A bibliometric analysis of the development of business incubation literature in South Africa

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ABSTRACT

The study analyzes the development of business incubation literature in South Africa. The VOSviewer software was used to perform the bibliometric analysis of 44 articles on business incubation in South Africa conducted between 1996 and 2023 that were obtained from the Scopus database. The study has also revealed literature on business incubation started to appear in 1996 in South Africa. The study’s keyword co-occurrence analysis also revealed that the following words had the most occurrences and were clustered into the following: entrepreneurship and business incubation, business incubators and effectiveness, entrepreneurial education and informal Business, SMEs and start-up, business and sustainability, and business development and competitiveness. The study sorts the articles based on the following indicators: number of documents published in a year, eminent authors and keyword co-occurrence, which identified six categories of the most prominent research themes being covered by articles reviewed. The study only used articles that were written in English language only. Therefore, future research should consider articles written in other languages and expand the study to other regions, continents, and even global scale.

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Introduction

Business incubators have their roots in the 1950s and 1960s but their activities climaxed in the 1990s (Muriithi, Ndegwa & Juma, 2018) and today, they are found in almost every world city and the concept has become a global phenomenon. The purpose of the business incubation programs when they started was to offer advice and venture capital to start-up businesses (Msimango-Galawe & Hlatshwayo, 2021). Entrepreneurial incubation in South Africa has been growing in significance over the past decade as the country recognises the importance of fostering innovation, job creation, and economic growth through startups and small businesses (Lose & Tengeh, 2015; Van der Spuy, 2019). South Africa has adopted business incubation as a tool to strengthen the economy through SMEs (Dubhilela & van Schalkwyk 2014; Rens et al., 2021).

Business incubators are essentially organisations that assist in increasing survival rates of innovative start-up companies and supporting entrepreneurial ventures. Business Incubators (BIs) are organizations which are designed to grow and nurture SMEs through the early stages to become self-sustainable (Adelowo Caleb, Olaopa & Siyanbola, 2012; Meyer, Arntzen-Nordqvist & Alsos, 2020; Schwartz & Hornych, 2008; Shih & Aabo, 2019). Hence, in South Africa they have and are being established in order to address the problem of small business failure and unemployment (Lose, 2021). Incubators provide various support services to early-stage companies, helping them develop their business ideas, products, and services into viable and sustainable ventures. Business incubators are generally operated by universities, private-sector business, economic development agencies and local governments.

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South Africa’s national Department of Trade and Industry recognizes business incubation as a viable tool to help SMMEs grow and become successful and globally competitive enterprises with the potential to create jobs, alleviate poverty, empower previously marginalized groups and thus, contribute to the growth of both national and local economic development (Ndabeni, 2008; Timm, 2012; Hewitt & Van Rensburg, 2020). There is evidence that business incubators play a critical role in the success of entrepreneurship (Ndabeni 2008; Li, Ahmed & Qalati, 2020; Masutha & Rogerson 2014). In South Africa, entrepreneurship offers a solution to the high unemployment rate (31.9%) and it supports economic development to eradicate poverty and crime while uplifting the standards of living (Magudulela, 2023).

Business incubators help to combat a number of factors that contribute to the failure of entrepreneurial ventures, these include: education and training, limited resources, negative individual mindsets, isolation from markets, being unaware of potential, and a few income-generating activities (Choto, Tengeh, & Iwu., 2014; Lose, 2019; Nilamelle 2015). This has therefore, drawn mounting interest to support the construction of a network of private and public business incubators in order to reduce the high mortality rates which are experienced by start-up SMMEs. National and sub-national levels of government are therefore, engaged in seeking to use business incubators as part of broader policy thrusts to upgrade the role of the SMME economy in national (and local) economic development programs particularly for employment creation. According to (Schutte, 2019) incubation has thus been identified by the South African government as a priority project to assist entrepreneurs and owners of small businesses to start-up and run their enterprises successfully. The most common motive for the South African government to support business incubator programs relates to issues of employment creation, alleviation of poverty, transfer of technology, acceleration of business growth, the reduction of the mortality rate of SMMEs, the empowerment of specific groups of entrepreneurs, value creation for stakeholders, urban and rural regeneration, and the revitalisation of local economies (Hewitt & Van Rensburg, 2020; Masutha & Rogerson, 2014).

