

Pathways for Rural-Based Universities Transformation into Entrepreneurial Institutions in South

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ABSTRACT

Purpose: For close to three decades, the entrepreneurial university has been growing at a slow pace in the developed countries but recently the developing countries have raised interest in adopting the concept. However, most universities in developing nations including in South Africa have largely relied on Eurocentric frameworks to guide them in adopting the entrepreneurial thrust into their strategic plans. This generic approach can be detrimental given the economic disparities, digital divide, and local needs between developed and developing universities. Therefore, drawing lessons from literature and case studies, the current paper seeks to contextualise the adoption of entrepreneurial universities in rural-based universities of South Africa. The paper seeks to demonstrate how a rural-based university can transform and embrace entrepreneurial drivers and components. A systematic review approach was followed to search and synthesise literature from Web of Science and Scopus databases.

Design/methodology/approach: The bibliometrics program was utilised to statistically quantify scholarly material and the distribution of science on entrepreneurial knowledge while the Atlas 9 software platform was used to synthesise literature.

Findings: Results showed that drivers of entrepreneurial universities are influenced by local socio-economic conditions and thus, rural-based universities need to conduct baseline studies that inform their implementation strategies. Suggested conceptual pathways to entrepreneurial transformation include curriculum rethink, inculcation of the entrepreneurial culture, enhancement of partnerships with local businesses and improvement of internationalisation.

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I. INTRODUCTION

Universities have traditionally undertaken the triple functions of teaching, research, and service. However, growing calls and interest in partnering with businesses to enhance economic activities have resulted in the emergence of the entrepreneurial university (Rubens *et al.*, 2017). The concept originated in developed countries where it has been implemented for close to three decades now (Sam and van der Sijde, 2014). Cognisant of the economic development benefits attained through the entrepreneurial university in these high-income countries, many universities in developing countries including South Africa are increasingly embracing the concept. However, many universities in developing countries are adopting the European Commission Guiding Framework for Entrepreneurial Universities (EC-OECD, 2012) to inform their implementation process.

Much as these guiding principles can work for Elite universities and developed economies, they might be less effective in rural-based universities in South Africa for several reasons: Firstly, rural-based universities in the country are still plagued with the digital divide and technological drawbacks which are key components of an entrepreneurial university. Secondly, rural economies are still small as evidenced by incessant poverty, unemployment, and limited industries (Maduku and Kaseeram, 2021). Thirdly, rural economic ecosystems are distinct from those in developed economies of the urban areas where most elite universities are found (Miles and

Morrison, 2020). Given these dynamics, there is a need to contextualise the application of the entrepreneurial concept in rural-based universities.

The current paper sought to establish context-based pathways to transforming a rural-based university, such that it can positively contribute to the local economic growth of rural communities. This paper critically reviews the use of Eurocentric pathways to entrepreneurial universities to identify the strengths and weaknesses of various frameworks in the local context. As Bizri *et al.* (2019) argue, there is a need to investigate the role and nature of the EPU in contexts other than advanced/Western countries to better understand how to engage the university/industry/government triad and capitalise on available inputs to produce intended outcomes within various context-specific constraints. This provides a conceptual tool for developing rural-based entrepreneurial universities that can create a functional economic ecosystem, vibrant entrepreneurial culture, and effective rural development in South Africa.

II. METHODS

This paper followed a systematic review synthesis of existing literature from the Web of Science and Scopus databases. These databases contain vast scholarly material across the globe and thus, were ideal for a rigorous review of the entrepreneurial university concept. A systematic and logical review of the existing scholarly pieces of evidence available on entrepreneurial universities was conducted to inform rural-based universities of the pathways to adopting entrepreneurship as a strategy for enhancing local economic development. Keywords such as entrepreneurial university, academic entrepreneurship, innovation, university incubator and commercialisation of knowledge were utilised to guide literature search. Thereafter, the Bibliometrics program in the R studio programming platform was utilised to conduct a statistical analysis of publications, provide evidence on the existing knowledge and understand emerging areas of research. The program also enhanced transparency. Figure 1.1 shows detailed information on the literature sources utilised in the study. As shown, literature search parameters were set within the 2010-2023 timeframe to obtain recent literature and understand recent developments on the topic.



