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Chapter

A Conceptual Framework for Researching Disruptive Innovation and Innovative Business Models

Clive Sithole and Kambidima Wotela

Abstract

The number of entrepreneurs in South Africa and, therefore, the Total Entrepreneurial Activity is lower than expected. The absence of entrepreneurial orientation is not the problem but, rather, instead of focusing on the innovative products and services, we should focus on innovative business models that change the processes. This chapter conceptualises an appropriate conceptual framework for effectively researching disruptive innovation and innovative business models at subnational level. We employ systems thinking to interrogate literature to realise three objectives. First, to understand the root causes and consequences of low innovation in new business ventures in South Africa and more specifically Gauteng Province. Second, to uncover the knowledge gap on this subject generally and specifically Gauteng Province. Lastly, to establish the most appropriate framework in innovation and entrepreneurship studies for interpreting anticipated empirical results. Eventually, this research will detail innovativeness in new business ventures after interrogating the theoretical material and empirical data and information on disruptive innovation and innovative business models. We have sufficient theoretical grounding on this subject but not empirical grounding to support some of our assertions. Even though most of the interrogations are general, it is within the context of Gauteng Province and, therefore, we may not generalise our conclusions and proposals. We do not address how innovativeness influences policies in general and we do not restrict ourselves to any specific sector.

Keywords: 4th industrial revolution, business models, disruptive innovation, innovative business models, research problem analysis, research knowledge gap analysis, theoretical frameworks, conceptual framework

1. Introduction

Crossan and Apaydin [1] describe innovation as production, adoption, assimilation and exploitation of value-added novelty in economic and social spheres. It is also the renewal and enlargement of products, services and markets as well as development of new methods of production and establishment of new systems. This makes

innovation a process and an outcome. Further, innovation can be an original creation or a creation that is adopted or adapted from elsewhere. Successful business ventures are usually those that innovate. This is why established paradigms always relate innovation to entrepreneurship because the two concepts work interchangeably [2–4]. Therefore, one cannot study one without the other.

The number of entrepreneurs in South Africa, and, therefore, the Total Entrepreneurial Activity, is lower than expected. Such as status quo affects its economic growth and therefore, employment. The absence of entrepreneurial orientation is not the problem but, rather, the lack of focus on appropriate interventions. Rather, we argue that the entrepreneurship problem in South Africa even amongst the youth is due to low innovation. The failure to focus on disruptive innovation pitches the country against the leaders in innovation, therefore, making it less competitive. Further, instead of focusing on innovative products and services, we should focus on innovative business models that seek to change the way we do business.

Eventually, the aim of this research is to detail innovativeness in new business ventures after theoretical and empirical data and information on disruptive innovation and innovative business models. However, this paper is restricted to articulating the theoretical fundamentals to conceptualise ‘how’ the empirical part of this research may be pursued. The conceptual framework that we derive in this paper allows us to effectively research disruptive innovation and innovative business models at the subnational level. We, therefore, employed systems thinking (Section 2) to interrogate the literature for purposes of pursuing three objectives: first, to understand the root causes and consequences of low innovation in new business ventures in South Africa and more specifically Gauteng Province; second, to uncover the knowledge gap on this subject—that is, what has not been done—in general in South Africa and specifically Gauteng Province and lastly, to establish the most appropriate framework in innovation and entrepreneurship studies for interpreting anticipated empirical results on disruptive innovation and innovation models.

The literature interrogation, in Sections 3 and 4, confirms that despite being the economic hub of the continent, the fifth-most populous country in Africa and the third-largest in the Southern African Development Community (SADC) region, South Africa has the lowest number of entrepreneurs in Africa, exhibiting a low Total Entrepreneurial Activity. Second, as evident in Section 5, most past and current research have focused on the person and not the context or the environment. Further, even then we are not completely aware of the problems faced by those involved in innovation in Africa or its sub-regions. Furthermore, we are not certain of the relationship between innovation and entrepreneurship sufficiently enough to decode an effective, sustainable and efficient innovative business model. The literature shows that whilst other countries, especially Spain, have interrogated the link between innovation and entrepreneurship in new business ventures [3], there is minimal research on this subject in South Africa.

Lastly, for purposes of proposing a framework for interpreting empirical results (Section 6), we situate such research within the innovation discourse. Whilst innovation has several attributes and variables, the literature suggests that we restrict ourselves to two sets: Crossan and Apaydin’s [1] framework of organisational innovation and Booyen’s [5] factors to interrogate abilities to pursue disruptive innovation. Further, the literature points to employing the upper echelon theory, the resource-based view, dynamic capabilities and the process theory to interpret our research findings. To this list, we add the model linking innovation and entrepreneurship because it incorporates all the frameworks mentioned above on one platform.

Arising from the literature we have interrogated in Sections 3 through 6, which we sum up in Section 7, we propose that the empirical part of this research should pursue two research questions. First, what factors can enhance disruptive innovation in Gauteng Province? This should be explicitly on disruptive innovation and not innovation in general or incremental. Second, how can we innovate business models of small and medium entrepreneurs in Gauteng Province? This should explore the ways of commercialising disruptive innovation products or services beyond the conventional ways of doing business. Therefore, other than speculating on the potential of innovation within South African new business ventures, the conceptual framework this paper provides should guide an empirical research that identifies factors underlining low innovation and entrepreneurship in South Africa. With this in mind, a qualitative research strategy and a case study design should be more appropriate. This is because our focus is not the extent of the problem but rather to detail the reasons underlying the problem. We should focus on South African-owned formal (not informal) small to medium enterprises that have been running for less than 10 years and not notable South African corporate companies. Whilst we now have sufficient theoretical grounding on this subject, we do not have, at this moment, empirical grounding to support some of our assertions. Even though most of the interrogation is general, we undertook it in the context of Gauteng Province, and therefore, we may not generalise our conclusions and proposals. We do not address how innovativeness influences policies in general, and we do not restrict ourselves to any specific sector.

This is certainly an important research trajectory for three reasons. First, whilst the link between innovation and entrepreneurship seems logical and several empirical studies – for example, [2, 4] as well as [3] – are affirmative about the link, we are yet to establish how innovation (or lack of it) leads to success (or failure) of a new business venture in different contexts. Second, empirical comparative data show that South Africa's level of innovativeness and, therefore, entrepreneurialism continues to lag behind [6], but we are yet to explain why. Relatedly, why are South African entrepreneurs notably necessity-driven and opportunity-driven rather than improvement-driven? Lastly, the research will contribute to the body of knowledge on this subject in general and more specifically to the development of entrepreneurship modules in business schools. The private or business sector has realised that entrepreneurial skills provide for business creation and self-employment, making entrepreneurship modules a key contribution in business school. Relatedly, this research might provide for decision-making information for start-up and entrepreneurship incubators that provide support to small businesses and entrepreneurs. Similarly, government departments such as the Department of Small Business Development as well as government agencies such as the Small Enterprise Development Agency (SEDA) might enhance policy formulation and implementation to improve innovation and entrepreneurship in South Africa. It may also help the Industrial Development Corporation when they assess funding applications.