Incubation draws strength from the fact that it has provided lasting solutions to entrepreneurial problems and has given a new level of confidence to start-ups and new ventures in relation to issues around survival, growth and support. In South Africa, some of the notable studies have investigated the competitiveness of business incubators (Lose, 2021), contribution of small business incubators to the development and promotion of small, medium and micro enterprises (Hewitt & Van Rensburg, 2020; Ndabeni, 2008) challenges faced by business incubators (BIs) as they strive to support their clients. Masutha and Rogerson (2014) also examined the evolution of policy towards business incubation, current progress, institutional issues and emerging geographies of business incubators as part of the unfolding band dynamic SMME policy landscape in South Africa. Even though the above tries to show the interest of various researchers in business incubation in South Africa, there is dearth of literature and studies that show the tendencies and development of literature in business incubation in South Africa. Furthermore, there is also needs to also explore the trends in the development of business incubation regarding the prominent authors and keywords that appear among different published documents using a research database such as SCOPUS. Central to this study is to explore the tendencies and development of the literature on business incubation in South Africa.

Literature Review

The history of business incubators began in 1956, Massey-Ferguson, the largest industry in Batavia, N.Y., closed, leaving vacant an 850,000 square foot complex of multistory buildings and driving unemployment to more than 20 percent (Khuzwayo, 2015). Frank Mancuso, who is known as the —father of business incubators was quoted as telling the story of how the first incubator originated (Lose, 2019; Kmetz, 2000). The researcher further mentions that, a small town in New York experienced significant job losses due to the relocation of many manufacturing industries to the south and west coast of the country. A chicken incubator that once hosted several poultry growers was left vacant and Mr. Mancuso, who was then the mayor, decided to turn the vacant building into a place where entrepreneurs could start up their businesses (Kmetz, 2000).

A nominal rental fee was charged to entrepreneurs, who also received shared phone services. This fundamental notion served as the cornerstone of business incubation and is still relevant in many contemporary incubator models. In South Africa, business incubation is a new phenomenon that emerged in 1995 as part of the Small Business Development Corporation (SBDC) and township hives to develop the small business sector (Buys & Mbewana, 2007; Lose & Kapondoro, 2020). These hives were in townships and gave entrepreneurs access to existing infrastructure, such as telecommunications and power, as well as enabling the link between start-up and established enterprises (InfoDev, 2010; Lose, 2019). Through this process, large firms were encouraged to engage with small businesses by proving mentorship and access to market opportunities (Tembe, 2019). The author further indicates that, it was only during the early 2000s when the business incubator phenomenon gained popularity through a government intervention called Godisa. The program was intended to achieve goals laid out to support small businesses (Buys & Mbewana, 2007; Lose & Kapondoro, 2020). The Godisa intervention was crucial because it was an opportunity to test and pilot a model which could be applicable to growing start-ups in South Africa (Buys & Mbewana, 2007; Lose, 2019).

Since then, a variety of business incubators have been established, sponsored by the national government. However, the private institutions also became interested in supporting small businesses (Lose, 2019). The researcher further revealed that findings suggest that the main objective of business incubators established by the public sector are concerned with widening economic participation, closing the skills gap as well as creating job opportunities. By contrast, most private sector incubators focus on increasing turnover and profit margins for the small businesses (Hewitt & Van Rensburg, 2020; Masutha & Rogerson, 2014). However, the main challenge of setting up business incubators relates to extensive financial and human capital requirements and, due to the lack of
sufficient resources by the government, there have been debates about how to best scale the business incubator model (Lose, 2019; Timm, 2011). This challenge is common among emerging economies; other challenges relate to finding the right human capital to manage incubation spaces, a weak entrepreneurial ecosystem and lack of access to the relevant networks required to boost the small business through seed capital. Moreover, there is a fear of failure culture, stifled and bureaucratic regulations and laws that create an unfavorable environment to do business (Stefanović, Devedžić & Eric., 2008; Zhou & Zondo, 2023). Therefore, the DTI, through the Incubation Support Programme (ISP), has engaged in collaborative efforts to drive private-public partnerships to ensure that incubators contribute towards sufficiently developing small businesses which will ultimately move the economy forward (DTI, 2012; Lose, 2019). However, the fundamental question to ask still relates to whether the expansion of business incubators by the public and private sector will be able to contribute towards increasing the number of ventures which will ultimately contribute positively to growing the economy and producing more jobs over time (Lose, 2019; Timm, 2011).