After bibliometrics analysis, most relevant articles were directly utilised to guide a Qualitative Document Analysis (QDA) which was utilised. The approach follows 5 steps to increase consistency and rigour. The steps followed include setting criteria for the selection of documents, obtaining documents, analysis of relevant documents, validation and finalisation. The Atlas ti version 8 software was used as a platform for conducting the document analysis. The software facilitated literature synthesis through tools such as the word cloud, quotations, coding, and reports. This allowed for transparency in the secondary data analysis conducted. Figure 1.2 is an extract from Atlas ti version 9 showing a word map of keywords from utilised scholarly material.



Figure 1.2 Word cloud showing keywords from utilised literature

III. RESULTS AND DISCUSSION

A. Entrepreneurial university scientific production

The entrepreneurial university has its roots in the United States of America and Europe. As such scientific production in the two regions has significantly grown than in any other region. As indicated in Figure 1.3, bibliometrics analysis shows that Europe and the USA have been leading in the production of entrepreneurial university scientific knowledge since 2010. This kind of knowledge is non-existent in the rest of Africa albeit in South Africa and West Africa where minimum productivity is evident. This creates a death of context-based knowledge that can inform the adoption of the entrepreneurial concept in higher education without relying on European approaches. As such this paper seeks to be a steppingstone towards the production of conceptual knowledge on the entrepreneurial university concept particularly in rural-based universities which are still lagging in many aspects.

Country Scientific Production

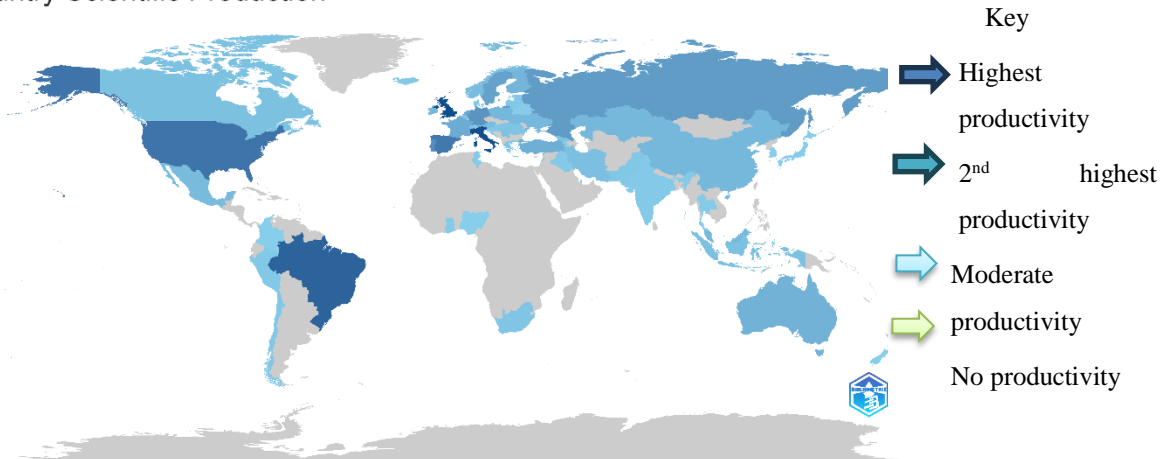


Figure 1.3 Current entrepreneurial university knowledge production since 2010

The following section discusses the conceptualisation of the entrepreneurial university concept.