2. The approach

Levy and Ellis [7] in [8] describe a conceptual framework as a proposed literature-based and literature-justified approach to the research that one intends to pursue. Therefore, as [9] has argued, it is a proposed advanced strategic plan of how empirical research (data or information collection, collation, processing and analysis) will be implemented with key decisions arising from interrogating key literature on the

subject. This paper applies Wotela's [8] six-step approach to propose a conceptual framework that should guide empirical studies on disruptive innovation and innovative business models. The six steps can be grouped into three sets of activities, namely, interrogating the literature on the research problem, the research knowledge gap, and the interpretive (theoretical or otherwise) framework [8]. Therefore, these form the section headings of this paper.

3. The physical research setting; gauteng province in context

Figure 1 shows the current official boundary of South Africa and its nine provinces. The focus for this paper is Gauteng Province located towards the north-eastern side of South Africa. According to [10], it is the smallest province—covering only about 18,200 km², that is, about 1.5 per cent of South Africa's land cover. However, almost 25 per cent of the South African population (13.5 million) lives in Gauteng Province. About 75 per cent of this population is Black and 20 per cent is White, whilst the remaining (5 per cent) proportion is shared amongst Asians and Coloureds, with the latter slightly more than the former. Of importance to our



Source: Htonl

Figure 1. The map of South Africa showing its neighbouring countries and its provinces (map of South Africa with English labels" by Htonl-own work. Licenced under CC BY-SA 3.0 via commons - https://commons.wikimedia.org/wiki/File:Map_of_South_Africa_with_English_labels.svg#/media/File:Map_of_South_Africa_with_English_labels.svg).

research is that Gauteng province is not only South Africa's wealthiest province but also Africa's economic hub – contributing about 40 per cent to the country's gross domestic product [11].

Formal education has been on the increase since 1994 and had reached 30 per cent in 2008 and is currently over 40 per cent. Despite the odds, science, engineering and technology are popular subjects in the province [12]. The economic activities of Gauteng Province have all the prerequisites of making it a knowledge-based economy [11, 13, 14]. Similarly, it is proposed in the Gauteng Employment Growth and Development Strategy (GEGDS) 2009–2014 that innovation should be one of the drivers of employment through small and medium entrepreneurship [15, 16]. This is possible because Gauteng spends about half of the national budget on research and development in the country [11]. One key intervention in the innovation space is the Gauteng Science Park Incubation Programme detailed in [16].

4. Low innovation in new business ventures in South Africa

The Global Entrepreneur Monitor [6] reports that sub-Saharan Africa has the lowest number of entrepreneurs on the continent. Further, compared with other sub-Saharan African countries, South Africa has the lowest number of entrepreneurs and a lower Total Entrepreneurial Activity even though its discontinuance rate – that is, the frequency at which those who attempt opt out of the entrepreneur process – is modest. Few of these entrepreneurs turn out to be successful in their business ventures. Of interest to this research is the proportion of South African youths with entrepreneurial capability standing at 25 per cent compared with an average of 60 per cent for sub-Saharan countries.

One root cause of low innovation and hence entrepreneurship is early-stage entrepreneurial activity. **Table 1** shows the motivation index and other relative parameters for early-stage entrepreneurial activity in economies participating in the Global Entrepreneurial Monitor. First of all, early-stage entrepreneurial activity in South Africa (7 per cent) is way below the African average (26 per cent). Another parameter below the African average is the improvement-driven opportunity at 35.5 per cent for South Africa compared to about 47 per cent for the continent average. This implies 35.5 per cent of South Africans in the Total Entrepreneur Activity are motivated by improvement-driven opportunities and not because they could not find work, as well as seeking to be independent or to increase their income rather than maintaining their current income.

As implied in [17], another root cause of low innovation and hence entrepreneurship is that South Africans would rather emulate 'tried-and-tested' ideas instead of creating something new. Obviously, emulating means you are competing with the best, and therefore, the business is set up to fail. Emulating or adopting ideas is not uncommon. In Spain, the proportion of firms generating new inventions is only 7 per cent, compared with 54 per cent emulating, though a notable proportion (39 per cent) does both [18].

Underlining all this, according to Booyens [5], is a lack of policy support. There are notable talented innovators in South Africa, but legislation and interventions to nurture and support them are misaligned if not just ineffective. For example, according to [19], the current labour legislation hinders innovation as well as small and medium entrepreneurship because of its human resources processes. Then there is the collision course between various interventions and legislature. The National Development

Country/ region	Early-stage entrepreneurial activity (TEA)	Necessity- driven	Opportunity- driven	Improvement- driven opportunity	Motivational index
	% of adult population	% of TEA	% of TEA	% of TEA	
Average Africa (unweighted)	26.0	26.3	71.0	46.9	1.8
Angola	21.5	24.5	72.1	43.4	1.8
Botswana	32.8	30.3	67.2	54.7	1.8
Burkina Faso	21.7	22.3	75.3	52.8	2.4
Cameron	37.4	33.5	59.2	40.5	1.2
South Africa	7.0	28.2	71.3	35.5	1.3
Uganda	35.5	18.9	80.8	54.3	2.9

Source: *The Global Entrepreneur Monitor (2013)*. Note: Total Early-Stage Entrepreneurial Activity (TEA) refers to the total population that is about to start a business or those who have been running businesses for not more than 3 years.

Table 1.

Motivation for early-stage entrepreneurial activity in the global entrepreneurial monitor economies in 2012, by region and country.

Plan seeks to increase job opportunities by 2030, and yet SMEs shed 1.3 million jobs in 2013. Underlying this undesirable status quo are unsupportive labour laws, a weak national innovation system, a weak entrepreneurial culture, and an inability to compete with large companies that Booyens [5] raised earlier on.

5. Knowledge gap analysis: methods, data, findings and conclusions of studies on and evaluation of innovativeness in new business ventures

There are several studies worldwide on this subject in general and specifically on innovation and entrepreneur start-up rates, innovation as a strategy and how it affects performance, as well as implementation of innovation. Here we only review a selection of such studies to familiarise ourselves with what has been done so that we uncover the knowledge gap, that is, what has not been done, on this subject in general and specifically Gauteng Province. Apart from findings and conclusions, we also look out for research procedures and methods that such studies applied so that we establish some methodological options that we also can employ when undertaking the empirical part of this research.

Scholars have attempted to link innovation and firm performance. For example, [20] sought to explore and establish Tanzanian new business venture innovative activities and how this determined performance in manufacturing sector. They tracked five innovation indicators—that is, knowledge and technological information, knowledge and skills, growth performance, characteristics and capabilities and external relationships and nature of the market—over three years. Despite low levels of competition and a lack of government support or help from academic institutions, results show that new business ventures do innovate. Most support comes from fellow entrepreneurs as well as customers—this certainly needs further exploration. Further, a large number of new business ventures tend to improve on products and services initially supplied by other firms if such products or services are in demand. Therefore,

one can use a firm's innovation capability to determine its performance [21]. A study by Zott and Amit [22] found a similar result, that is, an innovative business model contributes to a firm's success.

