarising the researcher's main thoughts were uploaded to a secure cloud storage facility to protect the original data.

The interviews with the participants were on average 65 minutes long, resulting in the average length of the transcript being just over 8,200 words. The longest interview was just under 2 hours, allowing the researcher to explore how a formal SME's business model influences the use of open innovation by allowing the participant to speak at length on the topic. A total of 1,107 minutes (18.5 hours) of audio recordings were gathered through the interview process. These audio files were then transcribed and prepared for analysis, resulting in a total word count of 139,451.

### 4.5.2 Interview Schedule

In line with semi-structured interview best practice as outlined by Morgan, Guevara, & Given (2012), an interview schedule was created to guide the interview based on the key themes uncovered in the literature review which this study aimed to address. The three frameworks described in the literature were included in the interview guide to ensure the researcher focussed on specific areas of interest and provided guidance when the topics were discussed, namely:

- The Business Model Navigator (Gassman et al, 2014) was included to get the participants to think about and explain the business model of their SME (figure 5).

- The Business Model Canvas (Osterwalder & Pigneur, 2010) was included to guide questions regarding the building blocks of the business model that influenced the adaptability of the business model to open innovation (figure 6).
- The diagram depicting open innovation paradigm (figure 3 of this document) was also used in the interview describing open innovation to guide the interview in the context of the open innovation paradigm.

The interview guide was drawn up based on the using a consistency matrix to ensure that all the research questions were addressed. An example of the interview guide is can be viewed in Appendix 2.

### 4.5.3 Pilot interviews

Once the interview schedule was approved by the ethical clearance committee (see appendix 3), two pilot studies were conducted with participants from Gauteng, prior to the commencement of the formal interviews. The pilot studies were conducted to assist in determining if there were “flaws, limitations, or other weaknesses within the interview design” and allowed the researcher to prepare prior to the implementation of the formal study (Turner, 2010, Pg. 757). In accordance with the guidelines provided by Saunders & Lewis (2012) on pilot interviews, the pilot study assisted in revealing whether the terminology used in the interview guide was easily understandable by the participants and if the questions in the guide were appropriate to adequately answer the research questions. It also helped establish the time required for each interview and, lastly, it brought about an awareness of the researcher’s mindset, biases, and comfort levels with the questions on the interview guide.

#### 4.5.3.1 First pilot interview

The first pilot interview was conducted with a business associate of the researcher who started their business in 2013. This interview took place at a coffee shop. This pilot study revealed that the questions on the second key theme - the building blocks of the business model that allowed for adaptability to open innovation - were difficult for the participant to answer. When shown a hard copy of the visual representation of the Business Model Navigator, Business Model Canvas, and the Open Innovation Funnel, the participant was more easily able to create context in their mind, allowing them to more confidently converse on the topic, adding to the richness of the study on this theme. This participant found the Business Model Canvas and Open Innovation Funnel

particularly useful. The researcher then amended the interview pack to include an A3 copy of the Business Model Canvas and an A4 copy of the Open Innovation Paradigm to assist in future interviews. It was also observed that while the coffee shop setting was a relaxed comfortable environment, it was noisy, had many distractions, and made the audio file difficult to listen to. This led the researcher, in almost all cases, to meet the formal participant at their premises at their convenience, preferably in a boardroom to ensure minimal noise and distraction. It was also discovered that the researcher required more familiarity with the research questions to allow for better flow of the interview, allowing the researcher to actively listen and allow the next question to arise more organically from the conversation, while still keeping the conversation in line with the context of the study.

#### 4.5.3.2 Second Pilot Interview

The second test was held with a participant who was a stranger to the researcher. The importance of establishing rapport and trust was instantaneously revealed in the second interview, especially where an audio recording was required. The researcher could sense the uneasiness of the participant to share information openly. As laid out by Rubin and Rubin (2012), a conversational approach helps build a relationship between the participant and the interviewer, placing the participant at ease and allowing them to share their experiences, knowledge and perspective openly. This approach was used to assist in obtaining the depth of knowledge required for this exploratory study. As mentioned in section 4.5 above, changes were made to the interviewer's approach following the second pilot interview, in order to assist in building rapport with the participants. These changes included starting the interview with a preamble, adopting a more friendly tone, placing the audio recorder out of direct sight of the participant and allowing the participant to talk about the history of their business and their role in the business, making the interview more conversational and relaxed. This was necessary as all the formal interviews set up were with people the researcher would meet for the first time. The second interview also confirmed the need for visual aids for research question 2 of the study.

Once the first three interviews of the sample were completed, new insights emerged which were incorporated prior to the remaining interviews, allowing further exploration of the identified topics. This resulted in the final interview design being less structured and also ensured a deeper exploration of the key themes identified.

## 4.6 Data Analysis

### 4.6.1 Method of Analysis

Considering the qualitative, inductive nature of this study, the researcher adopted a thematic analysis approach to analyse the data sources and ultimately allow the findings to emerge. Lapadat (2010, Pg 926) asserted that "thematic analysis is a systematic approach to analyse qualitative data that involves identifying themes or patterns of meaning; coding and classifying data, usually textual, according to themes; and interpreting the resulting thematic structures by seeking commonalities, relationships, overarching patterns, theoretical constructs, or explanatory principles." Maxwell (2008) agreed that one of the main ways to categorise and analyse qualitative research was through coding, otherwise referred to as thematic development. Lapadat (2010) further stated that a wide range of data sources might be used for thematic analysis, which include interview transcripts and digital audio files. As discussed in sections 4.5, the data collected from each of the semi-structured interviews through audio recordings were transcribed to convert the audio files to text files (referred to as transcripts). The audio files and transcripts, together with the notes taken during and after the interview by the researcher, formed the basis of the data source for thematic analysis for this study.

### 4.6.2 Preparation of transcripts

After conducting the first formal interview, the researcher attempted to transcribe the audio recording and realised the significant time required to perform such a task. Considering the time constraints of this study and the number or interviews (17 in total), the researcher made use of three transcribers in parallel to speed up the transcription process. As the transcriptions were received, the researcher validated the transcripts against the audio recordings to ensure their accuracy. As per Saunders and Lewis (2012), the transcripts included both the questions asked by the researcher as well as the answers from the participants. All transcripts were formatted in the same manner and converted to RTF format to facilitate the use of the computer-aided qualitative data analysis software programme (CAQDAS) called ATLAS.ti to assist with the thematic data analysis process.

The transcripts were modified in order to conform to the agreed confidentiality outlined in the signed letter of informed consent as referred to in section 4.5.1. This was

accomplished by replacing the participant's name with an assigned pseudonym in the form of a participant ID. The ID was based on the order in which the participants were interviewed by the researcher. No information was recorded regarding the participant's age, gender, education levels or ethnicity, as this was not relevant to this study.

### 4.6.3 Data analysis process

The researcher elected to use coding as a technique for analysis through both an inductive and deductive approach. The researcher initially chose an inductive approach as this study aimed to build understanding and explanations from the ground up from what was discovered in the data (Rubin & Rubin, 2012). Thomas (2006, p. 240) also asserts that, "inductive analysis is the development of categories into a model or framework that summarizes the raw data and conveys key themes and processes." Maxwell (2008) also argues that one of the main ways to categorise and analyse qualitative research is through coding. Once the coding framework was established, the researcher also used a deductive approach to identify patterns in the data linked to the building blocks of the business model canvas.

Saldana (2013, p. 3) and Saunders and Lewis (2012) validates that coding is a method that is often used in qualitative studies to analyse data. The generation of codes is a symbolic link between data source and their explanation of meaning and is based on the researcher's interpretation of the source data (Saldana, 2013). It should be noted that the researchers interpretation for both inductive and deductive analysis was framed by the research objectives of this study highlighted in Chapter 1 and research questions as laid out in Chapter 3 and is in agreement with Thomas's (2006) methodology on an Inductive approach for qualitative data analysis; and the deductive approach is in agreement with the nine key building blocks of the Business Canvas Model. The codes form the basis for pattern detection, categorisation and theory building (Saldana, 2013, p. 4) and is complementary to the data analysis methodology of thematic analysis (Lapadat, 2010).

The researcher coded the source data using the following procedures:

- Once the transcripts were "cleaned" (Thomas, 2006) as described in section 4.6.3 above, the researcher closely read each of the transcripts to become familiar with the data and aware of the themes and events as they unfolded in the text files.

- The researcher then worked through the transcripts again, this time picking out relevant data related to the themes established when closely reading the data as mentioned above. This resulted in the creation of lower level codes that marked pertinent information on a granular basis.
- As the researcher combed through the transcripts page-by-page, new ideas and thoughts often emerged resulting in new relevant codes contributing to new insights surrounding the themes. This proved to be an iterative process, where the researcher often went back to earlier transcripts to add these new codes for consistency.
- Following the above process, these low-level codes where then analysed for common themes and categorised into higher order codes or families as per the Atlas7.ti terminology.
- The creation of the higher order codes was based on emerging themes from the lower level codes, guided by the research objectives of this study.
- Using Atlas7.ti relationships between higher codes were established to help describe the relevance to the research objectives. These relationships and findings are further elaborated on in Chapter 5.

An extract of the list of codes generated during the analysis process described above, from ATLAs.ti, can be found in Appendix 3.

### 4.6.4 Analysis tool: ATLAS.ti 7.0

The researcher made use of ATLAS.ti 7.0, a computer assisted qualitative data analysis software specifically designed for thematic analysis of qualitative data, to analyse the data gathered from the semi-structured interviews. Computer-assisted qualitative analysis tools such as ATLAS.ti facilitates rigorous, speedy and sophisticated thematic analyses especially considering the large volumes of source data gathered from the 17 interviews (Bassett, 2010).

## 4.7 Trustworthiness of the Study

### 4.7.1 Confirmability

Outcomes of exploratory research are based on the interpretation of the researcher, from hearing data through to analysing data and presenting results (Rubin & Rubin, 2012; Saldana, 2013; Thomas, 2006) . In the interest of confirmability, the researcher

acknowledges that the lens through which they have understood the data could influence how the findings have been interpreted (Saunders & Lewis, 2012). This lens could be made-up of a blend of the researcher's "prior experience, knowledge and expectations" and would therefore be subjective (Rubin & Rubin, 2012, p. 5).

To minimise this bias, the researcher resorted to asking open questions instead of leading questions to allow the participant to provide their thoughts on the topic under discussion. The researcher also practised how to actively listen while keeping preconceived ideas at bay, as per the guidance from Rubin and Rubin (2012) in their book on *Qualitative Interviewing – The Art of Hearing Data*. Confirmability was also improved, as the researcher had no prior experience on how SMEs operate internally, as the researcher's professional experience was limited to the large multinational corporate environment.

### 4.7.2 Validity, dependability and transferability

The use of semi-structured interviews as the data collection method is in itself, designed to improve the validity of a study due to the researcher taking the opportunity to clarify questions, probe meanings, and explore responses and themes from a variety of angles during the interview (Saunders & Lewis., 2012).

The research aims of this study was specifically to comprehend the role of the business model in the use of open innovation and its adaptability in the adoption of inbound open innovation. In the interest of ensuing dependability of the study by reaching the depth of the knowledge required to explain this phenomenon, a decision was made to narrow the study to the ICT sector, as this sector was most likely to use innovation practices (Thomson & Reuters, 2015). Further to this only founders or senior managers were invited to participate in this study due to their intimate knowledge on the firms business models and innovation practices. While narrowing of the study assisted in certifying reliability, making the outcomes more dependable it does limit the transferability to other less innovative industries, such as the food and beverage sector (Thomson & Reuters, 2015). To mitigate this impediment, while all SMEs fell into the ICT sector, the researcher selected firms from different lines of business, including hardware manufacturing, professional services, device distribution and warehousing, software engineering, device and software resellers and data analytics to increase applicability to other sectors.

## 4.8 Limitations of the Methodology

As discussed in section 4.7 above, while the face-to-face semi-structured interview data collection method provided the benefit of increasing the validity of the study, it may have posed a limitation to the study by introducing response bias by the participants. In this case, the participants may not have shared their negative experience and instead only offered explanations that they assumed would be more acceptable to the researcher (Saunders & Lewis, 2012), skewing the results to some extent.

As mentioned in section 4.7.2, the sample for this study consisted only of SMEs in the ICT sector in order to add depth to the study of the topic; hence, the study may not be easily transferable to other SMEs.

Based on the study conducted by SEDA (2013), which generalised SMEs in South Africa to those companies with less than two hundred staff, the current study used employee number as the only factor to classify SMEs. While this seems fairly reliable based on the literature, it leaves out factors such as company turnover and asset value in the classification of SMEs, which means that the sample drawn may not be representative of the actual SME population.

As discussed in section 4.6, thematic analysis was used to analyse the collected data from the semi-structured interviews. The shortcoming of thematic analysis, is that, due to the “flexibility in how the step-by-step process of thematic analysis is applied the approach is seldom explained clearly enough for unambiguous replication. This is further amplified as the themes that were developed were based on the researchers creative insight and pattern recognition and not necessarily on a scientific formula” (Lapadat, 2010, p. 926). Some researchers also argue that the process of breaking texts to create themes or codes may compromise the “coherence and contextuality” of the data and hence the findings. Despite these critiques, thematic analysis is widely used as an analytic approach in qualitative research (Lapadat, 2010, p. 927).

## 4.9 Ethical Considerations

Ethical conduct is a fundamental aspect of research and relevant in every aspect of this study, including design, recruitment of participants, fieldwork interviews, data analysis

and reporting (Rubin & Rubin, 2012). Before recruitment of participants or commencement of interviews for both pilot studies and formal studies, ethical clearance was obtained from the ethics committee of the Gordon Institute of Business Science. A copy of the clearance certificate can be viewed in Appendix 4.

All participants who were invited to participate in this study were individually contacted to seek permission to be interviewed. All participants were informed that the information acquired through the interviews would be used only for academic purposes and that their confidentiality would be ensured.

The researcher was mindful not to expose participants to any embarrassment, pain or harm and ensured that participation or non-participation in this study would not lead to any dire consequences. All participants were English speaking and did not require a translator to understand the questions that the researcher posed during the interview process. The researcher also aimed to keep the questions as simple as possible and open-ended. Participation in the study was voluntary and participants were made aware that they could remove themselves from the interview at any time or not answer any questions that made them uncomfortable. Only participants that signed the consent form prior to the interview were accepted into the study.

## 4.10 Conclusion

This Chapter outlined the research methodology that was utilised in this research project. The research design chosen for this research project was a qualitative research approach using face-to-face semi-structured interviews. The research design included all considerations with regard to trustworthiness of the study as well as ensured that all ethical considerations were adhered to. The research methodology and design were selected in order to enable the proposed research questions to be answered.

# 5 RESEARCH RESULTS

## 5.1 Introduction

This chapter presents the results and key findings obtained from 17 interviews with SMEs based in Gauteng and the Western Cape in South Africa, using the data collection process described in Chapter 4.

## 5.2 Description of Participants

Table 7 below provides an outline of the interviewed participants, sorted according participant number. All the SMEs included in the study contained a staff complement well below the 200 employee limit, as specified in Chapter 2 and Chapter 4. The majority of the interviewed participants were the founders of the business, and in the instance where the founding entrepreneur was not available, a senior manager was interviewed instead. The senior managers interviewed in this regard held positions such as Business Development Manager (BDM), Commercial Director or Chief Technology Officer (CTO).