B. Contextualising rural-entrepreneurial university

Conceptualising entrepreneurial universities is not straightforward given the concept's evolving nature. As per Mascarenhas *et al.* (2017), the entrepreneurial university offers practices, opportunities, cultures and favourable environments that actively encourage and embrace entrepreneurship students and graduates. This definition emphasizes creating an entrepreneurial backbone and culture among students. Sperrer *et al.* (2016) add that entrepreneurial universities are drivers of innovation, self-development and an appropriate response to success in highly unpredictable markets. The entrepreneurial university thus, serves as a channel for spill-over effects contributing to socioeconomic development through its multiple missions of teaching, research and entrepreneurial activities. This concept is underpinned by two main topics which are academic entrepreneurship and commercialisation of knowledge.

Academic entrepreneurship entails the commercial application of academic research through spinouts, licensing, patenting and other activities (Abreu and Grinevich, 2017). Therefore, it is a key component in technology development and economic growth in each community. However, as Bozeman, Fay and Slade (2013) argued, in developing countries academic entrepreneurship is difficult to attain given that researchers lack knowledge about the market which is outside the dominion of purely academic research but critical for successful commercial activities. In the context of developing countries and societies, researcher access to industrial knowledge is critical but difficult due to organisational and operational culture differences. This makes it critical for researchers in rural-based universities to build relations with industrial partners to enhance bio-directional knowledge transfer.

The commercialisation of scientific knowledge is another key component in entrepreneurial university definitions. According to Brown (2016), this refers to the link between wealth and competitiveness in a global knowledge-based economy and the exploitation of scientific and technological developments in universities. Central to achieving these linkages are funding, inventions and patents (Mets *et al.*, 2023). Commercialisation of knowledge is not easy to achieve in rural-based universities of South Africa which are already struggling with funding, innovations and developing patents. In most cases, rural-based universities in South Africa are not able to produce high technology due to lack of funding, human resources and links to businesses. In this respect, rural-based universities must focus on developing low-tech tools that are relevant to local rural economic activities such as farming. More so, as recommended by Rasmussen *et al.* (2015) academic entrepreneurs need to expand and transform their networks to gain the necessary skills that enable them to transfer their knowledge to businesses. In the following section we critically examine the European Commission Guiding Framework for Entrepreneurial Universities and its applicability in rural-based-universities.

C. European Commission Guiding Framework for Entrepreneurial Universities

Regardless of the resistance of some critics to entrepreneurialism in the context of higher education, Urbano and Guerrero (2013) argued that transformation into an Entrepreneurial University (EU) will help develop regional or national economic performance and improve university funding. Leading universities in Europe, like IE in Madrid, and Imperial College in London, and American institutions such as Stanford University and Massachusetts Institute of Technology have led the way in demonstrating how such a model can be efficiently and effectively implemented. The main guiding frameworks for entrepreneurial universities were proposed by the following authors (Al-Shammari, 2010; OECD, 2012). However, all these frameworks are either developed in the American or European context. Figure 1.3 shows the most cited counties in all literature sources utilised in this study. This is a clear indication of the reliance on European and American-based sources to inform entrepreneurial universities even in countries like South Africa.