Kropp, Fredric and Shoham's study [23] examines the interrelationships amongst entrepreneurial learning, market orientations and international entrepreneurial business venture (IEBV) performance using a sample of 396 entrepreneurs. The results show that innovativeness determines the performance of IEBVs. In addition, the results show that IEBVs that include innovative concepts in their strategies perform better than those without. Purcarea and colleagues [24] got the same results in their study on 161 Romanian Small and Medium Enterprises (SMEs) that explored SMEs' approach to learning and innovation. Their findings show that SMEs' innovation depends on their business models and strategic direction. As a result, they recommend on-going interventions that promote innovation in every industry.

Studies on the implementation of innovation in new business ventures present a wide range of results and findings, therefore, presenting an opportunity to explore this subject further. Obviously, one question to pursue is why such studies have such a diverse set of results and findings. Could it be the different contexts, or are there other attributes at play? For example, [25], whose sample comprised entrepreneurs, policy makers and academics, sought to demonstrate whether Italian entrepreneurs are drivers of radical innovation. Their research shows that the views of the entrepreneurs on this subject are different from official views. The former feel like policies that support innovation are absent contrary to views held by politicians and senior technocrats. Such findings remind us of the importance of stakeholder engagement and alignment when crafting public policies.

Robson, Haugh and Obeng [26] collected data from 496 entrepreneurs in Ghana to study innovation in new business ventures. The results confirm that Ghanaian entrepreneurs are indeed innovating their products and services. Further, their results show that the level of education has an impact on the level of innovativeness. Another obvious factor is that larger firms tend to have an advantage because they have more resources to innovate.

Anokhin and Wincent's study [27] used data collected in 35 countries from 1996 to 2002 to establish the relationship between innovation and start-up rates. Similar to earlier studies – for example, [28] as well as [29] – their results show that there is no collinearity between innovation and new business start-up rates. However, they argue that this is because the relationship between innovation and entrepreneurship depends on the country's stage of development. Therefore, measuring the relationship between innovation and entrepreneurship is not as direct. Further, the results and findings cannot be generalised because the propensity of innovation differs. Entrepreneurs in less developed countries pursue necessity-based innovation that hardly advances the innovation trajectory, whilst entrepreneurs in developed countries pursue high-end innovation. Earlier, [30] had cautioned against generalising the relationship between innovation and entrepreneurship because of added complexities presented when industries and geographical locations are different.

Using a sample of 4000 enterprises including notable corporates, the South African National Innovation Survey [31] reported that about 65 per cent undertook innovative activities. Of these, about 4 per cent reported that their innovations were not only new to the South African market but also new to the world. However, caution must be exercised when reading into these figures because the sample includes well-established corporates.

Autio and colleagues [32] use Global Entrepreneurial Monitor to explore the importance of context in innovation and entrepreneurship. They demonstrate that entrepreneurial innovation seems high, and therefore, self-employment rates in developing countries are also high. Whilst self-employment rates are lower in the developed countries, the aggregated contributions of entrepreneurs to innovation is very high. Therefore, different contexts—such as technological and industry context, organisational and social contexts, institutional and policy contexts—are interdependent and influence innovation and entrepreneurship. Indeed, small and medium enterprises do exploit new technologies to start businesses using social networks as a marketing and information dissemination platform.

In sum, there are notable detailed innovation and new venture business studies on the African continent including South Africa. For an important topic, there is minimal research focusing on the South African context with the exception of [5, 33] as well as [31]. Further, most studies have explored the relationship between innovation and entrepreneurship in new business ventures in one firm or industry. Therefore, there is a lack of cross-industry or cross-sector information on the subject. In addition, most studies have not incorporated some important factors such as determinants of innovation as well as innovation challenges faced by entrepreneurs on the continent.

Other than these knowledge gaps, there are useful frameworks as well as research procedures and methods that the empirical part of this research can benefit from. For example, [26] have interrogated innovation and entrepreneurship after understanding the Ghanaian context. Examining small businesses and entrepreneurship from a historical perspective and how it has informed the current state of innovation in Ghana provides for a detailed understanding of innovation and new business ventures. This is the light in which we should interrogate the South African experience. The question is, ‘what are we going to do about it?’

6. Established frameworks for interpreting empirical results in innovation and entrepreneurship studies

In this section, we explore and propose a framework that we can use to interpret anticipated empirical results in innovation and entrepreneurship studies. To do this, we need to identify and discuss innovation and entrepreneurship and the key components. Thereafter, we use our understanding of innovation and entrepreneurship and the key components to interrogate the literature on determinants and dimensions of innovation and the established frameworks that we can potentially use to interpret research findings. In sum, we explicitly link innovation and entrepreneurship to its key attributes and variables and, consequently, propose an interpretive framework.

6.1 An introduction to innovation

Several authors such as [1, 25, 34, 35] describe innovation as formulating and implementing creative ideas at the industry level, company level or business unit level. Innovation is employed to develop a product, improve a process, commercialise a product or service and solve a problem. Therefore, we can differentiate between (i.) administrative versus technical innovation, (ii.) process versus product innovation and (iii.) incremental versus radical innovation. We detail the last grouping because that is the focus of this research.

Incremental innovation implies improving on an existing product, service, process, technology, equipment, material, tool or portfolio, whilst radical innovation involves creating a product, service, process, technology, equipment, material, tool or portfolio that previously did not exist [30, 36]. There is great interest into the speed at which organisations enter into the technological space [37], leading to a wide range of nomenclature. This includes Freeman's [38] well-known typologies or strategies, namely: offensive, dependent, traditional, opportunistic, imitative and defensive as well as proactive versus reactive and follower versus leader. The others are prospectors, defenders, analysers and reactors [39]; entrepreneurial versus conservative innovators [40] and proactive versus reactive innovators [41].

The question obviously is, 'what is useful for the South African context?' We think it is the entrepreneurship aspect in innovation because of its business connotation. This implies some detail on the business model innovation that provides for improving the structure, competitive advantage, value proposition and ability to link suppliers and customers [42]. Therefore, rather than introducing a product or service, a business model as an innovation implies introducing new processes to become or remain market leaders. As stated earlier, a study by Zott and Amit [22] suggests that an innovative business model—efficiency, lock-in complementarities and novelty—contributes to a firm's success. A business model qualifies as innovation if and only if it provides substantial economic value such as creating additional demand or enlarging the customer base [43].