**Table 7: Profile of Participants**

| Participant Number | Founding Date of SME | Person Interviewed | Industry | Number of Staff | Province |
|---|---|---|---|---|---|
| P1 | 2015 | Founder | ICT - Mobile Apps | 1 | Gauteng |
| P2 | 1999 | Business Development Manager | ICT - Mobile Authentication and Security | 26 | Gauteng |
| P3 | 2014 | Founder | ICT - Enterprise Vertical Applications | 12 | Western Cape |
| P4 | 2007 | Founder | ICT - Platform Integration Solutions | 45 | Gauteng |
| P5 | 2007 | Founder | ICT - Content Aggregator Solutions / Communications Hardware Distributor | 14 | Gauteng |
| P6 | 2001 | Founder | ICT - Defence Solutions | 120 | Gauteng |
| P7 | 1998 | Founder / advisor | ICT - Hardware and Software Solutions | 30 | Gauteng |
| P8 | 2007 | Founder / advisor | ICT - Communications Solutions Provider | 6 | Gauteng |
| P9 | 2003 | Chief Technology Officer | ICT - Point of Sale and Internet of Things (IoT) Solutions Provider | 139 | Gauteng |
| P10 | 2003 | Commercial Director | ICT - Point of Sale and IOT Solutions Provider | 139 | Gauteng |
| P11 | 2007 | Founder | ICT - Cloud Call Centre Solutions | 23 | Western Cape |
| P12 | 2014 | Founder | ICT - Roaming Solutions and Mobile Solutions for Mobile Network Operators (MNOs) | 7 | Gauteng |
| P13 | 2005 | Chief Technology Officer | ICT - Conferencing Solutions and Workspace Management Solutions | 75 | Gauteng |
| P14 | 2015 | Founder | ICT - IT Consulting Services | 5 | Gauteng |
| P15 | 2009 | Founder | ICT - Mobile Tracking Solutions | 17 | Gauteng |
| P16 | 1996 | Founder | ICT - Mobile Hardware Solutions and Mobile Security Solutions | 37 | Gauteng |
| P17 | 2014 | Founder | ICT - Mobile Rewards and loyalty Solutions | 10 | Gauteng |

## 5.3 Business Model Maturity across the Sample

The semi-structured interviews with 17 SMEs revealed that the context within which the SMEs operate, in terms of their business model, influences the decision on how open innovation is used. Out of the themes that emerged from the data, three types of business model contexts were identified: unproven, mature and diversified.

**Table 8: Business Model Maturity**

| Business Model Maturity | Participant Code | Count of SMEs |
|---|---|---|
| Unproven | P1, P12, P14, P17 | 4 |
| Mature | P3, P4, P6, P8, P11, P15, P16 | 7 |
| Diversified | P2, P5, P7, P9, P10, P13 | 6 |

As seen in Table 8 above, 4 SMEs fell into the unproven business model category, 7 in the mature category and 6 in the diversified category.

### 5.3.1 Unproven business models

Unproven business models were typically found in start-up SMEs, who claimed that their business was not yet successful, as they did not have an established value proposition or balance between revenue streams and costs to derive profit.

*"There is no start-up that's got a proper business model, you know fancy value propositions, because these things aren't dictated by you as a start up -market dictates these things. I think up until you built a reputable company, you've built your rapport in the industry." P12*

*"Success is a very early word to use right now…. one way to get your product out there - which sounds obvious, but it's never obvious after you've spent the money on the product - is to put it out there for free and see what happens, especially when you don't have a clear monetisation model." P1*

### 5.3.2 Mature business models

Mature business models were typically found in established SMEs, who had a defined customer base, value proposition, and revenue streams. They had also built up stock of resources in terms of capacity and capability to deliver on the business model. They saw themselves as successful businesses generating profit.

*"We have stood the test of time with technology…we feel like we have built a product and adhere to the course of value that we have initiated from day one. I gained some traction in the market place. One of our largest and prestigious customers is obviously with [company X]" P3*

*"What contributed to our success and where we are now, is that we grew very organic…We very picky on employees…. that contributed to our success again. So very organic, very conservative, tight controls and also getting the right people." P4*

*"Why we are also successful…I'd say relationships with customers, the solutions that we sell, our commercial models and stuff to market, our team, also our channels to market." P11*

"*We were lucky to have customers and partners who could work within our constraints." P16*

### 5.3.3 Diversified business models

Diversified business models where generally found in SMEs whose core product was no longer differentiated from their competitors. Their profitability and market share were therefore coming under pressure. These SMEs with declining value products were seeking to diversify their business, looking for new revenue streams, customer segments and building new products with new value propositions, while still keeping their core business active as far as possible.

*"The core of the business was really built around those products, providing VAS to mobile network operators. As the market matured, VAS was becoming more of a commodity. More vendors out there, customers who were willing to pay less, end customers. So the MNO's were willing to pay less. So there had to be shifts into other areas." P2*

*"Our core focus is POS services…We had to split that internally to say right, we've got a POS team and we've got an IoT, who is going to focus in the machine to machine, and that was very important. It was very difficult for us to understand that in the beginning, key resources, we haven't invested in key resources. We thought through this innovation, because it was an overlay on existing POS, we could just plug it in…A lot of those things were taken into consideration. Customer relationships was a new entity, a new vertical, a new market, there was a lot of new customer relationships that had to be forged" P10*

*"So, when you watch that margin being squeezed you know that your days are numbered and go to the next thing." P7*

Based on the above finding, each research question was therefore structured in the following way:

- Findings pertaining to unproven business models
- Findings pertaining to mature business models
- Findings pertaining to diversified business models

Following an exploration of each of these key themes within the context of the research question, a summary of answers and key findings will be presented.

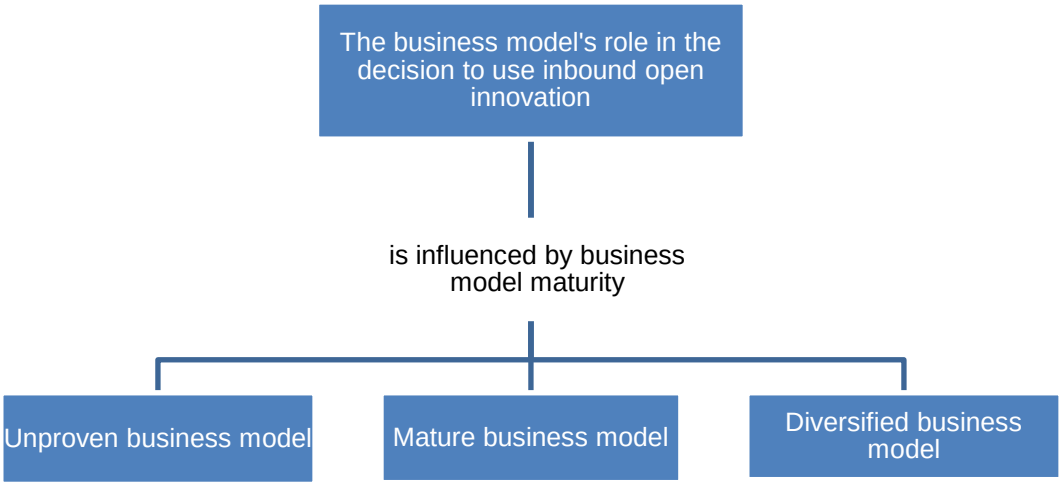
## 5.4 Research Question 1

What role does the inherent business model play in the decision to use inbound open innovation in SMEs?

### 5.4.1 Data analysis structure for RQ1

Figure 9 below shows the layout of how Research Question 1 is structured, in terms of the business model maturity of the SMEs.

**Figure 8: Research Question 1 - Business Model Maturity Contexts**




Further to the above structure, it is important to note that the business model was analysed based on its building blocks as per the Business Model Canvas outlined in Chapter 2. The interview transcripts revealed that a business model building block could be a positive, a negative, or a neutral decision driver in the use of inbound open innovation. Frequency counts (across interviews) of the occurrences of the building blocks were used to determine whether a building block played a more positive or more negative role. If a business model building block was not mentioned as a consideration point in the interview it was marked as neutral on the topic.

Additionally, the difference in frequency counts between positive and negative decision drivers for a particular business model maturity level was used to calculate the percentage difference between negative and positive drivers for that business maturity type which is termed “variance” in this report.

The variance provides an indication of the extent (intensity) to which participants felt that that the business model building blocks positively or negatively influenced their decision to use inbound open innovation in each business model maturity context. By establishing the variance, it assisted in drawing comparisons and findings across all 3 business model maturity types. The researcher therefore argues the variance can therefore be an indicator of the businesses openness intensity (openness intensity indicator) in the decision to use inbound open innovation across the 3 business model maturity states..

### 5.4.2 Unproven business model context

Table 9 below depicts the researcher’s findings on the building blocks of the unproven business model and whether these were positive, negative, or neutral decision drivers in the use of inbound open innovation in SMEs.

The frequency count in Table 9 shows that business model building blocks had a higher occurrence as positive influencers than negative influencers in the decision to use inbound open innovation. The biggest positive influencer was the revenue potential of the inbound idea or technology, while the biggest negative influencers were the potential cost of and resource capacity to implement the inbound idea. Interestingly, cost drivers and key resources featured as both positive and negative drivers toward the decision to use inbound open innovation, but overall these played more of a negative role in the decision criteria. Customer relationships and customer channel building blocks of the business model seemingly did not play a role in the decision-making to implement the inbound idea or technology.

The variance between the positive (13 counts) decision drivers and negative (7 counts) decision drivers of the business model building blocks showed a more positive tendency. This implies that overall, an unproven business model positively influences the decision to use inbound open innovation, making it an enabler of inbound open innovation in SMEs.

This variance provides an indication of the extent (intensity) to which participants felt that the business model building blocks positively or negatively influenced their decision to use inbound open innovation. The researcher therefore argues that this is an indicator of the business's degree of openness (openness intensity indicator) to use inbound open innovation across the three business model maturity states (See section 5.3.5 for comparative findings on the openness intensity indicator based on the three business model maturity states).

**Table 9: Frequency Count of the Business Model Building blocks that Influence the Decision to Use Inbound Open Innovation in an Unproven Business Model Context**

| Business Model Building block | Frequency Count (Unproven Business Model) | | |
|---|---|---|---|
| | Positive Influencer of Decision to Use Inbound Open Innovation | Negative Influencer of Decision to Use Inbound Open Innovation | Neutral |
| Revenue Stream | 4 | 0 | |
| Cost Drivers | 2 | 3 | |
| Key Resources | 2 | 3 | |
| Key Activities | 0 | 1 | |
| Key Partners | 2 | 0 | |
| Value Proposition | 2 | 0 | |
| Customer Segment | 1 | 0 | |
| Customer Relationships | 0 | 0 | Neutral |
| Customer Channels | 0 | 0 | Neutral |
| **Total Frequency Count** | **13** | **7** | **2** |

| Result: | The business model appears to be a positive driver (enabler) of inbound open innovation | |
|---|---|---|
| Variance between positive and negative decision drivers' occurrences (openness indicator): | **30%** | Most open to inbound most open innovation in comparison to unproven and diversified business models |

*"But the better bet is to try and take a longer option…put yourself in a stronger position to get more customers, more revenue, better operating profit and more common needs on scale in order to put yourself in the right position." P1*

*"…It is a combination of understanding your skill capability within the company, as well as how quickly you will be able to address that problem and how much revenue it would generate in turn of the cost that you would experience to deliver that service" P4*

In summary, the findings above suggest that an unproven business model plays the role of an enabler in the decision to use inbound open. It was also established that the revenue streams were the biggest positive driver, while cost drivers and key resources were the biggest negative drivers in influencing an SME's decision to make use of inbound open innovation. Since revenue and cost are contributors to profitability, it is deduced that the potential profitability of the business model is the main driver in the decision to use open innovation in SMEs that operated in the context of an unproven business model.

The variance between positive and negative decision drivers was calculated at 30%, which was used to draw a comparison to other business model maturity states in order to determine differences or similarities in intensity of openness toward inbound open innovation.

### 5.4.3 Mature business model context

Table 9 below depicts the researcher's findings on the building blocks of a mature business model and whether these were positive, negative, or neutral decision drivers in the use of inbound open innovation in SMEs. Table 9 shows the frequency count of the business model building blocks in a mature business model context. It shows that the frequency of the building blocks as a positive influencer (18 counts) of inbound open innovation marginally exceeded the frequency as a negative influencer (16 counts) of the decision to use inbound open innovation. This implies that overall, a mature business model is a positive influencer (enabler) of inbound open innovation in SMEs.

Further to the above finding, a compelling value proposition, whether in the form of benefiting the customer or improving internal processes, was the main positive driver of open innovation. Fear of splitting the focus of already constrained resources negatively influenced the use of open innovation, as did maintaining existing customer markets. Customer channels remained neutral as a decision driver to use inbound open innovation in SMEs with mature business models. Key resources featured as both a positive and negative driver in the decision to use inbound open innovation, which suggests that there is a need to balance existing resource capacity between implementing new ideas and maintaining current operations.

**Table 10: Frequency Count of the Business Model Building blocks that Influence the Decision to Use Inbound Open Innovation in a Mature Business Model Context**

| Business Model Building block | Frequency Count (Mature Business Model) | | |
|---|---|---|---|
| | Positive Influencer of Decision to Use Inbound Open Innovation | Negative Influencer of Decision to Use Inbound Open Innovation | Neutral |
| Key Resources | 4 | 6 | |
| Customer Segment | 0 | 6 | |
| Value Proposition | 5 | 0 | |
| Revenue Stream | 4 | 0 | |
| Cost Drivers | 0 | 4 | |
| Customer Relationships | 3 | 0 | |
| Key Activities | 1 | 0 | |
| Key Partners | 1 | 0 | |
| Customer Channels | 0 | 0 | Neutral |
| **Total Frequency Count** | **18** | **16** | **1** |

| Result: | The mature business model appears to be a positive influencer (enabler) of inbound open innovation | |
|---|---|---|
| Variance between positive and negative decision drivers' occurrences (openness indicator): | **6%** | Less open to inbound open innovation in comparison to unproven and diversified business models |

*"…basically making sure we add value to our customers and is it in line with our key objectives and our inherent values?" P3*

*"Sometimes you've got to let opportunities go and sometimes things take a little bit longer…It's people. It's all about people" P8*

*"...does the implementation stretch our resources…look at viability in terms of focus, where we have to look at commercial viability and we have to look at technical availability.... Does any of the existing solutions that we have satisfy the requirement or can we do a variation, you know, a little bit or development on our existing solutions to satisfy that requirement. Or do we need something new completely outside of what we do…. We also look…we have the skills to do it, or what additional skills, or dilute the focus of our skills and those type of things. Can we actually deliver the requirements that are exposed to us? Once we've done that then we kick off." P11*

*"Well, if I go back to firstly segmenting the markets, to where we see distribution operating, where you have the primary, secondary courier environments. Within those environments these have to be classified clearly as one of those types of customers, so if a company is doing - let's say, an armed response business has 250 vehicles, which one would think is a good sized fleet, it doesn't fit the model of a primary transporter, a secondary transporter or courier, and therefore just may be not delivering on their expectation of what they are looking for, or we will*

*be panel beating our existing solution to try and fit, you know, as I say, a square peg in a round hole. I think for us it's got to fit us so that we can say ok" P15*

In summary, the findings suggest that a mature business model plays the role of an enabler in the decision to use inbound open innovation in SMEs. Furthermore, it was found that the potential value proposition that can be derived from the inbound idea or technology, positively influenced the decision to make use of inbound open innovation, while focused resource capacity and maintaining existing customer markets negatively influenced the decision to use inbound open innovation in SMEs with mature business models.