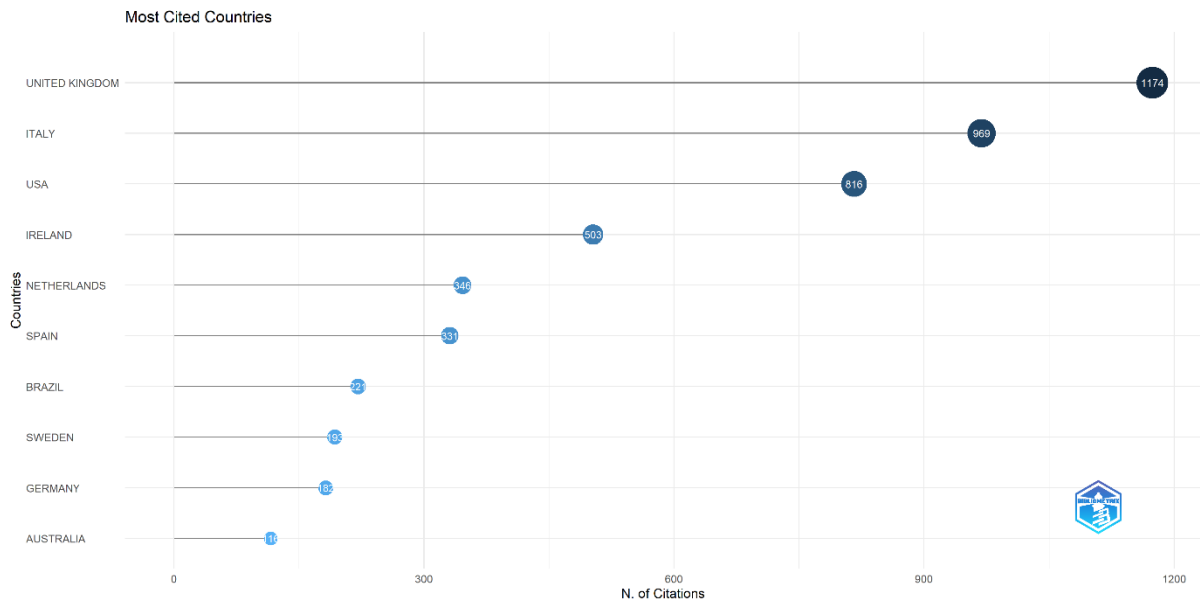


Figure 1.3 Most cited countries on entrepreneurial university concept since 2010

Notwithstanding the significant use of the frameworks mentioned above, the EC-OECD Framework for entrepreneurial universities is generally utilised across the world due to its comprehensiveness. It consists of seven dimensions, which are (1) leadership and governance (2) organizational capacity, people, and Incentives (3) entrepreneurship development in teaching and learning (4) Pathways for Entrepreneurs (5) University–Business/External Relationships for Knowledge Exchange (6) The Entrepreneurial University as an Internationalized Institution (7) Measuring the Impact of the Entrepreneurial University (OECD, 2012). Each of these dimensions contains a series of items and indicators used to gauge the likelihood of success of institutions implementing the entrepreneurial goal. Looking at each element, we critically assess the suitability of utilising the framework to guide the implementation of entrepreneurial strategic imperatives in rural-based universities.

D. Leadership and governance

According to OECD (2012), universities as entrepreneurial organisations should contain clear entrepreneurial activities well established in their mission and strategic plans. Specific objectives for entrepreneurship with associated performance indicators such as commercialisation of research results through technology transfer and business startups as well as generating entrepreneurial competencies and skills among others should also be developed. Developing strategic plans with entrepreneurial intent and clear objectives is seemingly not a problem for rural-based universities, the challenge is in the implementation where there is limited commitment and uncoordinated integration of entrepreneurial activities across the universities. Often, university faculties and departments work in silos which make it difficult to integrate entrepreneurial activities. More so, as Ndebele, Muhuro and Nkonki (2017) argue, rural universities naturally face staffing constraints, as many qualified professionals prefer to work in metropolitan universities where social amenities are readily available. This makes it difficult to obtain and retain competent and highly experienced leaders in executive and faculty positions.

E. organizational capacity, people, and Incentives

Organisational structure and capacity can either propel or constrain entrepreneurial activities. For instance, entrepreneurial universities must invest in entrepreneurial activities through sustainable financial strategies rather than relying on limited state funding (OECD, 2012). Unfortunately, rural-based universities in South Africa are still largely reliant on state funding through subsidies, research funds and student funding schemes such as the NFSAs. This makes it difficult to fund entrepreneurial activities. More so, universities should foster an entrepreneurial culture by recruiting staff that have a strong entrepreneurship background. (OECD, 2012). However, because most rural-based universities in the country have only recently adopted entrepreneurship as one of their key strategic focuses, it is difficult to suddenly replace existing staff with those with entrepreneurial interests. Moreso, as behavioural theories show, it is very difficult to change staff behaviours to suit the new strategic focus within a short space of time. More so, limited financial resources make it difficult for these universities to adequately incentivise staff members who excel in entrepreneurial activities to instil more passion.