Across a range of both developed and developing countries, small business incubators have been identified as potential strategic tools for helping to grow a country’s entrepreneurial base while reducing the high mortality of SMMEs (InfoDev, 2010). In the most mature case of the USA, the initial business incubators “were the instrument of urban renewal and community development” (Jang, 2009:16). Overall, as is argued by Al-Mubarak and Busle, (2013) business incubators are viewed by many governments as a “vibrant tool for nurturing innovative ventures regarding economic development and job creation, and as critical components of entrepreneurial infrastructure”. There has been rapid growth in the number of incubators in both developed and developing countries, starting in the mid-1980s in developed countries and in the mid-1990s in developing countries (Akçomak, 2009; Sanyal & Hisam, 2018). The researcher further mentions that in addition, different types of incubators have developed over time, starting from classic business incubators to university incubators and sector-specific incubators, to venture and corporate incubators. Since the country’s 1994 democratic elections, the national government of South Africa has introduced several new national support programmes intended to assist entrepreneurship development and the advancement of Small, Medium and Micro-enterprises (SMMEs). The White Paper on Small Business in 1995 and the corresponding National Small Business Development Act of 1996 highlight the role of SMMEs in the South African economy. Under the umbrella of the Department of Trade and Industry (DTI), two agencies, namely the Ntsika Enterprise Promotion Agency and Khula Enterprise Finance, were founded for the provision of non-financial or business development services and the support of a range of retail finance intermediaries respectively that would deal directly with the SMME entrepreneurs (Zhou & Gumbo, 2021).

Conceptualization of Labels

Bibliometric analysis

The study used the bibliometrics analysis which incorporates both quantitative and qualitative aspect of literature (Baker, Pandey, Kumar & Haldar, 2020). Bibliometric analysis examines bibliographical material from an objective, quantitative perspective, which is useful for organizing information in a specific thematic field (Merigó, Mas-Tur & Roig-Tierno, 2015). Bibliometric analysis is also a form of scientific publication analysis that evaluates developments in knowledge of a specific subject and assesses the scientific quality and influence of works and sources (Albort-Morant & Ribeiro-Soriano, 2016; Bouyssou & Marchant, 2011; Daim, Rueda & Martin, 2006; Deyanova, 2016). To perform the current bibliometric analysis of research on business incubators, this study analysed the most prolific authors, the most common topics, the relevance of topics in South Africa.

Choice of database

The study first identified databases and decided which best met the study’s requirements. The study used the Scopus database. It is the largest database of peer-reviewed literature, and it is owned by Elsevier. The study analyzed articles from 1996 to 2023 because the first scientific publication on business incubators in South Africa appeared in 1996. Figure 1 below shows how the template was used for the inclusion and exclusion criteria for the documents that were used to conduct the bibliometric analysis of business incubation in South Africa.
Indicators

Cadavid Higuita, Awad & Franco Cardona (2012) define three types of indicators. The first indicator is quantity, which measures productivity in terms of number of publications. The second indicator is quality, which measures the impact of a publication in relation to the number of citations that publication receives. Finally, the structural indicator measures the relationships between publications. The bibliometric indicators this study used were quantity and quality indicators because the study sought to measure how interest in business incubators has grown in recent years.

Results

The scope of this analysis covers all documents, in English language and the South African territory only since the study sought to explore the tendencies and development of the literature on business incubators in South Africa. The study analyzed articles from 1996 to 2023 because the first scientific publication on business incubators in South Africa appeared in 1996 on the Scopus database.