### 5.4.4 Diversified business model context

Table 11 below depicts the researcher's findings on the building blocks of a diversified business model and whether these were positive, negative, or neutral decision drivers in the use of inbound open innovation in SMEs.

Table 11 presents the frequency count of the business model building blocks in a diversified business model context. It shows that the frequency of the building blocks as a positive influencer of inbound open innovation (25 counts) principally exceeded the number of occurrences as a negative influencer (15 counts). The variance between positive and negative decision drivers was approximately 25% in favor of positive decision drivers, implying that overall, a diversified business model is a positive influencer (enabler) of inbound open innovation in SMEs.

Further to the above finding, SMEs in the diversification business model phase of open innovation showed a strong tendency to partner with other organisations in the hope to reduce cost and improve time to market. On the other hand, cost to implement externally sourced ideas and the fit with key resource skillsets and internal operations of the SME posed a challenge in the decision to use inbound open innovation.

**Table 11: Frequency Count of the Business Model Building blocks that Influence the Decision to Use Inbound Open Innovation in a Diverse Business Model Context**

| Business Model Building block | Frequency Count (Mature Business Model) | | |
|---|---|---|---|
| | Positive Influencer of Decision to Use Inbound Open Innovation | Negative Influencer of Decision to Use Inbound Open Innovation | Neutral |
| Key Partners | 6 | 0 | |
| Value Proposition | 5 | 0 | |
| Customer Segment | 5 | 1 | |
| Cost Drivers | 2 | 5 | |
| Key Activities | 2 | 4 | |
| Key Resources | 2 | 5 | |
| Revenue Stream | 4 | 0 | |
| Customer Relationships | 1 | 0 | |
| Customer Channels | 1 | 0 | |
| **Total Frequency Count** | **25** | **15** | **None** |

| Result: | The diversified business model appears to be a positive influencer (enabler) of inbound open innovation | |
|---|---|---|
| Variance between positive and negative decision drivers' occurrences (openness indicator): | **25%** | More open than a mature business model and less open than an unproven business model to inbound open innovation |

*"And then depending on the effort required and the timelines required, and the potential to resell to other customers, we'll decide if we're going to do it or not." P2*

*"If you can effectively combine a lot of those technologies without trying to invent the wheel yourself, as opposed to re-invent; we are reinventing because what we have done on certain things we had this as an example: we developed our own e-commerce platform at great cost, at great time to get really nowhere." P5*

*"We've morphed as a business to say we're a take to market entity. If you look at [our company x], I don't own any of the IP, we not innovative in the sense of we have to develop products and services. We'd rather partner and go under licence with a third party to distribute their products and services." P10*

*"What are the commercials around that? How do we productise that? Is it going to go via our normal channels or a new set of channels? What are those channels? Are they just going to move boxes from us or are we going to be adding value? We fluid enough to be able to say, let's*

*look at what's out there. We're always on the lookout. What technology is out there, does it fit within our business?" P13*

In summary, diversified business models in SMEs seems to be an enabler in the use of inbound open innovation. This openness can be seen in the form of collaborating, as SMEs with diversified business models showed a strong tendency to partner with other organisations to make use of their intellectual property in the hope to reduce cost and improve time to market. On the other hand, striking a balance between everyday activities of their key resources and focusing on implementing externally sourced innovations proved a negative driver of inbound open innovation in SMEs.

### 5.4.5 Summary of overall results

The following findings were revealed in the results to the question: What role does the business model play in the decision to use inbound open innovation in SMEs?

- Irrespective of the maturity state of the business model, the business model seems to play an enabling role in the decision to use inbound open innovation. This was based on the finding that the count of the business model building blocks that positively influenced the decision to use inbound open innovation exceeded that of the negative count of the building blocks for all business model maturity contexts. As seen in Table 12 below, the count for the positive influencers totalled 56 while the count for the negative influencers was 38.
- Further to this, looking across all business model contexts, the top three business model building blocks established as positive decision drivers in the use of inbound open innovation were the value proposition, the revenue streams and key partners. Similarly, the top three business model building blocks that were negative decision drivers in the use of inbound open innovation were key resources, cost drivers and existing customer segments.

**Table 12: Frequency Count of the Business Model Building blocks that Influence the Decision to Use Inbound Open Innovation across All Business Model Maturity Contexts**

| Business Model Building block | Frequency Count (All Business Model Maturity Contexts) | | |
|---|---|---|---|
| | Positive Influencer of Decision to Use Inbound Open Innovation | Negative Influencer of Decision to Use Inbound Open Innovation | Neutral |
| Revenue Stream | 11 | 0 | |
| Cost Drivers | 4 | 12 | |
| Customer Segment | 6 | 7 | |
| Key Resources | 6 | 14 | |
| Key Activities | 3 | 5 | |
| Key Partners | 9 | 0 | |
| Value Proposition | 12 | 0 | |
| Customer Relationships | 4 | 0 | |
| Customer Channels | 1 | 0 | |
| **Total Frequency Count** | **56** | **38** | **None** |

In addition to the above, from the findings, it was deduced that the various business model maturity contexts played a role in the organisation's openness intensity to inbound open innovation. As demonstrated in Table 13 and Figure 10 below, it was found that SMEs with unproven business models were the most open in their decision to use inbound open innovation, while those with mature business models were least open.

**Table 13: Openness Intensity of Business Model Maturity Contexts**

| Business Model Maturity Context | Variance between Positive and Negative Decision Drivers for Open Innovation | Implications of Comparison across the Three Business Model Maturity Types |
|---|---|---|
| Unproven Business Model | 30% | Most open to inbound open innovation |
| Mature Business Model | 6% | Least open to inbound open innovation |
| Diversified Business Model | 25% | More open than mature business model but less open than unproven business model |

**Figure 9: Openness Intensity in the Use of Inbound Open Innovation**


Business models' role in openness intensity in the use of inbound open innovation

In summary, the results above imply that the role the business model plays in the use of open innovation is twofold: 1) as an enabler of inbound open innovation and 2) as an influencer of the SME's openness to use inbound open innovation. It appears that the building blocks of the business model that mainly enabled the use of inbound open innovation were the potential uplift of the existing value proposition, improvement in revenue and partnering to leverage external sources of knowledge. In addition, the largest negative decision drivers were lack of key resources, cost to implement the external idea or technology and lastly, the fear of diluting business focus which might lead to the loss of the existing customer segment.

## 5.5 Research Question 2

Which building blocks of the business model are more adaptable and which are less adaptable in the use of inbound open innovation in SMEs?

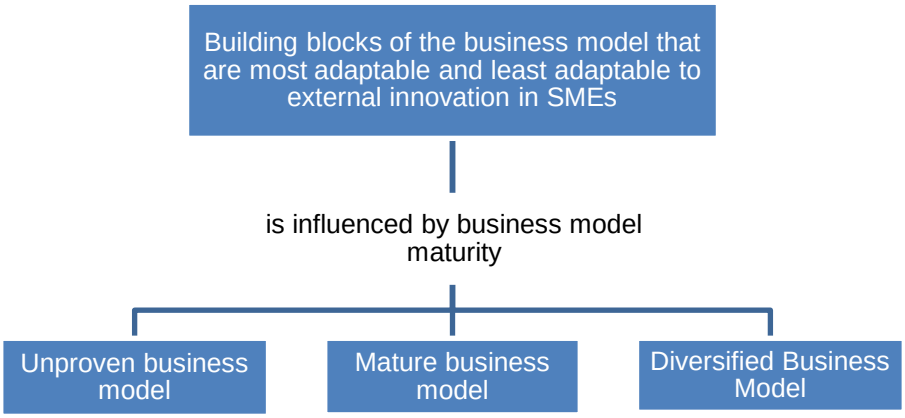
In addition, how do the building blocks of the existing business model influence the adaptability or rigidity toward the adoption of inbound innovation?

The aim of research question 2 sought to find out, which building blocks of business model were considered easy to adapt and which were considered most difficult to adapt to make use of inbound open innovation in the context of SMEs. The ramifications if this research question would provide insight to SMEs on potential leverage points in their business model as well as building blocks that they need to handle with extra care when wanting to adapt their existing business model to make use of inbound open innovation.

### 5.5.1 Data analysis structure for RQ2

Figure 10 below shows the layout of how this research question is structured in terms of the most adaptable and least adaptable building blocks.

**Figure 10: Business Model Maturity Contexts**




Here again the business model canvas as discussed in chapter 2, was used as a framework to determine the building blocks of the business model that were most adaptable and least adaptable to the use of inbound open innovation. A deductive approach was used to code the participant's responses based on the business model canvas framework. Frequency counts of the building blocks revealed which building blocks were the most adaptable and which were the least adaptable. If a business model building block was not mentioned as a consideration point in the interview it was marked as not applicable (n/a) on the topic.

Additionally, the difference in frequency counts between most adaptable and least adaptable business model building blocks for a particular business model maturity level was used to calculate the percentage difference between adaptable and less adaptable for that business maturity type which is termed "variance" in this report.

The variance provides an indication of the extent (intensity) to which participants considered that that the business model building blocks positively or negatively influenced their decision to use inbound open innovation in each business model maturity context. By establishing the variance, it assisted in drawing comparisons and findings across all 3 business model maturity types. The researcher therefore argues the variance can therefore be an indicator of the businesses adaptability extent (extent

of adaptability indicator) in the decision to use inbound open innovation across the 3 business model maturity states.

### 5.5.2 Unproven business model context

Tables 14 and Table 15 below lays out the findings related to the building blocks of the business model that were considered most adaptable and which building blocks were considered least adaptable to inbound open innovation.

#### 5.5.2.1 Most adaptable business model building blocks to inbound open innovation

The frequency table, in Table 14 below, shows that the top three business model building blocks that were considered most adaptable when taking advantage of ideas that presented itself from outside the organisation, in an unproven business model context, were cost drivers, revenue streams and value proposition.

**Table 14: Frequency of Business Model Building Blocks considered most adaptable - Unproven Business Model Context**

| Business Model Building Block | Frequency Count of adaptable Building blocks (Unproven Business Model) | Rank |
|---|---|---|
| Cost Drivers | 3 | 1 |
| Revenue Stream | 2 | 2 |
| Value Proposition | 2 | 2 |
| Key Resources | 1 | 4 |
| Key Activities | 1 | 4 |
| Key Partners | 1 | 4 |
| Customer Segment | 1 | 4 |
| Customer Relationships | 1 | 4 |
| Customer Channels | 1 | 4 |
| Total Count Frequency count | 13 | n/a |

*"You've got more control over our internal activities. We dictate what we do, how we do it. We do that still meeting customer demands, but you can reconfigure what you're doing internally as long as your meeting customer demands, it really doesn't matter how we do it, and we can do it. That the easiest to change." Participant 12*

*"So what really shapes what we do is certainly partners, competitors, and customer relationships and to a degree segments in the sense of what's most profitable, what makes it happen is largely the staff and the processes, and I think the culture within the company and how quickly we can adapt and creating an internal culture of you know change or die and a sense that we need to be evolving as the customers and suppliers evolve, and I say the real reason are probably the one that make it happen, you can quite, and I say quite easily loosely, but you can quite easily change your value proposition, you can shift your customer target market" Participant 17.*

#### 5.5.2.2 Least adaptable business model building blocks to inbound open innovation

The frequency table, in Table 15 below, shows that top the three business model building blocks that were considered the least adaptable when taking advantage of ideas that presented itself from outside the organisation, in an unproven business model context, were key resources, key partners and customer relationships.

**Table 15: Frequency of Business Model Building Blocks considered least adaptable - Unproven Business Model Context**

| Business Model Building Block | Frequency Count of Least Adaptable Building Blocks (Unproven Business Model) | Rank |
|---|---|---|
| Key Resources | 3 | 1 |
| Key Partners | 2 | 2 |
| Customer Relationships | 2 | 2 |
| Revenue Stream | 1 | 4 |
| Value Proposition | 1 | 4 |
| Customer Segment | 1 | 4 |
| Customer Channels | 1 | 4 |
| Cost Drivers | 0 | n/a |
| Key Activities | 0 | n/a |
| Total Count Frequency | 11 | n/a |

*"It's just the very special skills that are very hard to replicate. Also you have a working relationship that is very hard to change and very hard to replace, especially when you've got one that works. That my biggest risk and I realise that I need start to build capacity in order to manage the scenario of losing the resource" Participant 1*

*"Partners is not easy to change, so actually it's a nightmare to establish relationships and partners." Participant 14*

#### 5.5.2.3 Summary of findings for least adaptable and most adaptable in unproven business model context

Table 16 below summarises the most adaptable and least adaptable business model building blocks in the use of inbound open innovation, in the context of SMEs with unproven business models. The findings suggest that SMEs with unproven business models, found that their cost structures, revenue streams and value propositions were easily adaptable to the use of inbound open innovation while the least adaptable building blocks were considered to be key resources, key partners or relationships with customers.

**Table 16: Summary of Findings for Most Adaptable and Least Adaptable Business Model Building blocks in the Use of Inbound Open Innovation – Unproven Business Model**

| Rank | Frequency Count of Most Adaptable Building blocks (Unproven Business Model) | Frequency Count of Least Adaptable Building blocks (Unproven Business Model) |
|---|---|---|
| 1 | Cost Drivers | Key Resources |
| 2 | Revenue Stream | Key Partners |
| 2 | Value Proposition | Customer Relationships |

| | | |
|---|---|---|
| Total Frequency Count of all building blocks | 13 | 11 |
| Variance between frequency of most adaptable and least adaptable business model building blocks | 8% | |

Table 16 above, shows that there were no commonalities between business model building blocks that were considered highly adaptable and those considered highly unadaptable when taking advantage of inbound open innovation. This gives seemingly clear insight to SMEs in the early stages of the business lifecycle as to what building blocks may find easy to adapt and what they may find difficult to adapt when wanting to take advantage of inbound open innovation.

Additionally, Table 16 also presents the frequency count of the business model building blocks in an unproven business model context. It shows that the frequency of the building blocks that were more adaptable to inbound open innovation (13 counts) were marginally more than the number of occurrences of building blocks considered least adaptable (11 counts). The variance between most adaptable and least adaptable drivers was therefore approximately -10%. This indicates that an unproven business model is seemingly more adaptable to open innovation in comparison to mature business models however less adaptable then diversified business models. This was surprisingly unproven business was considered the most open but not the most adaptable. This was surprising as the unproven business model was considered informal, unstructured and not yet successful, so the initial inclination was it would also be most adaptable compared to other business model contexts.

### 5.5.3 Mature business model context

Table 17 and Table 18 below lays out the researcher's findings, on the building blocks of the business model, that were the most adaptable and the least adaptable to inbound open innovation, in a mature business model context.

#### 5.5.3.1 Most adaptable business model building blocks to inbound open innovation

The frequency table, in Table 17 below, shows that key partners were considered the most adaptable to inbound open innovation while cost drivers and key resources shared second place for the most adaptable to inbound open innovation.