F. Entrepreneurship development in teaching and learning

Universities are expanding their entrepreneurial education offerings to all staff and students. To succeed these universities should have structures in place to facilitate entrepreneurial development across all activities. For instance, there is a need to have Professors of entrepreneurship and senior staff who are responsible for entrepreneurship at the faculty level. Staff should also take an entrepreneurial approach to teaching in all departments, promoting diversity and innovation in teaching and learning. In this regard, there should be mechanisms in place by which teaching staff have codified the expected learning outcomes about entrepreneurship in all degree programmes. Keeping the curriculum up to date with recent research findings and encouraging the internal exchange of knowledge is also crucial.

G. Pathways for Entrepreneurs

Supporting pathways taken by potential entrepreneurs, that is from ideas to market growth or into employment is also critical. Developing entrepreneurs is often focused on the provision of opportunities and facilities rather than the inspiration and motivation that is necessary for individuals to move from ideas to action. Thus, universities should link their start-ups and companies with the wider entrepreneurial ecosystem (OECD, 2012). As much as this is possible, it is still challenging for rural-based universities to link potential student entrepreneurs to companies as these institutions operate in areas with minimum economic activities and industry.

H. University–Business/External Relationships for Knowledge Exchange

Active involvement of a range of stakeholders is a contributing factor in successful Entrepreneurial Universities. Universities should place a high value on knowledge exchange through collaboration and partnership with regional and local organisations, SMEs, social enterprises, schools, alumni and entrepreneurs (OECD, 2012). However, these partnerships should be more than just memorandum of understanding but active engagements of mutual benefit. Mechanisms should also be in place to partner with incubators and science parks in the surrounding areas to maximise knowledge exchange. However, this may not be realistic in rural areas where there are hardly business incubators and science parks. Instead, universities can utilise opportunities such as those provided by agricultural value chains which are dominant in rural spaces.

I. The Entrepreneurial University as an Internationalized Institution

As per OECD (2012), as internationalisation is progressively integrated into strategic processes, it becomes essential for universities to be able to make informed decisions on institutional direction, as well as assess and enhance performance according to different objectives over international activities. Internationalisation is a process of integrating an international, intercultural or global dimension into the purpose and functions such as teaching/learning, research service or delivery of higher education (Knight, 2018). To enhance internationalisation, institutions should support international mobility through exchange schemes, scholarships, overseas internships and the use of other broader mobility programmes (OECD, 2012). However, even before adopting the entrepreneurship model, financial instability has been limiting rural-based universities' capacity to support the international mobility of staff and students. Thus, unless they become financially stable, rural-based universities will not fulfil the internationalisation element of an entrepreneurial university in South Africa. Attracting international and entrepreneurial staff and students should also be prioritised. However, geopolitical forces and demands have seen some rural-based universities cut down on their recruitment of international staff and students in favour of local citizens.

J. Measuring the Impact of the Entrepreneurial University

The success of an entrepreneurial university is also based on the ability to understand the impact of the changes which are made. The impacts affect internal stakeholders such as students/graduates and staff and external stakeholders such as local businesses, organisations and communities. However, as noted by OECD (2012), impact measurement in universities is still premature as most of the measurements are mainly focused on spin-offs and research outcomes rather than local economic development, graduate entrepreneurship and retaining talent.

Despite the significance of the entrepreneurial university elements described above, there seems to be a lack of consensus regarding the key success factors of the EU especially in developing countries which are often described as countries with low per capita income, little export diversification and minimal integration into the global financial system (Toye, 2011). Given this argument, it is unclear whether it is essential to follow the Western model of the entrepreneurial university or perhaps a more basic and contextualised model in design and implementation in developing societies (Autio *et al.*, 2014). More so, as Kalar & Antoncic (2015) successful transformation to the EU requires creating entrepreneurial leaders, developing suitable strategic plans, establishing infrastructure, and learning from developed countries. Although rural-based universities in South Africa have the desire to implement EU ideologies, their strategic plans are largely reliant on Eurocentric frameworks,

technological infrastructure is poor, and links to the industry and business fraternity are fragile. Bearing this lack of context-based transformation pathways to entrepreneurial rural-based universities we provided adjusted pathways in the following subsection.