Shirky [44] has, however, argued that successful new business ventures tend to be those without a perfect business model and, therefore, are flexible, enabling entrepreneurs to adjust and change when the situation allows. Earlier, Andries and Debackere [45] had suggested that formulation and adjustment of business models should be in line with a firm's evolution and lifecycle. Therefore, formulation and fine-tuning business models should be an ongoing process so that the models meet the changing needs of markets. Teece [46] refers to such an approach to business modelling as push and pull. This approach allows entrepreneurs to project future scenarios and, therefore, anticipate possible problems way before they occur [47]. In sum, business models are key to innovation and entrepreneurship because, as George and Bock [48] have argued, they '...represent a unique opportunity to unlock the entrepreneurial process, evaluate the firm configuration effects, and describe and forecast the entrepreneurial outcomes' p461. Any good innovative idea should be supported by an innovative and suitable business model.

Two more concepts that are important are open innovation and disruptive innovation. Chesbrough [49] defines open innovation as the ability of an organisation to use '... knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively' p2. This implies explicit use of internal and external systems and technologies to create value and enhance competitive advantage. Implementing open innovation provides for increased profitability [50]. However, as Bianchi and colleagues [51] have argued, implementing open innovation in small and medium-sized enterprises is a challenge because of limited financial resources and a lack of specialised knowledge. Therefore, Hossain [52] has recommended a policy that should assist small and medium-sized enterprises to adapt and implement open innovation.

We now turn to disruptive innovation, another important term that several authors have interrogated, and therefore, as Markides [43] argues, it is a debatable terminology. The literature is clear that entrepreneurs have a choice to either establish a business based on a new idea or emulate what other businesses are doing. The

former is disruptive because a new idea or technology can cause new waves or change habits in the market. Therefore, disruptive innovation is a new product, service, process, technology, equipment, material, tool or portfolio that emerges and threatens to replace the existing one [53]. Alternatively, it can be a successful product, service, process, technology, equipment, material, tool or portfolio that allows an organisation to change competitive rules or create new trends [54]. Disruptive innovation has two main features. First, it provides simplicity, affordability and an unexpected replacement of the status quo. Second, disruptive innovation is an ongoing gradual process and takes time to eventually change the way things are done, customer mind-sets and consumer preferences [55].

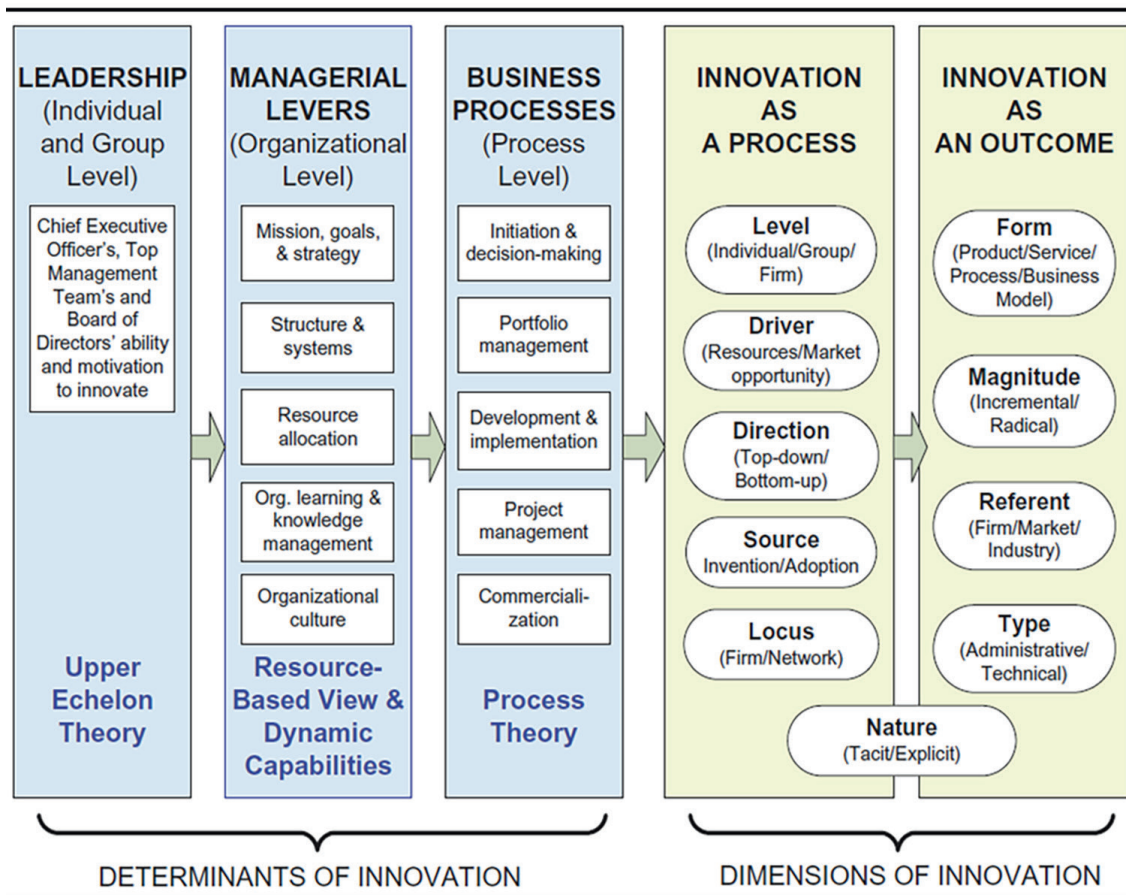
Thormond, Herzerg and Lettice [53] have suggested a four-stage disruptive or radical innovation cycle, that is, opportunity recognition (generating and refining ideas), opportunity development (creating credible business cases), solution development (selecting compelling business cases and formulation long-term action plans) and exploitation. The last stage involves selecting marketing channels, distribution methods and investment decisions. Further, [53] point out that disruptive innovation might be an effective starting point for new business ventures. However, like open innovation, lack of funding might stifle adequate research on the idea. Other barriers include insufficient knowledge on the industry, reliance on customer perceptions and inability to challenge the innovation status quo. In sum, innovations arise from different circumstances and result in varying competitive advantages. Therefore, one has to exercise caution and not just group them into one category or under the same description.

6.2 Determinants and dimensions of innovation

Some factors, attributes, variables or determinants—internal or external within a given context—can increase an entity's capability to innovate, whilst others inhibit innovation. **Figure 2** presents Crossan and Apaydin's [1] framework of organisational innovation. More broadly, the figure has innovation classified into (i.) leadership as well as institutional and organisational arrangements for innovation, (ii.) innovation as a process, and (iii.) innovation as an outcome. Further, note that leadership as well as institutional and organisational arrangements for innovation provide for determinants of innovation—grouped at the individual and group level, organisational level and process level—whilst innovation as a process and innovation as an outcome provide for dimensions of innovation. The determinants of innovation include frameworks—upper echelon theory, resource-based view, dynamic capabilities and process theory—that one can use to interpret empirical results emanating from an innovation and entrepreneurial study.

Several authors have discussed the determinants of innovation including those presented in Crossan and Apaydin [1]. For example, Tipping and Zefran [56] as well as Hossain [52] argue that using an explicit innovative strategy, the mission, goals and strategy of new business ventures should be aligned to their absorptive and desorptive capacities. Absorptive capacity implies the ability to sense, apply and utilise newly acquired knowledge, whilst desorptive capacity implies being able to use external knowledge to one's advantage [57]. Such integration embeds innovation in the day-to-day activities of an organisation.