**Table 17: Frequency of Business Model Building Blocks considered most Adaptable in Mature Business Model Context**

| Business Model Building block | Frequency Count of Most Adaptable Building blocks (Mature Business Model) | Rank |
|---|---|---|
| Key Partners | 4 | 1 |
| Cost Drivers | 2 | 2 |
| Key Resources | 2 | 2 |
| Revenue Stream | 1 | 4 |
| Key Activities | 1 | 4 |
| Value Proposition | 1 | 4 |
| Customer Segment | 1 | 4 |
| Customer Channels | 1 | 4 |
| Customer Relationships | 0 | n/a |
| Total Count | 13 | |

*"I would say our partners, definitely. We talking about the revenue streams and the different solutions streams that translates and measure it differently based on revenue and fits back into product sample. We can also quite dynamically create new products, based on the engagement of our customers and our partners." Participant 4*

*"I think they're all easily adaptable. Our biggest constraint is resources, so that will be the least adaptable. Other than that I think we lucky, we are very flexible." Participant 16*

#### 5.5.3.2 Least adaptable business model building blocks to inbound open innovation

Looking at Table 18 below, similar to unproven business models, key resources was considered the least adaptable business model building block to inbound open innovation. The cost drivers related to adopting inbound open innovation and

established customer relationships in the mature business model shared second place in being the least adaptable business model building blocks of inbound open innovation. Here again these building blocks being considered as least adaptable to inbound open innovation is not surprising as they speak to the "liability of smallness" that SMEs experience.

**Table 18: Frequency of Business Model Building Blocks considered least adaptable in Mature Business Model Context**

| Business Model Building Block | Frequency Count of Least adaptable Building Blocks (Mature Business Model) | Rank |
|---|---|---|
| Key Resources | 4 | 1 |
| Cost Drivers | 3 | 2 |
| Customer Relationships | 3 | 2 |
| Revenue Stream | 2 | 4 |
| Key Activities | 1 | 5 |
| Value Proposition | 1 | 5 |
| Customer Segment | 1 | 5 |
| Customer Channels | 1 | 5 |
| Key Partners | 0 | n/a |
| Total Count | 16 | |

*"But I think to answer your question directly, it would be cost structure and revenue streams. The revenue stream remains the same, we bring income through the licensed modules. I guess that is not adaptable as the rest of our business." P3*

*"I would say resources, it's not easy for us to change resources. That's definitely not adaptable. Labour laws. Finding the skill is challenging. If you come with a big project tomorrow and you need 20 resources, I won't be able to help you. We won't be able to scale up. That's a challenge. Customer relationships also is not something you can, it takes years and years to build. I would say that is also very challenging to adapt. We can't just drop relationships." P4*

#### 5.5.3.3 Summary of findings for least adaptable and most adaptable business model building blocks in the use of inbound open innovation

Table 19 below summarises which business model building blocks were the most adaptable and least adaptable to inbound open innovation, within a mature business model context. The findings suggest that key partners were the most adaptable while key resources proved to be the least adaptable building block in the use of inbound open innovation.

**Table 19: Summary of Findings for Most Adaptable and Least Adaptable Business Model Building blocks in the Use of Inbound Open Innovation – Mature Business Model**

| Rank | Frequency Count of Most Adaptable Building blocks (Mature Business Model) | Frequency Count of Least Adaptable Building blocks (Mature Business Model) |
|---|---|---|
| 1 | Key Partners | Key Resources |
| 2 | Cost Drivers | Cost Drivers |
| 2 | Key Resources | Customer Relationships |
| Total Frequency Count of all building blocks | 13 | 16 |
| Variance | -10% | |

Further to the above, it is observed that cost drivers and key resources ranked high on both sides of the adaptability scale. Since key resources were more frequently found to be less adaptable (a count of 4 for less adaptable versus count of 2 for more adaptable), it was considered that overall in the mature business model context, key resources are less adaptable in the use of inbound open innovation. The frequency of cost drivers was found to be equally ranked for most adaptable (count of 2) and least adaptable (count of 2) business model building blocks in the use of inbound open innovation. This therefore suggests that the finding on cost driver is inconclusive as to whether it is a highly adaptable or less adaptable business model building block in the use of inbound open innovation.

Additionally, Table 19 also presents the frequency count of the business model building blocks in a mature business model context. It shows that the frequency of the building blocks that were more adaptable to inbound open innovation (13 counts) were less than the number of occurrences for building blocks considered least adaptable (16 counts). The variance between most adaptable and least adaptable drivers was therefore approximately -10%. This indicates that a mature business model is seemingly inflexible to inbound open innovation and is the least adaptable in comparison to both diversified and unproven business models.

### 5.5.4 Diversified business model

Table 20 and 21 below lays out the findings on the building blocks of the business model, that were the most adaptable and building blocks that were the least adaptable to inbound open innovation, in a diversified business model context.

#### 5.5.4.1 Most adaptable business model building blocks to inbound open innovation

The frequency table, in Table 20 below, shows that the top ranked business model building block that was considered most adaptable in diversified business model context were cost drivers. It also shows that four building blocks shared second place which were revenue stream, key partners, value proposition and customer channels. Due to there being a high occurrence of building blocks ranked in second place, it can be deduced that SMEs had different view on what they considered adaptable in their business model. A possible reason for this is that SMEs with diversified business model were changing strategic direction to avoid decline hence have disparate thoughts on this concept. It is considered that further to the business model maturity there is a perhaps another factor that influences the adaptability of the business model that SMEs even though with the same business model maturity concept consider different building blocks adaptable which could be due to the strategic choices the firm makes its preference to create and capture value from the external idea that may present itself especially considering that the firm's business model is undergoing diversification – high uncertainty.

**Table 20: Frequency Count of Building blocks of Business Model that Influences the Adaptability of a Diversified Business Model Context**

| Business Model Building block | Frequency Count of Most Adaptable Building blocks (Diversified Business Model) | Rank |
|---|---|---|
| Cost Drivers | 3 | 1 |
| Revenue Stream | 2 | 2 |
| Key Partners | 2 | 2 |
| Value Proposition | 2 | 2 |
| Customer Channels | 2 | 2 |
| Key Resources | 1 | 6 |
| Key Activities | 1 | 6 |
| Customer Segment | 1 | 6 |
| Customer Relationships | 1 | 6 |
| Total Count | 15 | |

*"When we vet that opportunity, I think that's the easiest for us. When we've had a lot of experience at it, we've paid a lot of school fees and did our homework. That would be from a resource perspective. The adaptability and scalability of it." P9*

*"I think what we finding is that diversification is, the products that we distribute are no longer niche products. With niche products its becomes difficult to retain margin when it becomes a*

*commodity. With commodity items you can retain large teams with large skills. What you need to look at is ok what can I plug my business with that still gives me good revenue, good margin, one that I can replicate easily." P13*

#### 5.5.4.2 Least adaptable business model building blocks to inbound open innovation

Looking at Table 21 below, similar to unproven and mature business models, key resources was considered the least adaptable business model building block to inbound open innovation. Customer segment was ranked second in being the least adaptable business model building block. Interestingly a myriad of business model building blocks was ranked in third place. This once again corroborates the pattern seen in the among the building blocks ranked as adaptable where there is little consensus as to exactly which building blocks of the business model are least adaptable.

**Table 21: Frequency Count of Building blocks of Business Model that Influences the Decision to Use Inbound Open Innovation in a Diversified Business Model Context**

| Business Model Building block | Frequency Count of Least Adaptable Building blocks (Diversified Business Model) | Rank |
|---|---|---|
| Key Resources | 3 | 1 |
| Customer Segment | 2 | 2 |
| Key Activities | 1 | 3 |
| Key Partners | 1 | 3 |
| Value Proposition | 1 | 3 |
| Customer Relationships | 1 | 3 |
| Customer Channels | 1 | 3 |
| Revenue Stream | 0 | n/a |
| Cost Drivers | 0 | n/a |
| Total Count | 10 | |

*"Because we don't have a big sales force where we can send people out to be in front of the customer every day, it would be very hard to break into a new customer segments. we've got really well established relationships with our existing customers and we've got a good reputation in the industry so our customer's competitors know of us as we'll and that makes it easier to get in to see them and to sell to them but if we had to move into an entirely new customer type it would require quite a bit or effort because we just don't have the resources to throw at it." P2*

*"I think its peoples mind sets. I think people see change as negative. They always see change as positive. you often, if it's coming from a services team, you might have some negativity in the services team around, if they doing this what will happen to whatever else I'm doing. You've got to manage that carefully." P13*

#### 5.5.4.3 Summary: Least adaptable and most adaptable business model building blocks in the use of inbound open innovation in a diversified business model context

Table 22 below summarises which business model building blocks were the most adaptable and least adaptable to inbound open innovation, within a diversified business model context. This study is concentrating on the top three building blocks that are considered most adaptable and those considered least adaptable.

As seen from Table 22, it can be easily deduced that cost drivers are considered most adaptable while key resources are considered least adaptable. The building blocks ranked second most adaptable across the sample are revenue streams, value proposition, customer channels while only customer segment was considered second least adaptable business model building block. From a least adaptable business model perspective, key activities, key partner, value proposition, customer relationships and customer channels were considered to be the third least adaptable building blocks in the use of inbound open innovation.

**Table 22: Summary of Findings for Most Adaptable and Least Adaptable Business Model Building blocks in the Use of Inbound Open Innovation – Diversified Business Model**

| Rank | Frequency Count of Most Adaptable Building blocks (Diversified Business Model) | Frequency Count of Least Adaptable Building blocks (Diversified Business Model) |
|---|---|---|
| 1 | Cost Drivers | Key Resources |
| 2 | Revenue Stream | Customer Segment |
| 2 | Key Partners | |
| 2 | Value Proposition | |
| 2 | Customer Channels | |
| 3 | | Key Activities |
| 3 | | Key Partners |
| 3 | | Value Proposition |
| 3 | | Customer Relationships |
| 3 | | Customer Channels |

| | | |
|---|---|---|
| Total Frequency Count of all building blocks | 15 | 10 |
| Variance | 20% | |

Table 22 also presents the frequency count of the business model building blocks in a diversified business model context. It shows that the frequency of the building blocks that were more adaptable to inbound open innovation (15 counts) principally exceeded the number of occurrences for building blocks considered least adaptable (10 counts). The variance between most adaptable and least adaptable drivers was approximately 25%. This indicates that a diversified business model is seemingly most adaptable to inbound open innovation in comparison to both mature and unproven business models.

### 5.5.5 Summary of overall results

The following findings were revealed in the results to the question: Which building blocks of the business model are most adaptable and which are least adaptable to inbound open innovations entering an SME?

- Irrespective of the maturity state of the business model, the business model seemed to be adaptable to the use inbound open innovation. This was based on the finding that the count of the business model building blocks that were considered most adaptable exceeded that of the building blocks that were considered least adaptable across all business model maturity contexts. As seen in Table 23 below, the count for most adaptable building blocks were 41 while the count for the least adaptable were 37.
- Further to this, looking across all business model contexts, the top three business model building blocks found to be most adaptable to taking advantage of inbound open innovations entering a firm are 1: cost drivers, 2: key partners and 3: revenue streams and value propositions. Similarly, the top three business model building blocks found to be least adaptable to take advantage of inbound open innovations entering the firm were 1: key resources, 2: customer relationships and 3: customer relationships.
- Additionally, looking across all business model maturity contexts there are no commonalties between the top 3 ranked most adaptable and top 3 ranked least adaptable.

**Table 23: Summary of Findings for Most Adaptable and Least Adaptable Business Model Building blocks in the Use of Inbound Open Innovation – across all maturity levels**

| Rank | Frequency Count of Most Adaptable Building blocks (All Business Model Contexts) | Frequency Count of Least Adaptable Building blocks (All Business Model Contexts) |
|---|---|---|
| 1 | Cost Drivers | Key Resources |
| 2 | Key Partners | Customer Relationships |
| 3 | Revenue Stream | Customer Segment |
| 3 | Value Proposition | |
| 4 | | Revenue Stream |
| 4 | | Cost Drivers |
| 4 | | Key Partners |
| 4 | | Value Proposition |
| 4 | | Customer Channels |
| 5 | Key Resources | |
| | | |
| 5 | Customer Channels | |
| 7 | Key Activities | |
| 7 | Customer Segment | |
| 9 | Customer Relationships | Key Activities |
| Total Count | 41 | 37 |

Further to answering the research question above, a variance was calculated to determine the overall adaptability of the business model to inbound open innovation. It was found that a mature business model was the least adaptable while diversified business model was the most adaptable to taking advantage of inbound open innovation. Unproven business model was principally more adaptable than mature business model while less adaptable than diversified business models, these findings are depicted in Table 24 and Figure 11 below.

**Table 24: Business Model Maturity Contexts and Implication on Openness**

| Business Model Maturity | Mature Business Model | Unproven Business Model | Diversified Business Model |
|---|---|---|---|
| Variance | -10% | 8% | 20% |

**Figure 11: Business Model Maturity Context and Adaptability**


*Source: Author's own construct*

# 6 DISCUSSION OF RESULTS

The purpose of this study was to explore, with a sample of South African ICT SMEs, the role of their business model in the decision to use inbound open innovation and gain an understanding of the adaptability of the existing business model to take advantage of the externally sourced innovations. It was believed that insight into this topic could be gained through an investigation of the role played by business model building blocks. This chapter presents an interpretation of the key findings laid out in Chapter 5 across three business model contexts, namely: unproven, mature and diversified. The results are compared to the existing body of literature laid out in Chapter 2, in order to draw parallels, identify differences and build on the concepts in the literature.

The discussion of the results follows the order of the research questions as laid out in Chapter 3. Further to this, the emergent themes, related to the business model contexts will also be discussed in this chapter.

## 6.1 Discussion of Results on Business Model Maturity Contexts

As discussed in section 5., the findings based on the sample of 17 ICT SMEs revealed that the SMEs found themselves at different business model maturity stages, namely unproven, mature, and diversified. Unproven business models were found mainly in startup SMEs, mature business models were found in growing or successful SMEs, and diversified business models were found in businesses whose core products were going into decline and who were re-inventing themselves by diversifying their offerings in the market and finding new markets to serve.

Following the literature review on business lifecycles in Chapter 2, associations can be drawn between the findings on business model maturity stages and the business lifecycle stages. Hanks et al., (1993) indicated that start-ups or new businesses are generally found in the birth stage of the business lifecycle, and considering that unproven business models were found among start-ups, a conclusion is drawn that SMEs in the ICT sector during the birth stage may find themselves with an unproven business model.

Similarly Hanks et al., (1993) found that the growth and mature life stages were generally the stages where the business was successful, with established products and

customer segments. Hence, these lifecycle stages can be associated with a mature business model maturity context. Finally, Hanks et al., (1993) found that businesses who were in the renew life stage were diversifying their products and customer markets. Based on the research results, this description aligns with the businesses involved in the study who could be classified as having a diversified business model.

This result suggests that for SMEs, the different life stages of their business can result in different business model maturity levels or perhaps vice versa. This implies that just as a business advances through different lifecycle stages, so does the maturity of the business model, advancing from an unproven to a mature and finally to a diversified business model. This supports the claim made by Chesbrough (2006) that the lifecycle of the firm influences or is influenced by the business model and this should be taken in consideration in the realm of open innovation.