K. Way forward

The literature consistently showed that the Eurocentric framework for Entrepreneurial universities is a critical tool. However, its generic application in the developing world can be misleading given geopolitical and socio-economic contextual distinctions. In this section, we suggest context-specific pillars for developing a successful rural entrepreneurial rural-based university in South Africa factoring in the educational inequalities discussed in previous sections.

L. Inculcating entrepreneurial culture

Transforming from a rural-based traditional university to an entrepreneurial institution requires a change of ideas, mindset, norms and values for individuals and systems. This is in line with Farsi *et al* (2012) recommendation that building an entrepreneurial culture at the individual, group, university and community levels is a major requirement in the typical entrepreneurial university mission. This entails not only changing university strategic plans but inculcating an entrepreneurial mindset across all faculties and organs of the university. Universities must commit to changing employee and student attitudes, entrepreneurial culture, behavioural control, geographically specific factors, entrepreneurial education and learning modus operandi (Lose and Kapondoro, 2020). Of course, institutions must do so in cognisance of the fact that behavioural changes take time and thus, constant reconditioning, awareness campaigns and constant monitoring measures should be in place. As Leih and Teece (2016) argued, university leaders must combine strategic thinking with capacity building.

M. Internationalisation

Rural-based universities have already made strides to enhance their internationalisation prowess. For instance, massification, increased staff and student mobility and research collaborations (De Wit, 2019). Given this foundation, entrepreneurial pursuit may enhance institutional abilities to attract foreign investments, internal entrepreneurial staff and students to strengthen their national and regional economic development potential. Gibb (2012) further notes that internationalisation could include the creation of international networks which strengthen collaborations, research output and commercialisation. This can be achieved by encouraging staff and postgraduates to engage in collaborative research activities and improving the infusion of internationally entrepreneurial-minded staff and students.

N. Innovation transfer for local growth

Rural-based universities are in spaces with distinct local economic activities such as agriculture, mining, services, heritage and tourism as opposed to large firms and industries. Many frameworks (Aranha and Garcia, 2014; Powell, 2012) suggest that an entrepreneurial university should produce knowledge and transfer it to industry and society. In this regard, rural-based universities must understand the economic needs of their immediate rural areas to provide relevant innovations for boosting rural development. Central to understanding local economic needs and providing relevant innovation is the core creation of ideas to establish a two-way flow of information.

O. Entrepreneurial incubation

To become an entrepreneurial university, rural-based institutions also need to provide a conducive environment for entrepreneurs to learn and thrive. As Martin *et al.* (2019) suggest, it is crucial to establish relevant structures such as the on-campus incubators, licencing, intellectual property office, spinoff activities, funding bureau and other relevant institutions. Most of the rural-based universities already have some of these infrastructures but commitment to utilise them efficiently is still lacking. For instance, institutions must not only include students from business management faculties in their business incubators but the whole institution. Entrepreneurial activities must be allowed on campus under supervision and mentorship. These facilities can become hubs of entrepreneurial activity, attracting entrepreneurs, investors, and industry experts to the region.

P. Curriculum rethink

Rural-based universities such as the University of Venda are commonly known for providing traditional missions such as teaching, learning and research services. Entrepreneurial universities seek to balance a variety of external demands with institutional responses while safeguarding their academic excellence. As such rural-based institutions need to revolutionise their curriculum in all degree programs to include entrepreneurial focus. This should be done across faculties to enhance the uptake of entrepreneurial ideologies and culture across the breadth of the institution. There is also a need to encourage interdisciplinary collaboration and provide

opportunities for students to work on real-world projects and startup ventures. In support, Aranha and Garcia (2014) recon that the objective of entrepreneurship education in developing societies is to enhance students' entrepreneurial skills and behaviour early on thereby enabling graduates to overcome the challenges and risks they are likely to face in the turbulent markets of developing nations.