Earlier, Hausman [58] has argued that the close relationship between entrepreneurs and their customers in small businesses allows for quick reaction to customer needs and market demands. However, this does not give them an upper hand because



Source: Crossan and Apaydin's (2010)

Figure 2.
 Crossan and Apaydin's [1] framework of organisational innovation.

they still lag behind in product innovation and technology adoption [59] probably because they also need human and financial resources and market influence to innovate more effectively [59, 60]. However, as Rosenbusch, Brinckmann and Bausch [60] have also argued, excessive resource allocation to an innovation idea without the capability to turn the idea into a viable offering can affect venture performance negatively. Therefore, apart from developing an innovative product or service, a new business venture should take a holistic strategic approach towards innovation orientation – including business modelling [61]. This will lead to an effective allocation of resources, creation of ambitious goals and nurturing of a long-term sustainable innovation culture.

Further, Rosenbusch, Brinckmann and Bausch [60] have argued that innovation orientation adopted by the entrepreneur and a focus on innovation outputs influence innovation. New business ventures with a strong approach towards innovation orientation are able to transform ideas into innovative offerings. Further, Croissan and Apaydin [1] state that knowledge management provides documenting generation of ideas and innovation systems for future reference. The leadership of an organisation can use cultural arrangements to create an enabling environment and encourage taking risks and trying new ideas.

Also, Cooper and colleagues [62] have discussed portfolio management with particular focus on the return on investment and risk. They argue that effective strategic management of resources through careful selection of projects to pursue as well as

foresee what the organisation should look like in the future is a key determinant of innovation. Similarly, Bessant [63] has also discussed project formulation, implementation and management as key determinants of innovation. Formulation should involve modifying or adjusting an idea as well as trying it out first before the actual roll-out. Implementation and management should effectively attend to transforming inputs or ideas into actual innovation deliverables using a variety of tools including problem-solving cycles. Adams and colleagues [64] have discussed commercialisation and marketing to turn innovation activities into commercial value. Though important, this determinant is usually outsourced.

Crossan and Apaydin [1] provide for the self-evident dimensions for measuring innovation processes, which include level, driver, direction, source and locus as well as nature, which is also a dimension for measuring innovation outcomes. The dimensions for measuring innovation outcomes include form, magnitude, referent and type. According to Gopalakrishnan and Damanpour [34], the focus of the magnitude and referent dimensions is the degree of newness or originality of an idea and if adapted, then 'is the change incremental or radical?' It is the latter change that gave rise to the 'disruptive innovation' terminology. The technical typology dimension includes product and process specification, whilst the administrative typology dimension is centred on organisational structure and human resources.

Another important determinant, probably just implied by Crossan and Apaydin [1] if not missing, is technology. Ndabeni [33] points out that technology and, therefore, consumer preference and demand are changing faster than before. Therefore, to sustain new business ventures and remain competitive, small and medium entrepreneurs should adapt their business approaches to embrace technology [65]. For this reason, Ndabeni [33] has argued that only if they can embrace technology, South African small and medium entrepreneurs can generate employment and increase economic endogenous growth – that is, growth in the long run driven by technological factors and knowledge [66].

Much more contextualised, Booyens [5] has proposed six determinants or rather factors that enhance innovation in a firm – that is, (i.) educated or skilled labour workforce; (ii.) creativity, personal attributes and entrepreneurship; (iii.) investment in research and development; (iv.) knowledge systems; (v.) knowledge networks as well as (vi.) public support to private innovation. Obviously, *an educated or skilled labour workforce* is an essential ingredient in innovation efforts because of its potential to generate and improve upon knowledge [5, 67, 68]. Without a doubt, *creativity, personal attributes and entrepreneurship* provide for innovation [5]. This explains the heightened focus on how psychological foundations, skills and knowledge influence innovation [69]. Further, Schumpeter's 1940 theory of business cycles and development is categorical on the role of entrepreneurship in innovation [5, 70].

Booyens [5] states that *investment in research and development* is the backbone of innovation and provides for detailed exploration of solutions to key societal problems. Unfortunately, there is little or ineffective innovation in the South African manufacturing sector largely because of minimal financial and human resource investment in research and development [68]. According to Wolf [71], *knowledge systems* include creating an 'appropriate incentives regime to correct market and institutional failures in capturing technological knowledge and learning, including policy planning for the economy's long-term competitiveness' p4. As Booyens [5] points out, this certainly fosters innovation. Similarly, *knowledge networks* amongst producers, creators and users provide for transfer of knowledge, which is an important determinant of innovation because it facilitates information exchange and collaboration.

Further, Booyens [5] asserts that to be meaningful, any innovation output should be economically viable, and this entails marketing and commercialisation of the innovation to attract *public support*. One also hopes that the financial gain is rechannelled into research and development. In sum, the output should be turned into an outcome. Oerlemans and Pretorius [68] have found no relationship between innovation outputs and innovation outcomes. Moving on from theory to practice, Cordeiro and Vieira [72] have discussed barriers to innovation in different European countries and one African country (Uganda). Generally, they point out internal (within the organisation) and external barriers (outside the organisation). More specifically, they point out the government regulatory environment, economic and financial factors, as well as human resources as constraints to innovation. **Table 2** shows a comparison of barriers to innovation across 14 selected countries including South Africa. Common barriers to innovation across countries include a limited or an absent regulatory environment and internal factors.

6.3 Established frameworks in innovation and entrepreneurship studies

Our discussion of established frameworks in innovation and entrepreneurship studies is incomplete if we do not include Schumpeter's 1940 theory of business cycles and development in which he points out innovation and entrepreneurship [70, 73] to

Country	Barriers to innovation
Brazil	Inadequate market access, risk in human resource allocation
Cyprus	Weak research and development activities, lack of funding, government bureaucracy
Czech Republic	Long payback periods, lack of legislation support, low consumer response, fear of risk
France	Lack of funding, resistance to innovation, low appetite for innovation from the consumer
Germany	Cost implications, bureaucracy within small and medium enterprises, lack of strategic co-operation between enterprises
Iran	Low funding on innovation also linked to high costs in innovation initiatives, poor response to innovation by the consumer and skill shortage
Italy	High financial risk, scarcity in information technology, regulatory requirements
Portugal	Organisational structures, absence of market leadership thinking, high risk associated with innovation, government regulation and lack of innovation skills
Spain	External environment, cost implications, knowledge deficiency on technology, lack of demand for innovative ideas
Switzerland	Limited skills, regulatory (legal) restrictions, lack of support in innovation education
Turkey	Inadequate policy support, lack of investment on innovation, skill shortages
United Kingdom	Risk aversion, poor market knowledge, difficulty in innovation timing
Uganda	Domestic market complications, non-supportive policies, bureaucratic regulatory requirements
South Africa	Lack of access to finance, rigid market structures, non-supportive regulatory environment, weak entrepreneurial culture, skill shortage (Wolf 2006, Herrington and others 2008)

Source: Cordeiro and Viera [72].