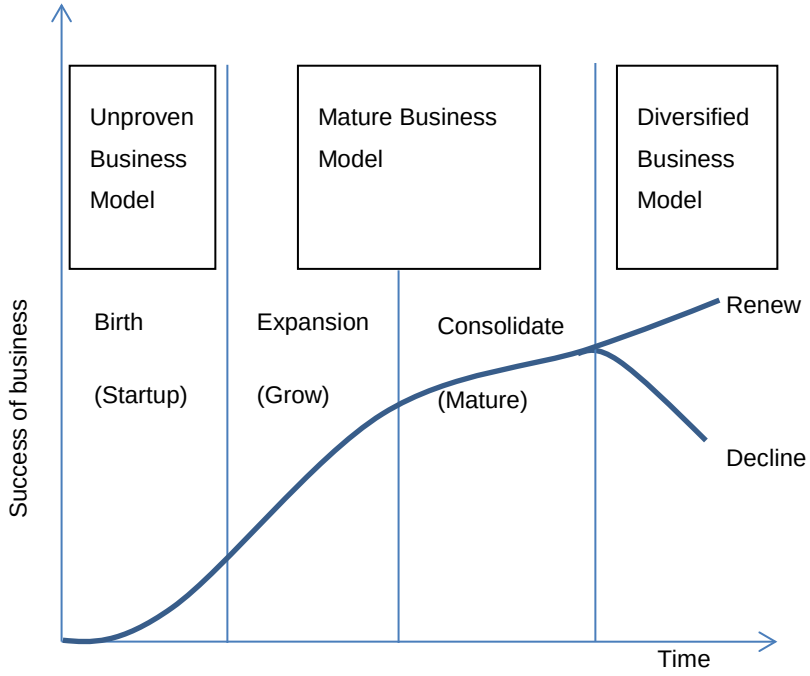
This is a significant finding, as just as Yazdanfar & Öhman (2014) suggested that different lifecycle stages required a different approach to management styles, organisation structures, communication and decision-making processes, reward systems and strategies, it can be added that different lifecycle stages may also require a different approach to the firm's business model.

Since, this finding emerged from the data, the extent of this relationship has not been determined in this study. It does however build onto both business model and lifecycle literature, providing insights into the business model and how its maturity can be associated with the lifecycle of a firm, which the extant literature does not expose theoretically or empirically. It therefore provides a basis for future studies in this field.

## 6.2 Conclusion of Results on Business Model Maturity Contexts

The diagram in Figure 12 below summarises the association between the lifecycle stages and the business model maturity stages. It shows the correlation between an unproven business model and the birth or start-up stage of the business lifecycle, a mature business model and both the expansion and consolidate stages of the lifecycle and, a diversified business model and the renew or decline stages of the business lifecycle.

**Figure 12: Association of Lifecycle Stages to Business Model Maturity Contexts**




## 6.3 Research Question 1

What role does the business model play in the decision to use inbound open innovation in SMEs?

Since open innovation is a nascent field of study from both a business and scholarly point of view, there is a gap in the understanding of the role of the business model on open innovation present in the literature (Tucci et al., 2016; West & Bogers, 2014). Further to this, studies on open innovation in SMEs were also very limited (Eftekhari & Bogers, 2015; Kafouros & Forsans, 2012; Schillo & Walter, 2010; Scott & Chaston, 2013).

The aim of this research question was therefore to establish the role of the business model in the decision by SMEs to use inbound open innovation. However, this study was limited to inbound open innovation, as it is understood that SMEs undertake inbound open innovation more frequently than other archetypes (van de Vrande et al., 2009). The role of the business model was clarified by investigating the various building blocks that made up the business model, as outlined by Pigneur and Osterwalder's (2010) Business Model Canvas. As discussed in the literature review, the Business

Model Canvas is made up of nine building blocks, which are as follows: customer channels, customer segments, customer relationships, value proposition, revenue streams, cost drivers, key resources, key activities, and key partnerships.

The results for research question 1 revealed that the business model plays two roles in the decision to use inbound open innovation in SMEs. Firstly, it was established that the business model, based on its underlying building blocks, had an overall positive influence on the use of inbound open innovation. Secondly, the business model influenced the openness intensity of the SME to inbound open innovation, depending on the business model maturity of the SME. These findings are discussed below.

### 6.3.1 Role 1 – The business model as an enabler to inbound open innovation

As seen in Chapter 5, the results to this research question suggest that the business model, irrespective of its level of maturity (namely, unproven, mature or diversified), played a role as an enabler in the SME's decision to use inbound open innovation. This finding supports Brunswicker and Vanhaverbeke's (2015) statement that SMEs are naturally open to inbound open innovation.

Table 24 below shows the top three business model building blocks that were positive decision drivers in the use of inbound open innovation across all business model maturity types. These were value proposition, revenue streams and key partners. The top three negative decision drivers in the use of inbound open innovation were found to be key resources, cost drivers and existing customer segments.

Drechsler & Natter (2011) found that the biggest drivers in the decision to be open were a firm's need for additional resources, such as funding for innovation activities, and the improvement of IP protection mechanisms. The findings of this study adds onto their work, indicating that improvement in value proposition, potentially new revenue streams and leveraging skills and channels to market through partnering are also positive decision drivers for open innovation.

Additionally, Drechsler & Natter (2011) found that the main factors limiting the openness of firms to external sources of innovation were lack of awareness of markets and technology, fear of a lack of IP protection and competitor threats through product or service imitation. This study suggests that lack of resources in terms of skill and capacity, cost to implement external sources of technology and fear of losing focus to

keep existing customer segments happy were the biggest negative drivers of openness.

Another interesting observation was the relationship between revenue streams and cost drivers, where revenue streams were found to be a positive decision driver, while costs were a negative decision driver of inbound open innovation. Together, these two business model building blocks determine the profit of the business model. Hence, it can be deduced that profitability potential of the external idea or innovation is an important driver in the decision to use inbound open innovation in SMEs. This finding is supported by Demil and Lecocq (2010), who indicated that the difference between revenues and costs generates the profit or value that the firm, in this case SME, captures based on the value it puts out in the market which determines the sustainability and success of the business model.

**Table 25: Business Model Building blocks and their Influence on the Use of Inbound Open Innovation**

| Top 3 Business model building blocks that positively influenced decision to use inbound open innovation across all maturity contexts | Top 3 Business model building blocks that negatively influenced decision to use inbound open innovation across all maturity contexts |
|---|---|
| Value Proposition | Key Resources |
| Revenue Streams | Cost Drivers |
| Key Partners | Existing customer segments |

The notion that the business model is an enabler in an SME's decision to use inbound open innovation contributes to the theory of open innovation by addressing part of the need for research to provide clarity on the role of the busines model in open innovation (West & Bogers, 2014; Tucci et al., 2016). As seen in the literature review, open innovation consists of inbound, outbound and coupled innovation (Gassmann & Enkel, 2004). Since this study focussed solely on inbound open innovation, it only partially provides insight into the role of the business model in the use of open innovation.

### 6.3.2 Role 2 – The business model's maturity as an influence on openness intensity to inbound open innovation

As per the results in Chapter 5, it was established that the business model maturity of SMEs seemed to play a role in their openness intensity toward inbound open innovation.

Looking at Chapter 2, the results of this study build on the work by Brunswicker & Vanhaverbeke (2015), indicating that not only are SMEs naturally open, they also have varying propensities for openness. Dahlander & Gann (2010) postulated that inbound openness referred to a firm's willingness or inclination to make use of external sources of ideas or technology through partnerships and collaboration. In line with this understanding, the results of this study indicate that SMEs with unproven business models were the most open to using inbound open innovation whereas, and SMEs with mature business models were least open to using inbound open innovation. SMEs with diversified business models were more open than mature business models but slightly less open than unproven business models.

This difference in intensity amongst the various business model maturity levels in SMEs could potentially be explained by the following factors:

- As outlined in section 6.1 above, SMEs with unproven business models generally consisted of start-ups or firms in the early stages of their business lifecycle (Hanks et al., 1993). They were still trying to establish their customer base and revenue streams, hence they had more manoeuvrability to engage with other parties to define their business model and transform their products. This attributed to their openness to inbound open innovation.
- SMEs with mature business models, which were characterised as being in either the expansion or consolidate stages of the business lifecycle (Hanks et al., 1993), where their business models were successful, were the least open to inbound open innovation. A possible reason for this, is that these firms were more interested in operational efficiency and retaining their customer segments as they have become highly dependent on these customers for their income as shown in sections. This is corroborated by a number of scholars, who have stated that successful business models are very likely to create strong inertia inside an organisation resisting new innovations (Achtenhagen, Melin, & Naldi, 2013; Chesbrough, 2006; Doz & Kosonen, 2010).
- Lastly, SMEs with diversified business models were found to be more open than those with mature business models but less so than SMEs with unproven business models. As seen from Chapter 5, the insight garnered from this scenario was that these SMEs had an established customer base but at the same time needed to evolve their products and try to capture new markets, while being heavily constrained by their resource capacity. They therefore tended to partner more and draw on external expertise to reach new markets.

> Since they had an established base of customers, decisions they took were rooted in ensuring that the existing base was not neglected. Hence, they were less open than unproven business models. This aligns to Drechsler and Natter (2011), who suggested that firms have increased openness when they require additional resources to innovate.

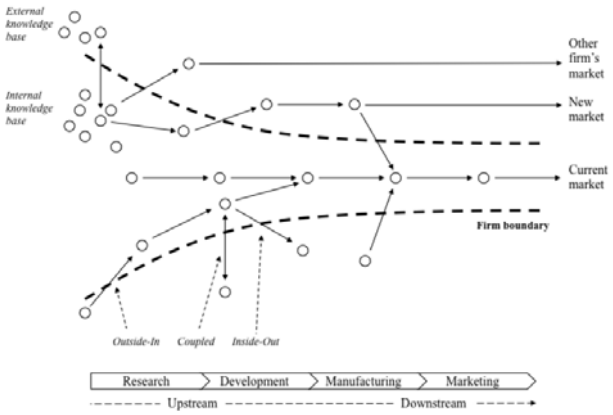
Chesbrough and Bogers (2014, p.12) define openness as "knowledge flows across the permeable organisational boundary". They also suggest that the business model, whether it is implicit, unproven in the context of this study, or explicit, mature or diversified in the case of this study, describes how value is created through the value proposition; and how it is captured through market segments and revenue streams. The researcher argues that further to the construct that a business model describes how value is created and captured, it additionally plays a role as one of the factors in determining the permeability or openness intensity of the boundary of the organisation. This is deduced from the evidence above, which shows how the building blocks of different business model contexts influence the decision to use of inbound open innovation in SMEs.

This finding adds to the current body of knowledge which claims that at an organisational level, there are various factors that may affect the openness of a firm's boundaries to open innovation, including sophistication of the firm's product set, especially in technology firms (Saebi & Foss, 2015), research capability and ability to execute on the idea (Laursen & Salter, 2006), being active participants in industry bodies and building trust networks (Antons & Piller, 2015), and organisational culture and leadership drive (Eftekhari & Bogers, 2015).

Using Chesbrough and Bogers's (2014, p.31) model for the open innovation paradigm, the implication of this result can be illustrated as follows:

Figure 13 below is a standard model extracted from Chesbrough & Bogers (2014, p.31), showing the firm's permeable boundary, allowing in external ideas and letting out internal innovations for other firms to commercialise.

**Figure 13: Open Innovation Paradigm**

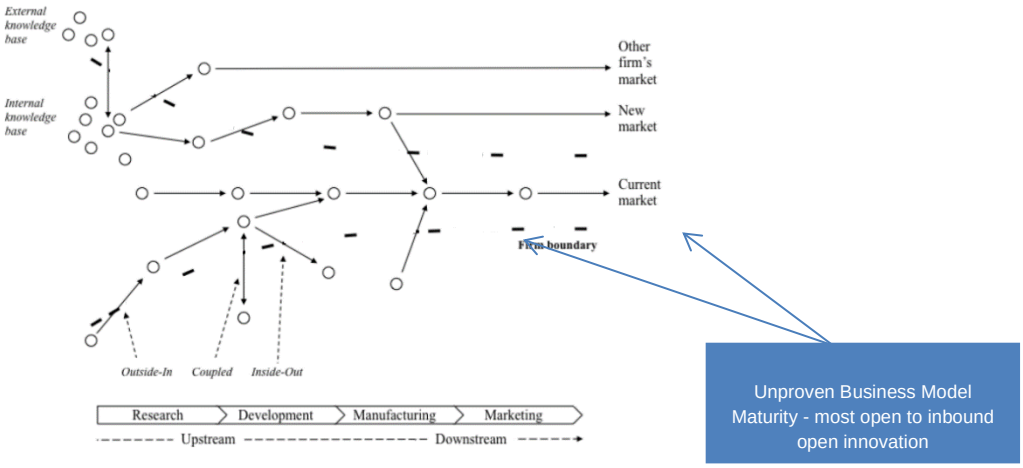



*Source: Chesbrough & Bogers 2014, (p.31)*

The researcher has asserted that the business model in the various maturity contexts plays a role in the permeability or openness of the boundary in an SME's decision to use inbound open innovation.

Using the data that shows SMEs with unproven business models were the most open compared to the other contexts, the boundary of an SME with an unproven business model can be illustrated by adapting Chesbrough & Bogers, 2014 model as follows:

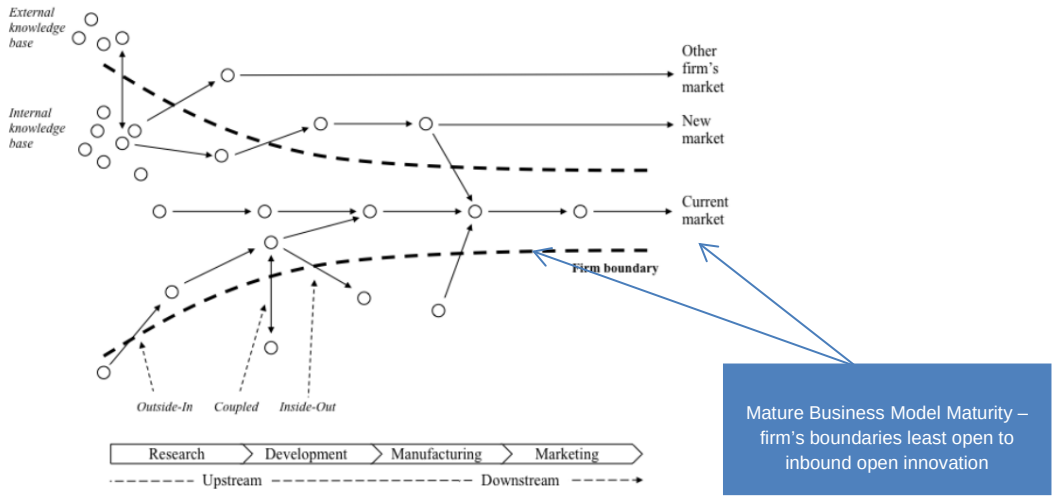
**Figure 14: Openness of SME Boundaries in an Unproven Business Model Context**




*Source: Chesbrough & Bogers 2014, (p.31)*

Similarly, using the data that shows SMEs with mature business models were the least open to inbound open innovation, the boundary of an SME with a mature business model can be illustrated as follows:

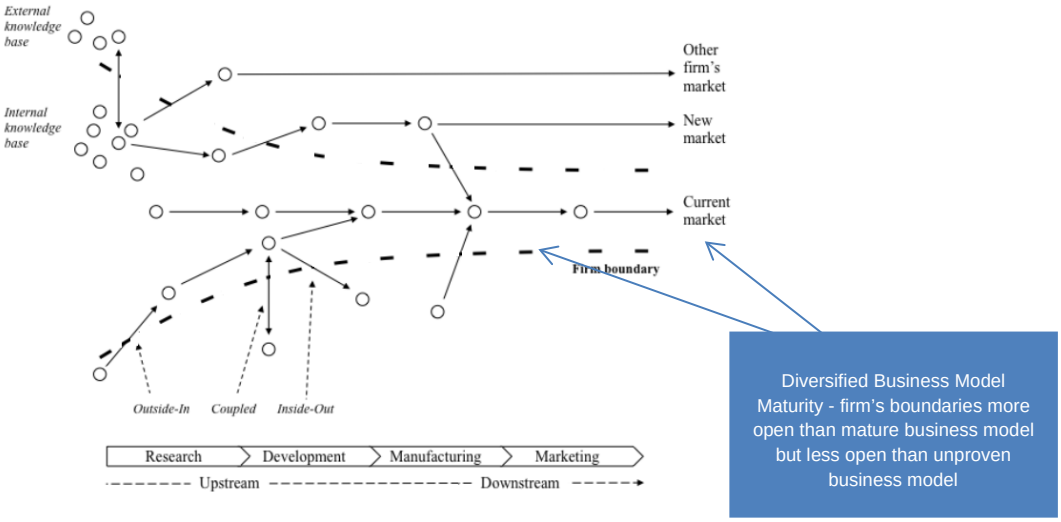
**Figure 15: Openness of SME Boundaries in a Mature Business Model Context**




*Source: Chesbrough & Bogers 2014, (p.31)*

SMEs with diversified business models were more open than mature business models but less open than unproven business models, which can be illustrated as follows:

**Figure 16: Openness of SME Boundaries in a Diversified Business Model Context**




*Source: Chesbrough & Bogers 2014, (p.31)*

The above diagrams illustrate the point that the role of the business model based on the various maturity contexts is one of the factors that regulates the openness intensity of the firm's boundary to the use of inbound open innovation. This supports the work of Saebi & Foss, (2015).