Documents publication by year

As shown in figure 1, business incubation in South Africa started to appear in academic research from the year 1996. Fig. 1 shows that from the year 1996, to the year 2006 there was lack of business incubation on the Scopus data base. This corresponds with the explanation that, in South Africa, the business incubation phenomenon emerged in 1995 as part of the Small Business Development Corporation (SBDC) and township hives to develop the small business sector (Buys & Mbewana, 2007). From the year 2006 to 2012, the growth was moderate and from the year 2013 going onwards the publications generally increased, even though the growth decreased 2017 and 2018 with eight publications being recorded in the year 2021. The increase in publications from 2007 may be due to the role of business incubators as a business creation tool, and by extension, as means of job creation.
Documents by author

The study also analysed the most productive authors with regards to business incubation in South Africa. Figure 2 shows that Lose stands out as the prominent author with seven publications (Lose & Khuzwayo, 2021; Lose, 2021; Lose & Kapondoro, 2020; Lose, Yakobi & Kwahene, 2020; Lose, Tengeh, Maziriri, & Madinga, 2016; Lose & Tengeh 2016), followed by Rogerson (Rogerson, 2017; Masutha & Rogerson, 2015; Masutha & Rogerson, 2014a; Masutha & Rogerson, 2014b) and Tengeh (Lose, Tengeh, Maziriri, & Madinga, 2016; Lose & Tengeh, 2016; Lose & Tengeh, 2015) who have 4 publications each, Masutha (Masutha & Rogerson, 2015; Masutha & Rogerson, 2014a; Masutha & Rogerson, 2014b), and Strydom (Strydom, Kempen & Tselepis, 2023; Strydom, Kempen & Tselepis, 2021; Strydom, 2021) have 3 publications each, Iwu (Dlamini, Iwu, & Ogunlela, 2023; Eresia-Eke, Iwu, Jaiyeola & Musikavanhu, 2019) and Schmitt (Schmitt, 2023; Schmitt, 2022) with 2 publications each and the rest of the authors as shown have one publication each.

Keyword Co-Occurrence Analysis

The dataset of 254 keywords was limited to a minimum number of three occurrences, whereas 31 items met the threshold. In order to reduce the number of terms with the same meaning, but different spelling or substitutes of the same word (Van Eck & Waltman, 2020), a thesaurus file was applied.

Labels written differently, for instance, “entrepreneur” and “entrepreneurs”, were merged into “entrepreneurship”. Furthermore, labels with synonyms of “micro enterprise”, “small and medium”; small and medium sized enterprise”, “small business” were merged into the “smes” label labels, were merged. Items with plural labels such as “business incubators” were replaced by their singular form as well. The keywords “incubator” and “business incubator” (singular and plural) were also merged into one keyword in the thesaurus file, namely “business incubators” since they are synonyms. The full counting method was selected for this analysis. The final network visualization is presented in figure 4 above. From the figure above, a keyword has a greater weight than another, and its label and bubble are bigger than a keyword with lower weight (Van Eck & Waltman 2020). Therefore, bigger bubbles indicate a keyword with a higher number of occurrences in the publications. Six clusters occurred. To describe the clusters, the researcher provides examples of the findings and arguments from some of studies included in the final review in each cluster.
The clusters can be described as follows:

i. **Green Cluster: Entrepreneurship and Business Incubation**; The term entrepreneurship has the most occurrences of 21 for this study and for this cluster. The other notable keywords are business incubation (7 occurrences) and economics (2 occurrences). The two terms are also connected to all the clusters that have been visualized. The cluster is best presented by (Cele & Williamson, 2022) study that revealed that business incubation sparks an entrepreneurial mindset among incubates and obtain many entrepreneurial skills, which will assist them in their future endeavors. This therefore shows that business incubation programs play an important role in the development of entrepreneurs.