Table 2.
Barriers to innovation in different European countries [72].

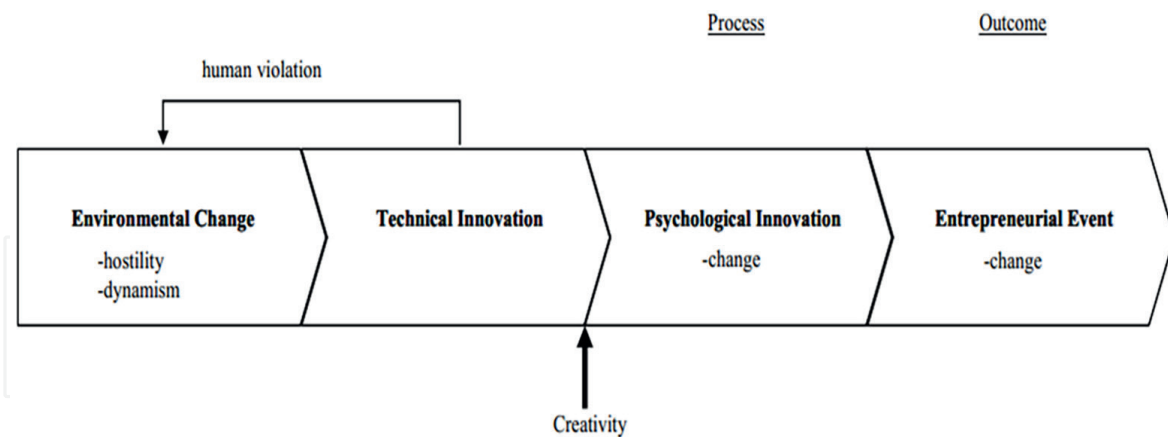


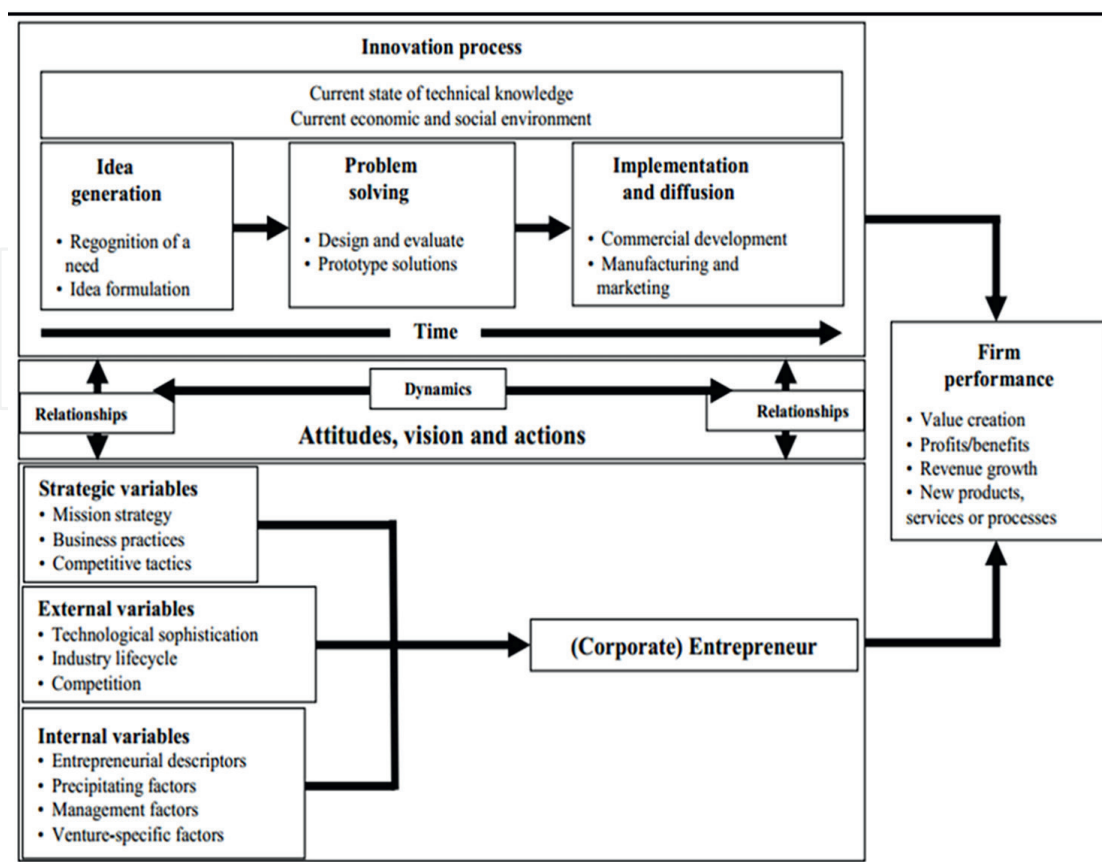
Figure 3.
Brazeal and Herbert's [75] model of the entrepreneurial process.

be the 'central feature of economic development' p96 and, as Sledzik [74] points out, the 'gales of creative destruction'. Further, an entrepreneur should reform and revolutionise production by exploiting inventions and untried technology. His framework is synonymous with the theories on disruptive innovation. **Figure 3** presents Brazeal and Herbert's [75] model of the entrepreneurial process, which links innovation and entrepreneurship. The emphasis is that innovation and entrepreneurship should complement each other because 'innovation is the source of entrepreneurship and entrepreneurship allows innovation to flourish' p13 [76].

There are also other established frameworks on innovation and entrepreneurship. For instance, Audretsch and Feldman [67] have argued that small and medium enterprises drive innovation in some industries. Further, Mahemba and De Bruijn [20] provide two useful frameworks—that is, *innovation and its adoption process* as well as *model of innovation activities of Small and Medium Entrepreneurs (SMEs)*. The former examines the key innovation process and activities, the summative products of innovation and the newness of innovation. Other important attributes of this framework include how the external environment influences generation and adoption of innovation. The latter – *model of innovation activities of SMEs* – examines how existing entrepreneurial characteristics and capabilities influence innovativeness. The other key attributes and variables include size of the market, knowledge and technological information.

Figure 4 is a model linking innovation to entrepreneurship. In this model, McFadzean and others [77] demonstrate how an organisation's performance is determined by its innovativeness and entrepreneurial capabilities via a combination of external and internal variables as well as the entrepreneur's attitudes and actions. The innovation process comprises idea generation, problem solving as well as implementation and diffusion. Whilst the entrepreneur component comprises strategic variables, external and internal variables, linking up innovation and entrepreneurship requires positive attitude, strategic vision and effective actions. Key to this framework is that innovation should be the output leading to entrepreneurship (the outcome), and yet in South Africa, there seems to be an emphasis on entrepreneurship.