### 6.3.3 Conclusion of results on the role of the business model in the decision to use inbound open innovation

Based on the discussion above, this study concludes two roles of the business model in the use of inbound open innovation, as illustrated by Figure 20 below.

Firstly, the business model plays the role as an enabler in the decision to use inbound open innovation, irrespective of the business model maturity an SME may find itself in.

Added to finding above, from a business model perspective, the biggest positive influencers of open innovation were the value proposition, revenue streams and key partners, while the biggest negative drivers were the lack of resources, cost implications and fear of losing existing customer segments due to split focus when sourcing and implementing externally sourced innovations.

Secondly, it appears that the business model maturity contexts, namely unproven, mature and diversified, play a role in the openness intensity of the SME in inbound open innovation. This implies that it influences the permeability of the firm's boundary with unproven business models seemingly being the most permeable, mature business model least permeable, and diversified business models more permeable than mature business models but less permeable than unproven business models in the use of inbound open innovation

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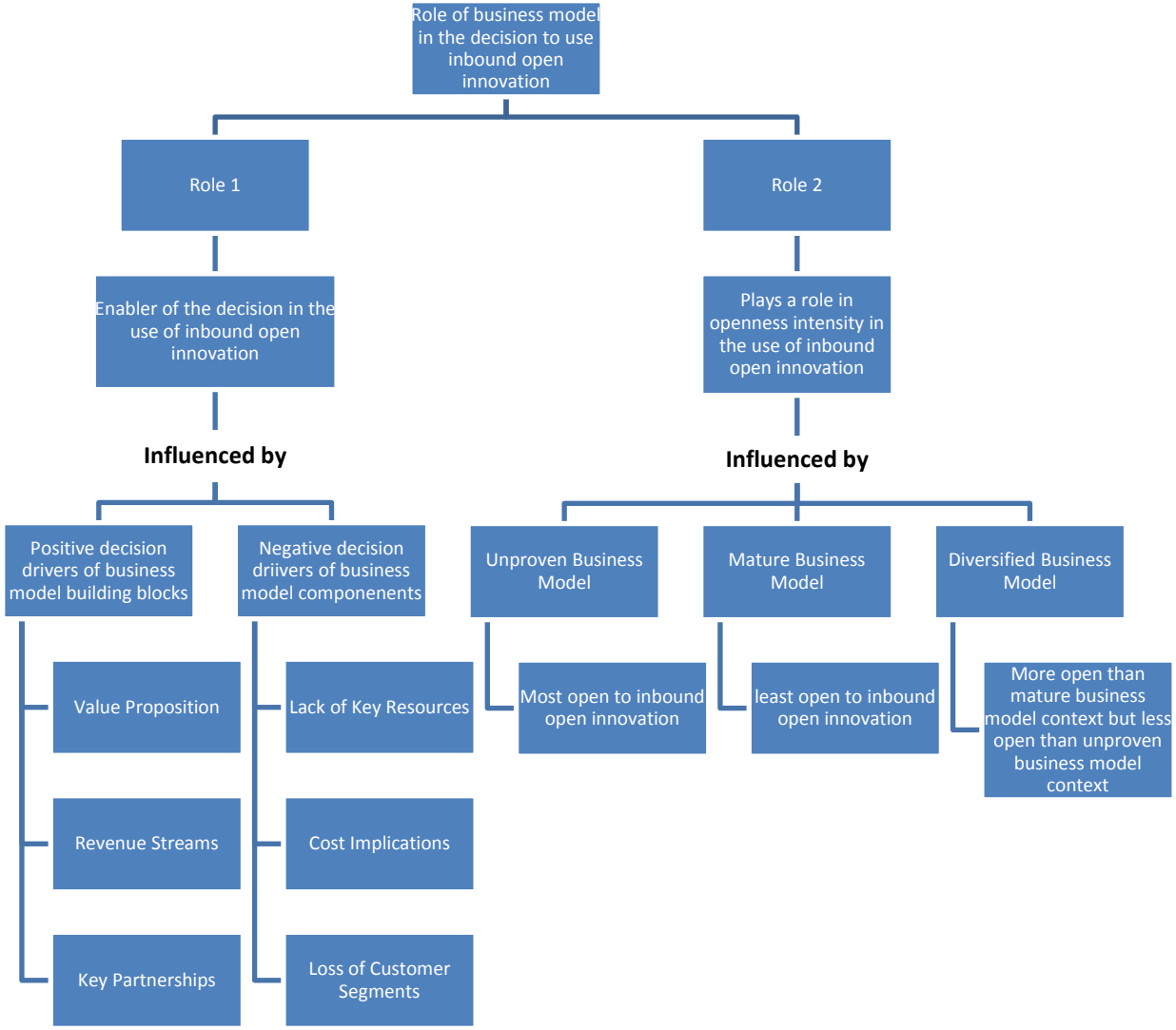
**Figure 17: Role of the Business Model in the Decision to Use Inbound Open Innovation**



## 6.4 Research Question 2

Which building blocks of the business model are the most adaptable and which are the least adaptable, to inbound open innovation in SMEs?

Research Question 1 focussed on how the business model building blocks influenced the decision to use inbound open innovation in SMEs. Research question 2 focuses on the adaptability of the business model building blocks in the context of open innovation, adding insight from an SME perspective.

This focus is important, as studies revealed that firms who fruitfully integrated external sources of knowledge or ideas through open innovation were able to do so by restructuring their existing business model (Saebi & Foss, 2015). Examining the adaptability of the business model in terms of its building blocks, will provide an understanding to SMEs on how they can do more with their existing business model to be innovative, as suggested by Amit and Zott (2010). This is especially important in a turbulent economic environment, such as that of South Africa, where doing more with less can lead to business survival (Schneider & Spieth, 2013).

As found in this study in section 6.1.1, different life stages of an SME saw different business model contexts, which supports Achtenhagen, Melin and Naldi's (2013) view that business models evolve over time. This study adds to the existing literature by identifying what building blocks of the business model are most adaptable and which are least adaptable to the use of inbound open innovation with the propensity to influence change over time.

The business model building blocks that were ranked as the top three most adaptable and least adaptable to take advantage of inbound open innovation across all three business model maturity types is discussed in the following two sections.

### 6.4.1 Business model building blocks that were most adaptable to inbound open innovation

The building blocks of the business model that were considered most adaptable to inbound open innovation where cost drivers, revenue stream, key partners, and value proposition.

#### 6.4.1.1 Cost drivers

Cost drivers are considered as the costs incurred to deliver on the value proposition to a firms customers, including fees related to partnering, key business activities and resources required (Osterwalder & Pigneur, 2011). Costs were considered highly adaptable in the use of inbound open innovation as using external skills on a part time basis or contracting for what was needed inferring less committed capital on their part, allowing the SMEs to be more agile to new taking on new inbound innovation opportunities. This notion is supported by (Parida et al., 2012) who also claimed that SMEs can benefit from inbound open innovation activities due to reduced cost of development or skills, only paying for what is needed when its needed. When combined with revenue, it is becomes a function of profit that the firm generates (Kindström & Kowalkowski, 2014).

#### 6.4.1.2 Revenue streams

Revenue stream is the way an SME extracts income from the service or product they offer to their customer (Osterwalder & Pigneur, 2011). SMEs considered their revenue streams easily adaptable to take advantage of externally sourced ideas or technology. They claimed that since they were flexible, changing their revenue model from e.g. monthly contract to pay as you use, to take advantage of an opportunity presented by their customer, was an easy undertaking especially if the SMEs customer required that specific charging model to pay for the new product or service that was built in collaboration with their customer. Kindström & Kowalkowski (2014) and Rajala et al. (2012) corroborated this finding by indicating that evolving a firm's business model can achieved incrementally by changing a firm's revenue model to be innovative in the market. They used an example of a software engineering company moving from licence based software revenue model to open source revenue model.

Interesting both cost streams and revenue streams were considered to be adaptable when making use of inbound open innovation, and understanding that these two aspects make up the firm's profit potential, it can be deduced that SMEs are willing to adapt their profit seeking ability to take advantage of inbound open innovation.

#### 6.4.1.3 Key partners

Key partners were another building block of the business model that was considered highly adaptable to take advantage of opportunities from external sources. Key

partnerships refer to strategic relationships with external partners to deliver value in the market place which can take the form of outsourced staff or use of another parties technology in one's own product or service(Osterwalder & Pigneur, 2011). Making use of external sources of knowledge, ideas and technology, is the central concept of open innovation; hence making use of strategic partnerships is the hallmark construct of open innovation (Lee et al., 2010). SMEs are naturally open to making use of partnerships due to lack of resources for development of product or operational activity to deliver value in the market. SMEs therefore found it easy to adapt their business model through changing and adapting their external partnerships. This is substantiated by Lee et al. (2010) who affirmed that making use of external sources of knowledge, ideas and technology is the central concept of open innovation, hence making use of strategic partnerships to create and capture value enables flexibility and agility in the market. This was contended though by (Aloini et al., 2015), who stated that having too many partnerships can lead to confusion and information overload if not managed carefully causing more harm than good for the focal firm.

#### 6.4.1.4 Value proposition

Value proposition is the need that the SME serves in the market, it is considered linked to the problem that is being solved for a particular customer or multiple customer segments (Osterwalder & Pigneur, 2011). Value proposition was considered highly adaptable building block by SMEs to take advantage of inbound open innovation, as through collaborating with customers or other types of partners, SMEs often got to understand new pain points of the customer or heard of better ways to solve the same problem. SMEs due to their smallness and quick decision making processes generally found that adapting their value proposition e.g. instead of just delivering devices to also provide a support and maintenance service to the customer, was easily undertaken to take care of another need of their customer. Adapting the value proposition also often meant adapting revenue streams, cost structures, and partners showing that these building blocks are often inter-related. This is supported by (Demil & Lecocq, 2010; Rajala et al., 2012; Teece, 2010) who suggested that aligning and adjusting a firms contributes to the firm's dynamic capabilities.

### 6.4.2 Business model building blocks that were least adaptable to inbound open innovation

The building blocks of the business model that were considered least adaptable to inbound open innovation were key resources, customer relationships, and customer segments.

#### 6.4.2.1 Key resources

Key Resources are considered to be the highest ranked least adaptable business model building block in the adoption of inbound innovation. This finding is not particularly surprising as one of the biggest challenges SMEs are faced with are the lack of skilled resources as well as resource capacity to scale. Key resources, while many of the participants referred to it as staff, can also take the form of physical infrastructure, financial investment, intellectual capability, or human resources. Most of the participants were very quick to identify key resources as a major hindrance to adapting their business model. This is corroborated by (Achtenhagen et al., 2013) who states that resources in terms of skill and capacity is one of the biggest consideration points when wanting to take advantage of an inbound open innovation opportunity. SMEs try to overcome this challenge through partnering or seeking outsourced resources which then increases the adaptability of the business model to take advantage of the inbound opportunity.

#### 6.4.2.2 Customer relationships and customer segment

Customer relationships and customer segments will be discussed together as they are highly related. SMEs are characterised by having more of a value based business as opposed to volume based business meaning that they rely heavily on their professional and personal networks for customers (Parida et al., 2012; Trimi & Berbegal-mirabent, 2012). They often also do not have a large customer base resulting in them spending a lot of their energy keeping their customer happy to ensure a steady revenue flow. The downside of this is that incoming ideas that may dilute their focus or a hindrance to serving the existing base, makes the business model a limiting factor to inbound open innovation. This was often observed in mature business model context, where the fear of losing established base of customers was overwhelming. These businesses often operationally focused rather that creative to deliver excellent customer service as discussed by Bergendahl & Magnusson (2015).

### 6.4.3 Summary of results on the building blocks of the business model that were most adaptable and least adaptable to inbound open innovation

As outlined in the section above, the top three ranked business model building blocks that were highly adaptable were cost streams, revenue streams, key partners and value proposition while the least adaptable were key resources, customer channels and customer relationships. In the literature many of the above building blocks were discussed individually or in the context limited to business model innovation context. This study builds onto both the business model literature and open innovation literature providing insight to SMEs on how their business model can add or take away from their dynamic capabilities at a modular level. This also answers the call by (Chesbrough, 2012; Fielt, 2013) to provide deeper insight into how business modules at its lowest levels influence innovation.

### 6.4.4 Business Model Maturity influences the adaptability of the existing business model.

As per the results in Chapter 5, section5.5, it was established that the business model maturity of SMEs influences the extent of the adaptability of the business model to inbound open innovation. Table 26 below indicates the adaptability extent of each business model maturity type with mature business models proving to be least adaptable and diversified being most adaptable.