Q. Strengthening stakeholder partnerships

Building partnerships with all relevant development stakeholders is a key priority for entrepreneurial universities. Aranha and Garcia (2014) argue that Entrepreneurial universities must be involved in active engagements with the industry which normally have criteria related to the desired skills and qualities of potential employees. Their research and development agenda should also be informed by industry needs to increase their degree of relevance in problem-solving. In the rural-based university context, the focus should be on engaging with local businesses that include agricultural farms, tourism, trading and service providers who form most local economic activities rather than forging partnerships with large industries in the urban areas. This supports sentiments by Nkomo and Sehoole (2007) that universities acting in isolation cannot activate the full range of potentials embedded in their immediate community or society at large.

R. Engagement of local communities

Entrepreneurial rural-based universities need to actively involve the local community in university initiatives. Organize entrepreneurship and innovation events, workshops, and conferences that bring together stakeholders from academia, industry, and the community. Encourage community members to participate in university programs, research projects, and startup ventures. This also establishes co-working spaces on or near the campus, where entrepreneurs, students, and community members can collaborate, share resources, and work on their ventures.

S. Accumulating resources

An abundance of resources could be instrumental in helping the Entrepreneurial university achieve its intended goals. However, rural-based universities in South Africa often struggle to obtain human resources, infrastructure, technology, financial resources and other resources (Kativhu, 2021). Furthermore, overreliance on government funding makes rural-based universities subject to government demands and restrictions which affect their academic freedom and independence (Reyes, 2016). To address these challenges, these universities need to develop internal income-generating activities, seek external funds from partnering industries and organisations, secure research contracts and rigorously head hunt productive researchers.

IV. CONCLUSION

Literature consistently shows the significance of entrepreneurial universities as business incubators and a catalyst for economic development. Various facets of entrepreneurial universities such as innovation, technology transfer, academic entrepreneurship and university-industry partnerships have made the new approach more appealing to socioeconomic development agents. However, despite the existence of the approach for almost three decades now, its implementation in South Africa is still pre-mature owing to the lack of locally relevant guiding frameworks and principles. Results of this study show that South Africa is among the least contributors of entrepreneurial scientific knowledge to the world and the rest of Africa has also not largely contributed anything. This has created a dearth of information on the approach and an overreliance on Eurocentric frameworks. This can be misleading especially for rural-based universities that experience different socio-economic conditions and education qualities to those in developed nations. Although the Eurocentric frameworks are a critical starting point, we provided adjusted dimensions/drivers that can guide the transformation of rural-based universities in South Africa into entrepreneurial institutions. These dimensions consider socio-economic realities facing these universities such as limited access to industries, limited funding, social injustices, limited innovation and technology transfer as well as resource scarcities. Suggested dimensions include, curriculum rethink, inculcation of entrepreneurial culture, strengthening campus business incubators, accelerating internationalisation, strengthening local stakeholder partnerships and enhancement of community engagement practices.

A. Recommendations

The lack of locally relevant knowledge on entrepreneurship and the modus operandi for its adoption in rural-based universities necessitate the need for accelerating empirical research on the topic in South Africa. Particular attention should be given to understanding the socio-economic conditions in these institutions and identifying opportunities that enable the adoption of the entrepreneurial approach. Given that drivers of entrepreneurial

universities are influenced by local conditions, rural-based universities need to conduct baseline studies that inform their implementation strategies. Studies on fostering entrepreneurial culture among staff and students, production and transfer of relevant innovations for rural development purposes are also critical aspects. This will help in crafting context-based frameworks for entrepreneurial rural-based universities in the country and the region at large.

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