Crossan and Apaydin's [1] determinants of innovation include four frameworks – that is, the upper echelon theory, resource-based view, dynamic capabilities and process theory – that one can use to interpret empirical results emanating from an innovation and entrepreneurial study. Hambrick and Mason [78] pioneered the upper echelon



Source: McFadzean and others (2005)

Figure 4.
 McFadzean and colleagues [77] depiction of the relationship between innovation and entrepreneurship.

theory, which postulates that one can use managerial characteristics, especially those of top management, to predict or estimate an organisation's performance. These characteristics, which include age, tenure and prior experience, influence how these individuals formulate and implement business strategies to influence the financial position of the organisation [79, 80]. However, Carpenter, Geletkanycz and Sanders [81] have argued that this framework is limited because it is centred on the demographic parameters of management. It inherently ignores other important aspects such as power, executive celebrity status and networks that also affect an organisation's financial performance. Further, some managers make decisions that reflect aspirations rather than past experience.

The resource-based view (RBV) probably dates back as far as 1930s. However, available documentation shows that it was originally coined by Edith Penrose in 1959 [82]. Later on, other scholars including Hamel and Prahalad [83] as well as Barney [84] strengthened its argument and incorporated it into strategic management. As the name suggests, the fundamental argument of this framework is that organisations use their internal strategic resources to improve their competitive advantage. These resources can be tangible or non-tangible and should be mobile and heterogeneous. Kraaijenbrink and colleagues [85] point out that the resources should be valuable, rare, costly to imitate and organised to capture value. The RBV provides for an immediate-face-validity, and it's simple to understand and implement. However, it does not emphasise the role of managers and focuses on internal resources and capabilities, therefore neglecting the contribution of the manager's ability to mobilise

external resources [86]. Further, it is difficult to generalise this framework across different organisations, and it is mainly applicable to large organisations with a large market share and financial power [85].

The strategic management literature shows that Pisano, Teece and Shuen [87] coined the dynamic capabilities framework. It follows on the resource-based view to articulate that an organisation has the ability to integrate internal and external resources in response to changing business conditions. It provides for managers to '... extend, modify, and reconfigure existing operational capabilities into new ones that better match the environment' p239 [88]. When implemented in a stable conducive business environment, the framework enhances performance [89]. However, the framework provides for improving on competitiveness only, and even then, this is not guaranteed because there are other factors to consider, and results only show in the long run [90].

Harre and Madden [91] coined the process theory, which stipulates that (i.) similar inputs transformed by similar activities produce similar outputs and probably outcomes provided that (ii.) key, constant necessary conditions are present. Its use of probabilistic information on inputs and activities to predict certain outcomes under necessary supportive conditions [92] constitutes its strength. Therefore, as Van de Ven and Poole [93] have argued, a process identifies and describes generative mechanisms that lead to actual outputs and outcomes as well as anticipate diversions and accompanying contingencies. Unfortunately, the framework assumes unattainable perfect conditions and a conducive environment where inputs and activities are aligned. Another drawback is that the theory requires one to have an understanding of events and patterns in order to fully apply it.

7. Innovativeness in new business ventures: a conceptual framework

Eventually, the aim of this research is to detail innovativeness in new business ventures. To avoid being too ambitious, we narrow our target to Gauteng Province, being the economic hub of South Africa. Regardless, we can with caution apply the findings to other South African provinces and not only to the Southern African Development Community (SADC) but also to some parts of the African continent. This is more so with the content of this paper which articulates the theoretical fundamentals to conceptualise 'how' the empirical part of this research may be pursued. Obviously, unravelling that undertaking implies reviewing the literature to derive the conceptual framework that should guide the empirical part of this research. Effectively, a conceptual framework is a systematic summary of and decisions based on the literature reviewed in this paper. By default, this section also serves as the conclusion of the paper. **Figure 5** is a summarised visual representation of what we have discussed in this paper, and it also proposes how the empirical part of this research should proceed based on the literature reviewed.

Obviously, our pursuit is to decode determinants of low innovation in new business ventures in South Africa generally but more specifically Gauteng province. First of all, the physical research setting (Gauteng province) is the economic hub of not only South Africa but the African continent. As its name—place of gold—suggests, it is a mining region, and its economic base, which includes finance, manufacturing and technology sectors, was initially built around supporting its mining sector. There is no doubt that this province is a good candidate for such a research because it represents regions that have advanced in terms of innovation and entrepreneurship to provide us with data, information and knowledge on the status quo. Of course, we are mindful