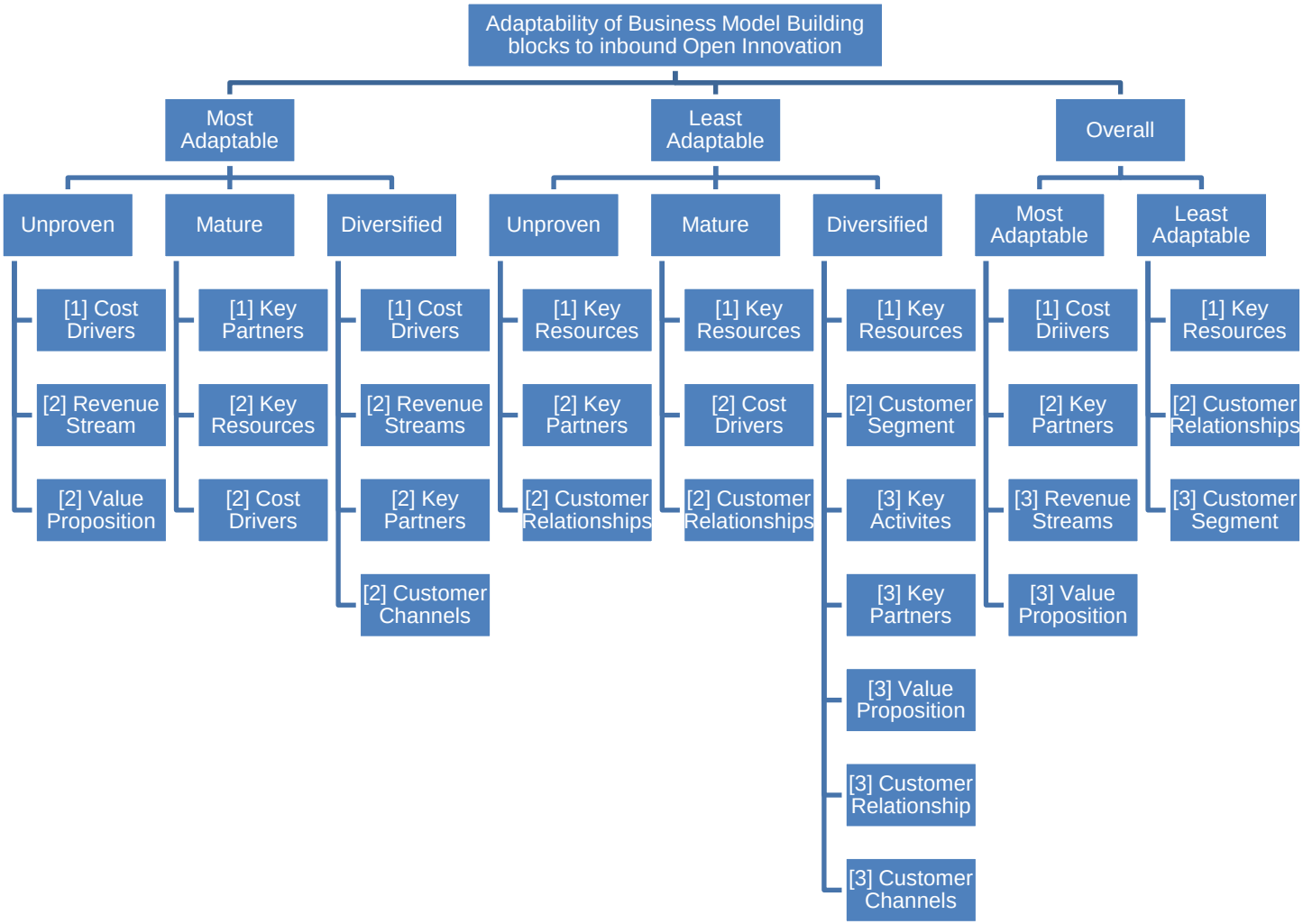
The finding though that successful business models are rigid to change have been very interesting is corroborated by a number of scholars, who have stated that successful business models are very likely to create strong inertia inside an organisation resisting new innovations (Achtenhagen, Melin, & Naldi, 2013; Chesbrough, 2006; Doz & Kosonen, 2010). This study adds to the literature by providing a view of the adaptability of the business model in the context of open innovation in SMEs for various maturity levels.

**Table 26: Business Model Maturity Contexts and Implication on Adaptability**

| Business Model Maturity | Mature Business Model | Unproven Business Model | Diversified Business Model |
|---|---|---|---|
| Variance | -10% | 8% | 20% |

Figure 18 below summarises the findings from a business model building block point of view on the adaptability of the business model to in bound open innovation.

**Figure 18: Adaptability of Business Model Building blocks across the Business Model Maturity Contexts**



# 7 CONCLUSION

## 7.1 Introduction

This study aimed at understanding the role of the business model in the decision to use inbound open innovation and further, at identifying which building blocks of the business model were considered easily adaptable and which less adaptable in the context of inbound open innovation in SMEs. For clarity, the innovation paradigm where businesses make use of external ideas or technology to create value and generate profit is referred to as inbound open innovation, a concept wherein the business model forms the central construct. The business model defines how value is created and how revenue is generated by business in terms of product or services.

The main findings of this of this study, introduced in Chapter 5 and discussed in Chapter 6 in light of the existing literature presented in Chapter 2, are summarised in this chapter. These findings are then linked to suggest a guiding framework to augment the use of Osterwalder & Pigneur's (2011) business model canvas for SMEs as a decision making tool when using externally sourced ideas and technology. The aim of the guiding framework is to provide insight to SMEs on how business model building blocks may react to the idea or technology entering the firm from an external source. By understanding which business model building blocks influence or are adaptable, both from a negative or positive stand point, the SME may find themselves in a more empowered position to decide which inbound ideas are quick wins and which may be met with business model inflexibility hurdles, requiring significant investment or organisational buy-in due to the inertia it may cause, as an example.

Furthermore, based on the findings and guiding framework, this chapter also outlines the managerial implications and limitations of this study and finally, concludes with recommendations for future research in the domain of open innovation and business models.

## 7.2 Summary of Findings

This study aimed to answer two questions:

- What role does the business model play in the decision to use inbound open innovation in SMEs?

- Which building blocks of the business model are the most adaptable and least adaptable to inbound open innovation in SMEs?

The findings to the above mentioned research questions together with important emergent themes are discussed in the sections that follow.

### 7.2.1 Business model appears to play a role as an enabler of inbound open innovation

The results from the collected data showed that the frequency of the business model building blocks as a positive decision driver in the use of inbound open innovations exceeded that of the frequency where it was considered a negative decision driver. Based on this finding, it was deduced that the business model plays a role of an enabler in the use of inbound innovation in SMEs.

Additionally, it was found that the main business model building blocks that were considered positive decision drivers in the use of inbound open innovation in SMEs were *value proposition, revenue streams*, and *key partners* while the main negative decision drivers were *key resources, cost drivers* and *customer segments*.

### 7.2.2 Business model building blocks identified as theoretically most adaptable and least adaptable in the use of inbound open innovation

The top ranked business model building blocks that were considered the most adaptable in taking advantage of inbound open innovations were firstly, *cost drivers*; secondly, *key partners* and thirdly, *revenue streams* and *value propositions*. Similarly, the top three business model building blocks that appeared to be least adaptable to take advantage of inbound open innovations entering the firm were key resources, customer relationships, and customer segments.

Over and above answering the two research questions posed by this study, the thematic analysis revealed additional significant findings due to the qualitative exploratory nature of this study. These additional findings are discussed below.

### 7.2.3 The business lifecycle of an SMEs maybe associated with the maturity of the business model

It was discovered that the business lifecycle of the SME appears to be associated with the maturity of its present business model, as discussed in Chapter 6, section 6.2.2.

Three maturity levels of business models were revealed: namely *unproven, mature* and *diversified*. The findings exposed that firms in the startup or birth phase of the business lifecycle may likely find themselves with unproven business models while firms in the expansion or consolidating phase of their lifecycle, are more likely to have mature business models. Similarly, firms experiencing declining or commoditised business, therefore diversifying their offerings, are likely to possess diversified business models. This theme was explored as part of this study as it was considered a significant finding in understanding the role of the business model in the use of inbound open innovation, relevant to the context within which the SME operates, to draw pertinent implications accordingly.

### 7.2.4 Business model maturity seemingly plays a role in the openness intensity and extent of adaptability of the business model in the use of inbound open innovation

The maturity levels of the business models as summarised in section 7.2.4, were found to play a role in the openness intensity of the SME in the use of inbound open innovation. This provided an even deeper insight level, indicating that while the business model is considered to play a role as an enabler in the use of inbound innovation; its maturity seems to determine the extent to which it enables i.e. the level of openness to the use of inbound open innovation.

It was discovered that SMEs with unproven business models were seemingly the most open to inbound open innovation, while SMEs with mature business models were least open and SMESs with diversified business models were more open than mature business model businesses but less open than SMEs with unproven business models in the use of inbound open innovation.

Further to the above, the maturity context of the business models, also appears to influence the overall adaptability of the business model to inbound open innovation. It was found that SMEs with mature business models were least adaptable to inbound open innovation, while SMEs with diversified business models were the most adaptable. SMEs with unproven business models were more adaptable to inbound open innovation but less so than SMEs with diversified business models.

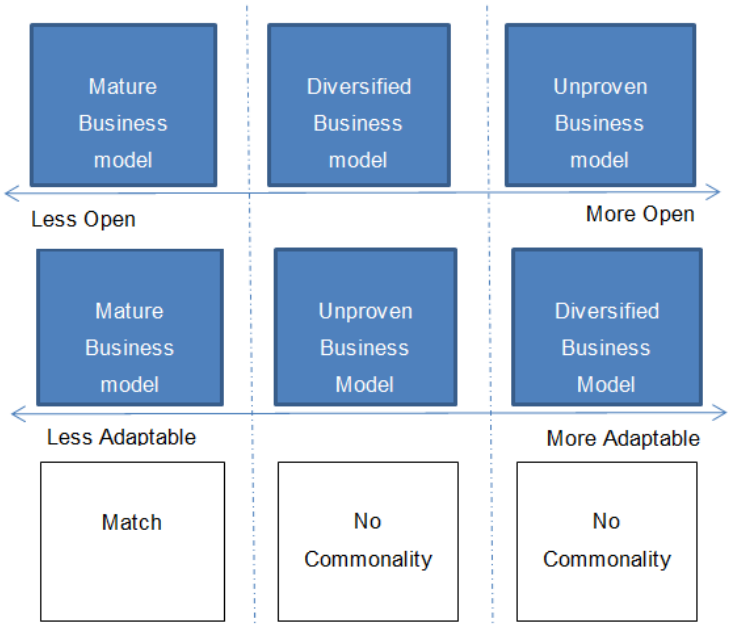
## 7.3 Linkages between findings from research question 1 and research question 2:

Following the summary of the findings discussed above, and considering the common basis for which both research question 1 and research question 2 were analysed, it is argued that links can therefore be drawn across the results for these questions. The rationale behind this argument is that the business model canvas, as well as the different business model maturity contexts, was used as a basis to interpret the results in establishing the role and adaptability of the business model. This provided an interesting platform to compare and contrast the two sets of results and to determine any linkages. The patterns that emerged showed two interesting concepts that are discussed in the following sections.

### 7.3.1 Linkages between business model openness and business model adaptability across the different business model maturity contexts

Figure 19 below overlays the findings related to the business model maturity contexts for both openness and adaptability of the business model to inbound open innovation. Interestingly, it shows that a mature business model can be classified as both *less open* and *least adaptable*. Moreover, it also shows no commonality between *more open* and *most adaptable* business model maturity contexts.

Figure 19: Business Model Maturity and its linkages between Openness and Adaptability



This finding suggests that while mature business models can be considered both *less open* and *least adaptable* in comparison to other business model maturity contexts, inconsistency exists in terms of *more open* and *most adaptable* implying that the relationship between openness and adaptability cannot be assumed to be perfectly aligned. As an example, if the maturity of the business model is considered very adaptable, it cannot be assumed that it can also be considered very open, therefore this relationship remains inconclusive.

### 7.3.2 Comparing adaptability versus influencing decision drivers from a business model build block perspective

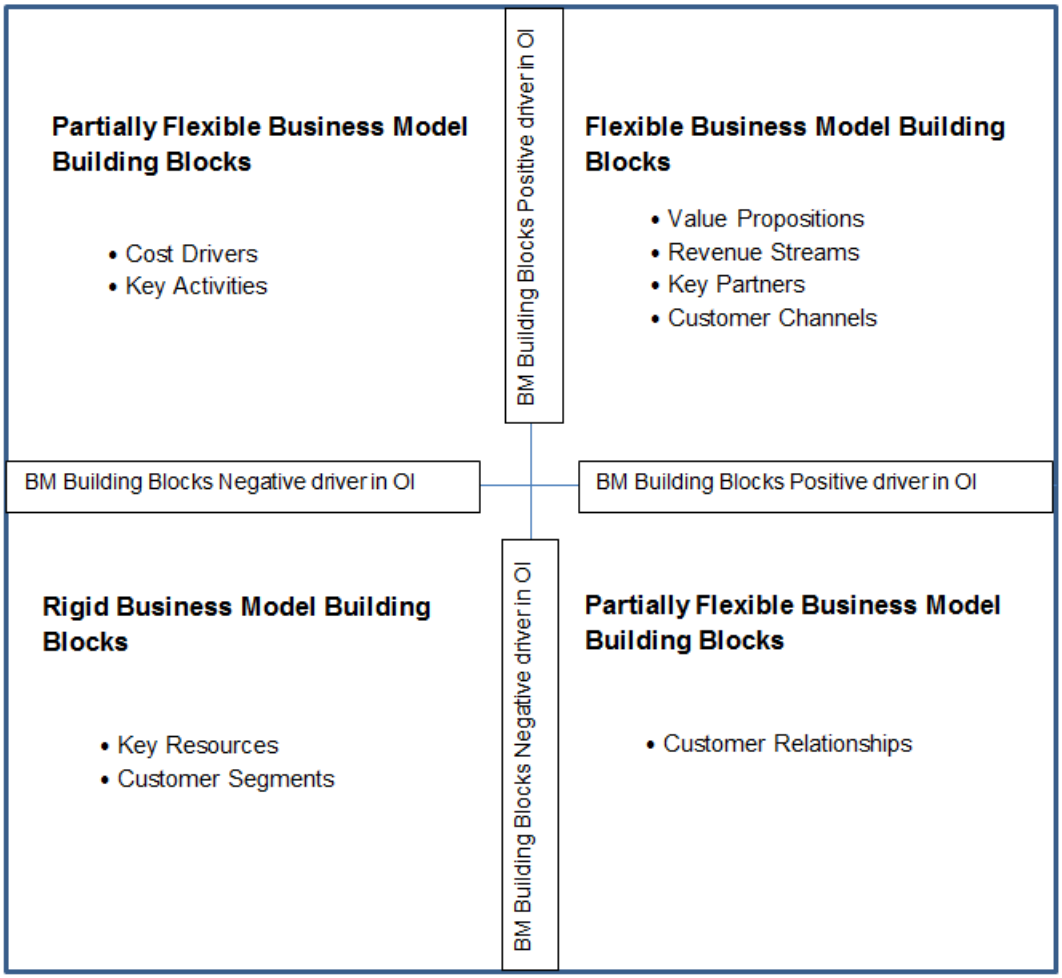
Overlaying the findings from research question 1 and research question 2, from a business model building block perspective, it was discovered that the business model building blocks, based on their frequency counts, could be mapped into four categories as follows:

1. adaptable and a positive influencer of inbound open innovation
2. adaptable but negative influencer of inbound open innovation
3. not adaptable by positive influencer of inbound open innovation
4. not adaptable and negative influencer of inbound open innovation

The four categories and the associated mapping of the business model building blocks are depicted in Figure 20 below. Building block items that were considered both *more adaptable* and a *positive decision driver* in the use of inbound open innovation was classified as flexible to inbound open innovation. Items that were considered to be both *less adaptable* and a *negative decision driver* were categorised as rigid in the use of inbound open innovation. Items that fell into either adaptable but negative driver and not adaptable but positive driver, were considered partially flexible as they were not as flexible as those categorised as flexible and were also not as rigid those classified rigid, based on their frequency counts.

Since the guiding framework aspires to provide guidance on the business model building blocks and its flexibility toward inbound open innovation, it was named the Open Innovation Business Model Flexibility Framework to be referred to hereafter as OI-BM Flexibility Framework.

Figure 20: The Open Innovation Business Model Flexibility Framework or OI-BM Flexibility Framework




Source: Author's own model, created based on results from findings

It is envisaged that the OI-BM Flexibility Framework can be used as a guiding framework with which to assess the compatibility of an inbound external idea against the existing business model. This guidance can allow SMEs to easily weigh their options in terms of whether the externally sourced idea plays to the strength of the flexible building blocks of their business model, resulting in quicker wins by adapting existing business model, or whether changes may be needed to rigid business model building blocks, perhaps indicating longer or more complex implementation. This framework ultimately seeks to assist SMEs in how to leveraging their existing business model to be an enabler and to be adaptable to inbound open innovation. This is considered particularly useful in order for SMEs to make the best of the building blocks which make up their existing business models since drastically changing business models, without understanding the role of the underlying building blocks, may lead

SMEs to incurring unintended costs. The ultimate aim of the model is to assist SMEs make best use of the scarce resources they are known to possess.