ii. **Blue Cluster: Business incubators and effectiveness**; The cluster consists of three keywords. Business incubators has 18 occurrences and is linked the effectiveness (2 occurrences) of business incubators in South Africa. These are connected to all the clusters that have been visualized. Engineering education with 2 occurrences also forms part of the cluster and shows that incubation also occurs in the engineering specialty. The cluster is best represented by articles from Samuelsson and Jutterström, (2023) who investigated how business incubator support affects subsequent firm performance. Their study results revealed that business incubator sponsorship has a positive effect on firm performance. Cele and Williamson (2022) study also revealed that business incubation program plays a pivotal role as it instills a positive entrepreneurial mindset among the incubates.

iii. **Red: Entrepreneurial education and informal Business**; With only four items on this cluster, “entrepreneurial education”, informal business”, “informal sector” and “poverty alleviation”, these worlds are not visually linked to all clusters. Entrepreneurial education with three occurrences is linked to business incubators, incubation, entrepreneurship, poverty alleviation and informal business. Informal business with 2 occurrences is linked to SMEs, informal sector, South Africa, poverty alleviation and entrepreneurial education. Poverty alleviation with three occurrences is linked to SMEs, informal business, entrepreneurship education, South Africa and entrepreneurship. The informal sector with two occurrences is linked to each of the words in this cluster.

The cluster is best represented by a study conducted by Thwala, Masiya and Lubinga (2023) which revealed that the informal sector acts as a business incubator, providing and equipping people with business acumen. It is the ability of individuals to understand the basics of how business is conducted, how to get things done, take over a business and experiment with different approaches.

**Yellow: SMEs and start up**

It is one of the small clusters which three words. SMEs with eleven occurrences is linked to all clusters, start up with three clusters is only linked to SMEs, South Africa, entrepreneurial, and business incubators. Covid-19 with two occurrences is only linked to SMEs.

The cluster is supported by (Mhlongo & Mzyece, 2023) findings that revealed that business incubation is about assisting and developing start-ups and entrepreneurs as it is about the business gains that business incubators extract from the process. Masutha Rogerson, (2015) mentioned that business incubation is a critical tool for ensuring the survival of start-up small enterprises. However, Ndlovu-Hlatshwayo and Msimango-Galawe (2023) discovered that, despite some improvements in incubated or assisted SMEs, the failure rate of SMEs in South Africa remains unchanged.

**Orange: Business and Sustainability**

The cluster is made up of only two words which are not linked to the rest of the clusters. Business and sustainability with two occurrences on each are linked to each other and to, SMEs, South Africa, entrepreneurship and business incubators. Researchers such as Strydom and Kempen (2021) revealed support from business incubators programs may play pivotal roles through influencing skills-specific training, which will contribute to the economic sustainability of emerging entrepreneurs and reduce poverty.

**Purple: Business development and Competitiveness**

The cluster is made up of only two words which are not linked to the rest of the clusters. The two have both two occurrences, are linked to each other and to, SMEs, South Africa, entrepreneurship, and business incubators.

**Conclusion**

The study has analyzed the evolution of scientific research on business incubation in South Africa from the year 1996 to 2023 using publications accessed through the Scopus database. The study has also revealed literature on business incubation started to appear in 1996 in South Africa. The bibliometric analysis revealed that there was moderate growth of business incubation publication from the year 2006 to 2012 an indication that shows that business incubation was still at its infancy. The sharp increase in from the year 2013 may owe to the role of business incubators as a business creation tool, and by extension, as means of job creation. The authors with the largest publication on business incubation in South Africa are Lose, Rogerson and Tengeh, and Masutha and Strydom. The study’s keyword co-occurrence analysis also revealed that the following words had the most occurrences and were clustered into the following: entrepreneurship and business incubation, business incubators and effectiveness, entrepreneurial education and informal Business, SMEs and start up, business and sustainability, and business development and competitiveness.
The study only used articles that were written in English language only due to the authors’ limitations in reading articles in other languages such as Afrikaans. Furthermore, the study only reviewed articles that were published on South Africa only, thus the study did not consider articles published in other countries. Therefore, future research should consider articles written in other languages and expand the study to a regional, continental, and even global scale.

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