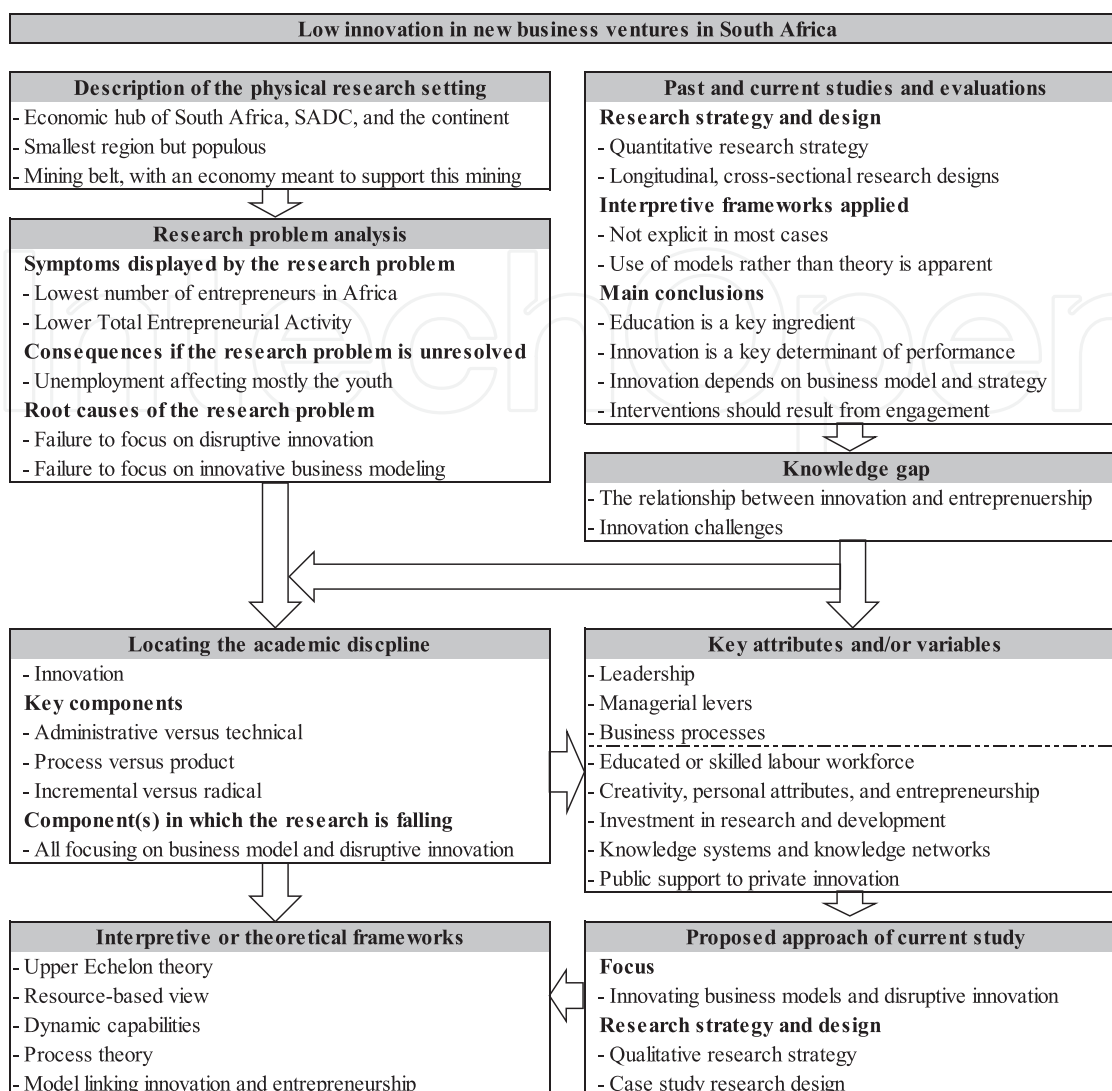


Figure 5. A conceptual framework to guide empirical studies on disruptive innovation and innovative business models.

that focusing on a region that is less advanced would provide meaningful contribution on how we should advance. Regardless, the physical context or setting is important to detail because it affects development in general and specifically innovation as well as innovativeness in new business ventures. In our case, understanding the context helped with understanding the research problem as well as decide what would be the best research procedure and methods.

Second, despite being the fifth-most populous country in Africa and the third-largest in the Southern African Development Community (SADC) region as well as the economic hub of the continent, South Africa has the lowest number of entrepreneurs in Africa, and its Total Entrepreneurial Activity is low, such that status quo affects its economic growth and, therefore, employment especially amongst the youth. As a result, we cannot emphasise enough that innovation and entrepreneurship should be encouraged. The absence of entrepreneurial orientation – defined as an intervention that provides organisations to launch new ventures [94] – is not the problem. Rather it is the focus of these interventions. We propose that it is the failure to focus on disruptive innovation pitches ourselves against the leaders in innovation that makes us less competitive. Further, instead of focusing on

innovative products and services, we should focus on innovative business models that seek to change the way we do business.

Third, though not explicit in most articles, most authors employed a quantitative research strategy and either a cross-sectional or a longitudinal research design. Similarly, the frameworks used to interpret their research findings are implicit, although it is clear that models rather than theories are employed. The two obvious points from the literature are that education is key to innovation and consequently entrepreneurship [26]. We, therefore, cannot divorce the poor state of mathematics and sciences in South Africa from innovation because they provide the much-required logic. Second, there is no doubt that innovation is key to performance and economic growth. However, and third, we should be mindful that this is not restricted to the innovation of products, services, technology, equipment, material and tools but more so to innovative business models, processes and portfolios – in short, how can we solve the problem of entrepreneurship failure as well as commercialise the products and services innovatively [1, 34, 35]. Lastly, the literature has focused on the person and not the context or the environment. Massa and Testa's [25] is a classic description of the African challenge. We have problems without solutions, on one hand, and, on the other, solutions without problems because there is little engagement, at least empirical and robust, with those affected. Interventions should be results-based. Key to this integration is that other than at a theoretical level, we are not sure about the relationship between innovation and entrepreneurship sufficiently enough to decode an effective, sustainable and efficient innovative business model. Further, what can we say are the challenges faced by those involved in innovation?

The literature—such as Christensen and Raynor [55], McFadzean and colleagues [77], Brem, [76], as well as Moses and others [31]—is quite clear that innovation is important for economic growth and employment creation for Gauteng Province if not the nation and the continent. Further, the literature has provided for understanding our research questions and exposing the knowledge gap and therefore, the two questions that empirical research should pursue. The first question – what factors can enhance disruptive innovation in Gauteng Province? – should be explicitly on disruptive innovation and not innovation in general or incremental. The second question – how can we innovate business models of small and medium entrepreneurs in Gauteng Province? – pursues ways of commercialising disruptive innovation products or services beyond the conventional ways of doing business.

Fourth, for purposes of proposing a framework for interpreting empirical results, we situate this study within innovation studies. Almost all the key processes – that is (i.) administrative versus technical, (ii.) process versus product and (iii.) incremental versus radical [1, 34] – are important. Much more specific, we should be looking at innovative business models as well as disruptive innovation.

Fifth, and merely a continuation of fourth, what attributes or variables should we focus on to interrogate innovative business models as well as disruptive innovation. Obviously, innovation has several attributes and variables, but we restrict ourselves to two sets. Crossan and Apaydin's [1] framework of organisational innovation provides useful attributes (leadership, managerial levels and business processes) that we can interrogate to study innovative business models especially managerial levels that provide for an explicit innovative strategy, mission, goals, and strategy of new business ventures aligned to their absorptive and desorptive capacities [52, 56]. The other set is Booyen's [5] factors to interrogate abilities to pursue disruptive innovation. These include educated or skilled labour workforce; creativity, personal attributes and entrepreneurship; investment in research and development; knowledge systems;

knowledge networks and public support to private innovation. With this in mind, we opt for a qualitative research strategy and a case study design to guide information collection, collation, processing and analysis. This is because our focus is not to extend but to detail the reasons underlying choice and processes of innovation ideals in business models as well as disruptive innovation.

Lastly, we propose employing the upper echelon theory, the resource-based view, dynamic capabilities and the process theory to interpret our research findings. To this list, we add the model linking innovation and entrepreneurship because it incorporates all the frameworks mentioned above on one platform. Ideally, we are looking to support disruptive innovation whose products and services can be commercialised using innovative business models.

8. Conclusion

Post-apartheid South Africa has probably put the wrong foot (entrepreneurship) in front of innovation, and yet the latter is fundamental. We argue that the emphasis should be innovation particularly disruptive and open innovation ahead of entrepreneurship. An emphasis on entrepreneurship is wrong because it implies defaulting to incremental innovation and hence competing with the pioneers of the product or service. It could be this lack of competitive edge that explains the high failure rate or discontinuance rate of South African new business ventures. The problem of innovation should be looked at in the light of the mathematics and science challenges the country is facing. Could it be that if we resolved this then innovation particularly disruptive innovation will also fall in place? Second, focusing on the product or service and neglecting innovation in the way we do business implies we can have an output but not the outcome. In this sense, the outcome should be commercialising the product or service arising out of innovation. In this case, then we need innovative business models that speak to the context. In this paper, we argue for disruptive innovation and innovative business models.

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Conflict of interest

The authors declare that they have no financial or personal relationships which have inappropriately influenced them in this research or writing this article.

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