Furthermore, since the OI-BM Flexibility Framework has been derived from analysing SMEs in terms of the Business Model Canvas, this framework can be seen as a complementary tool which expands the use of the business model canvas discussed in chapter 2. This is notion is supported by the fact that both models use the same terminology.

In the context of open innovation, businesses are recommended to first use the Business Model Canvas to visualise the existing business models structure and design and thereafter to overlay the OI-BM Framework to assess the extent to which the existing business model is rigid, partially flexible or flexible to the new inbound idea or technology from external sources.

## 7.4 Implications for Management

Considering that the firms existing business model is considered an enabler in terms of positively influencing the decision to use of inbound open innovation implies that management, when wanting to take advantage of an externally sourced idea or technology, should consider assessing their business model at building blocks level to understand how it can be leveraged before taking a decision to create a brand new business model.

Further to the above, and bearing in mind that the existing business model building blocks may also be adaptable or rigid to inbound open innovation, managers should use this insight to evaluate which ideas could be quick wins for the businesses i.e evaluating where the business model can be easily adapted to take advantage of the idea versus ideas that might be more difficult to implement due to requirements for change in resources, customer segment or risking good customer relationships.

For SMEs, the above recommendations are considered highly relevant in view of past resources that may be tied into the existing business model and the constraints they experience due to their smallness. Should the existing business model be considered inflexible to inbound open innovation, then perhaps new business models are warranted.

Additionally, this study creates management awareness of the link between the maturity of their business model and the firm's lifecycle, which inadvertently influences both openness and adaptability to inbound open innovation. This allows management to understand the context within which they operate and be mindful of the potential pitfalls and opportunities which may present themselves in this context.

For example, diversified business models were found to be more adaptable than unproven business models, however this could be interpreted by management as their business model having more advanced revenue streams, economies of scale in terms of cost and an established base of customers supporting the current value proposition. The business in this example therefore has more resources to invest in those inflexible aspects of the business model such as key skills, infrastructure or attracting new customer segments through marketing campaigns in order to overcome those challenges. In comparison, management teams of start-up SMEs may find that due potentially to lack of established customer base or steady revenue, it is more complicated to overcome the inflexibilities of their business model to take advantage of inbound open innovations.

Lastly, managers of mature business model, while their business model seemingly is successful, they must be aware of its limitations to openness to inbound open innovation as well as adaptability. In time of rapid change this rigidity can pose a risk needing to be mitigated more often than not.

## 7.5 Limitations

This study, while resulting in interesting findings that build on or are found to support existing literature, is not without its limitations. Firstly, the focus of this study has been solely on inbound open innovation activities. The researcher understands that this represents an incomplete view on open innovation, as the dimensions of outbound and coupled open innovation were not included. Secondly, the pecuniary (monetary) or non-pecuniary (non-monetary) commercial aspects were also not considered in the use of inbound open innovation and these aspects may have influenced the outcomes should they have been incorporated. Thirdly, the selected sample for this study focused on South African based ICT SMEs and additionally those situated within the Gauteng and Western Cape geographical provinces. This limits generalisability outside this context.

The study was of qualitative nature and consisted of a sample of 17 SMEs which is considered acceptable for qualitative studies (Saunders and Lewis, 2012). However, since the SMEs were further classified into 3 business model maturity contexts as part of the analysis (where each context had 7 participants or less), this may have skewed the results pertaining to openness and adaptability aspects of the different business model maturity contexts.

## 7.6 Recommendations for Future Research

Based on the theoretical results and the limitations of this study mentioned above, the areas for future research have been identified as follows:

Since the field of open innovation and business model are nascent and some of the findings in this paper are novel, it is therefore recommended a replication study be conducted with a larger sample size to validate or reject the findings of this paper. Further while the role between the business model and the use of inbound open innovation appears to be established, these findings should be empirically tested to quantify the relationship between positive and negative decision drivers, openness, adaptability and flexibility. The relationship between openness and adaptability should also be further tested to ensure accuracy of the OI-BM Flexibility Framework.

It is further recommended that the study be replicated in other industry contexts to compare and contrast the relevance of the findings in different industrial contexts. Each business model maturity context should be investigated separately, and in more detail, to derive richer understanding of each business model context and its role in the use of open innovation.

The other open innovation archetypes should also be studied along with pecuniary and non-pecuniary motives in order to establish a holistic picture of the role of business models in the decision to use inbound open innovation

In summary, the researcher finds that the role and adaptability of the business model in open innovation activities in the context of SMEs is still an under-researched topic which warrants further attention from researchers in innovation management, and there is an optimism on the part of the author that this study has provided an initial step towards understanding this relationship.

## 7.7 Conclusion

Open innovation is a new paradigm in the sphere of innovation, where the business model of a firm features a central construct to create and capture value from external sourced ideas, knowledge, or technology (Chesbrough, 2012). SMEs in particular are understood to derive value from open innovation considering that they are naturally open to collaboration as well as due to the key constraints which they experience due their smallness (Spithoven, Vanhaverbeke, & Roijakkers, 2013).

This study therefore, focused on understanding the role of the business model in the use of inbound open innovation as well as how the building blocks of the business model influence the adaptability of the existing business model to adopt inbound open innovation in SMEs. By making use of a qualitative approach to study the business model in the use of inbound open innovation at a building block level; this study revealed that the business model is:

- considered to be an enabler of the decision in the use of inbound open innovation;
- its maturity is influenced by the lifecycle of the firm and in turn it influences the firms openness and adaptability to inbound open innovation, and
- the main drivers for adaptability are primarily cost drivers; secondly, key partners and thirdly, revenue streams and value propositions; while the drivers key resources, customer relationships, and customer segments hindered adaptability.

This study contributed both at a theoretical level and at a practical level to providing a perspective on the business model in relation to open innovation.

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# 9 APPENDICES

## 9.1 APPENDIX 1: Letter of Informed Consent

**Informed Consent**

I am currently completing my MBA at Gordon Institute of Business Science (GIBS). As fulfilment toward my qualification, I am undertaking research on Open Innovation in SMEs with particular focus on the relationship between Open Innovation and a SME's business model and the internal operations required to execute innovations from external sources.

Your participation in the study will provide much needed insight. This research will involve your participation in an interview and will take about one hour of your time. Please note that your participation is voluntary and you can exit at any time without any penalty.

All information recorded during the interview will be kept confidential.

If you have any questions or concerns, please contact my supervisor or me.

Our details are as follows:

| | | | |
|---|---|---|---|
| Researcher Name: | Ushal Moonsamy | Supervisor Name: | Brett Wilks |
| Researcher e-mail: | umoonsamy@gmail.com | Supervisor e-mail: | brett.wilks@sametal.co.za |
| Researcher Phone: | 0829981012 | Supervisor Phone: | 083 309 5595 |

Signature of Participant: _____ Date: _____

Signature of Researcher: _____ Date: _____

## 9.2 APPENDIX 2: Interview Schedule

### Introduction

Good day/afternoon Mr / Ms/Mrs Participant X, thank you for consenting to participate in my study.

My Name is Ushal Moonsamy; I am completing my MBA through GIBS. I am conducting a study to explore the relationship between how SMEs operate [i.e. a SME's business model] and their use of externally sourced knowledge e.g. ideas or technology [open innovation]. My study also seeks to understand what occurs to externally sourced ideas/technology/knowledge when it enters a firm to turn it into a product or improve operations. The focus of my study is on Open innovation, which is a firm's ability to utilize beneficial knowledge from external sources e.g. universities, partners, customers, and suppliers to accelerate innovation to create more success for the firm.

Kindly note that your participation is voluntary and you can exit at any point of the interview without any penalty. You may during the interview request clarity on any questions. All information audio-recorded during the interview will be kept confidential, as noted in the informed consent letter. Please read the attached informed consent letter and if you have no questions kindly sign and add the date. The interview will be guided by an interview schedule and is envisaged to be conducted for approximately an hour.

**Initial interview questions** [build rapport questions]:

To commence with the interview kindly tell me about yourself.

1. What is your position at the company? How long have you been in this role at the company?

Share with me a little about your company

2. What inspired the start of your business / company you work for?
3. How was the company started?
4. When was it started?

5. Presently, how many employees does your company employ?
6. What is your company's turnover per annum?

| Understanding the SME's business model |
|---|

- Can you explain your business model to me?
- What in your opinion makes it successful?
    - How does your business generate its revenue?
    - Who specifically are your customers?
    - What products / services do you provide to your customers?
    - and why do you think they choose to use the products of your business?
    - How does your business deliver the products / services in the market?
    - What differentiates your business from your competitors?
    - Can you describe the role of your partners in your business model?
- Tell me more about how you source ideas / knowledge or technology to increase the success of your business, be it for new / enhanced products or internal operations?
- If collaborating is evident, then the following will be asked –
- If you reflect on a time when you had an externally sourced innovative idea / technology and a competing internal innovative idea, which did you choose to deploy? Tell me, what were your reasons for that choice?
- What factors do you consider when deciding to use an innovation? Why do you consider these factors.
- **What are the major factors that you consider when you are plan to make use an innovation (in the form of an idea as an example) that originates outside of your organisation? Why do you consider these factors?**
- What role does your business model play when deciding to use externally sourced ideas/ technology / knowledge?

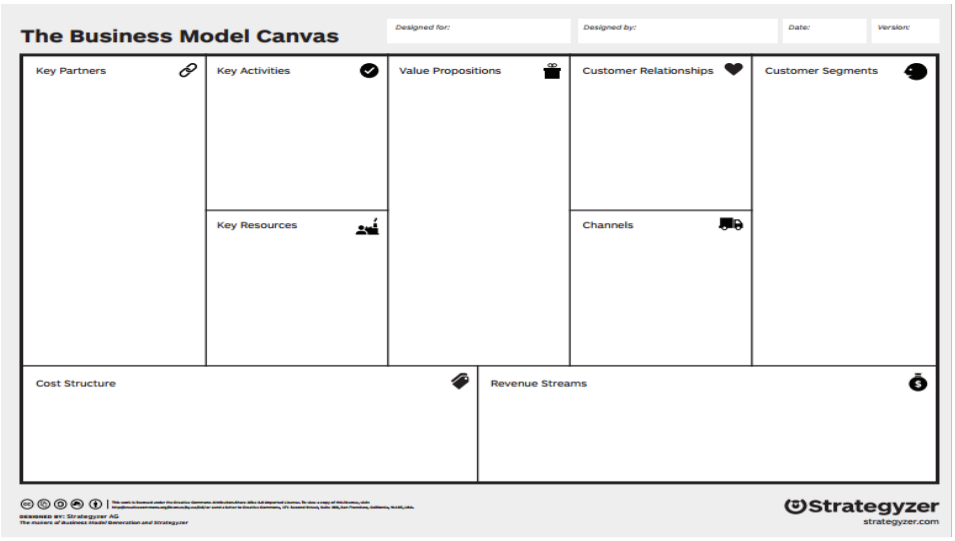
Guiding Frameworks for RQ1:

For researchers use only

What is a business model?


Fig. 4. Definition of business model.
Source: Gassmann et al. (2014).

What are the building blocks of a business model?




## Adaptability of Firms Business Model

Earlier you described your business model in your experience, which building block were you able to change / modify in order to make use on an external idea or technology? And explain Why?

- Which building block of your business model were you unable to change / modify to make use on an external idea or technology?
-
-
- And what were some of those reasons?

## What happens to external innovations once they come into an SME?

I would like you to elaborate on exactly how you go about developing your products – can you tell me more about the process you follow?

- When working with partners or an idea/knowledge or technology that originated outside your company, what occurs within the company that takes it from an idea to a product / improvement into operation?
- How does this process occur exactly?
- Who is involved?
- How long does it take to in incorporate an external innovation into the company?

## Internal Challenges and Enablers of Open Innovation

- At the time when you used externally sourced knowledge/idea or technology, what existed specifically inside your firm that made it easy to adopt?
- What were some of the reasons that facilitated that adoption?
- When you utilized an externally sourced knowledge/idea or technology, where there any specific internal challenges that made it difficult to adopt?
- What were these internal challenges specifically?
- Why do you think these existed?
- How did you overcome them?

## General

- Any further thoughts you would like to add on how your company's business model makes use of external innovations.

In conclusion, if there are no points of clarity required, let me summarize some salient concepts that emanated during this interview.

Thank you for your invaluable participation. Should you require a copy this study's findings when completed I can gladly make it available to you?

## 9.3 APPENDIX 3: List of Codes Generated (ATLAS.TI 7)

| | | | |
|---|---|---|---|
| 0 Participant Description | 1 Business Model Maturity | 1 Unproven | Birth Date of SME |
| | | | Person Interviewed |
| | | | Industry |
| | | | Number of Staff |
| | | | Province |
| | | 2 Mature | Birth Date of SME |
| | | | Person Interviewed |
| | | | Industry |
| | | | Number of Staff |
| | | | Province |
| | | 3 Diversified | Birth Date of SME |
| | | | Person Interviewed |
| | | | Industry |
| | | | Number of Staff |
| | | | Province |
| 1 Research Question 1 | 1 Unproven | 1 Positive Influencer | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |
| | 1 Unproven | 2 Negative Influencer | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |
| | 2 Mature | 1 Positive Influencer | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |

| | | | |
|---|---|---|---|
| | 2 Mature | 2 Negative Influencer | Revenue Stream<br>Cost Drivers<br>Key Resources<br>Key Activities<br>Key Partners<br>Value Proposition<br>Customer Segment<br>Customer Relationships<br>Customer Channels |
| | 3 Diversified | 1 Positive Influencer | Revenue Stream<br>Cost Drivers<br>Key Resources<br>Key Activities<br>Key Partners<br>Value Proposition<br>Customer Segment<br>Customer Relationships<br>Customer Channels |
| | 3 Diversified | 2 Negative Influencer | Revenue Stream<br>Cost Drivers<br>Key Resources<br>Key Activities<br>Key Partners<br>Value Proposition<br>Customer Segment<br>Customer Relationships<br>Customer Channels |
| 2 Research Question 2 | 1 Unproven | 1 Most Adaptable | Revenue Stream<br>Cost Drivers<br>Key Resources<br>Key Activities<br>Key Partners<br>Value Proposition<br>Customer Segment<br>Customer Relationships<br>Customer Channels |
| | 1 Unproven | 2 Least Adaptable | Revenue Stream<br>Cost Drivers<br>Key Resources<br>Key Activities<br>Key Partners<br>Value Proposition<br>Customer Segment<br>Customer Relationships |

| | | | |
|---|---|---|---|
| | | | Customer Channels |
| | 2 Mature | 1 Most Adaptable | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |
| | 2 Mature | 2 Least Adaptable | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |
| | 3 Diversified | 1 Most Adaptable | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |
| | 3 Diversified | 2 Least Adaptable | Revenue Stream |
| | | | Cost Drivers |
| | | | Key Resources |
| | | | Key Activities |
| | | | Key Partners |
| | | | Value Proposition |
| | | | Customer Segment |
| | | | Customer Relationships |
| | | | Customer Channels |

## 9.4 APPENDIX 4: Ethics Clearance Confirmation

Dear Mrs Ushal Moonsamy

Protocol Number: **Temp2016-01727**

Title: **Open Innovation in SME's: A Business Model and Internal Operations Perspective**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

Adele Bekker