

A Conceptual Study of an Intrapreneurship Ecosystem at South African Universities

Submitted: 08.10.17 | Accepted: 09.03.18

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The concept of entrepreneurial ecosystem is becoming a subject of interest for South African universities in the 21st century. Previously, the higher education system has not focused on creating a conducive environment for entrepreneurship within its system. The emphasis was more on teaching and learning followed by research, the concept of entrepreneurial university has taken centre stage. This study seeks to contribute to the literature on entrepreneurship and ecosystems in three ways. First, this paper will attempt to clarify what it means for universities to be entrepreneurial. Secondly, the study will assess the climate for entrepreneurship at universities in South Africa. Thirdly, it will determine whether there is a relationship between the university ecosystem and higher levels of entrepreneurial activity. The full study will follow a mixed method approach while this paper presents findings from the literature review.

Keywords: ecosystem, entrepreneurial activity, universities, intrapreneurship, unemployment.

Koncepcyjne badanie ekosystemu intraprzsiębiorczości na uniwersytetach w RPA

Nadesłano: 08.10.17 | Zaakceptowano: 09.03.18

W XXI wieku koncepcja ekosystemu przedsiębiorczości staje się przedmiotem zainteresowania uniwersytetów w RPA. Wcześniej system kształcenia wyższego nie koncentrował się na tworzeniu wewnętrznego środowiska sprzyjającego przedsiębiorczości. Większy nacisk kładziono na nauczanie i uczenie się, a następnie na badania naukowe. W centrum uwagi znalazła się koncepcja „przedsiębiorczego uniwersytetu”. Opracowanie ma na celu wniesienie wkładu w literaturę dotyczącą przedsiębiorczości i ekosystemów na trzy sposoby. Po pierwsze, podjęta zostanie w nim próba sprecyzowania tego, co dla uniwersytetów oznacza bycie przedsiębiorczym. Po drugie, oceniony będzie klimat sprzyjający przedsiębiorczości na uniwersytetach w RPA. Po trzecie, ustalone zostanie czy istnieje zależność między ekosystemem uniwersytetu a wyższym poziomem działalności przedsiębiorczej. W pełnym opracowaniu zastosowane będzie podejście oparte na metodach mieszanych, natomiast w niniejszym artykule zaprezentowano wyniki przeglądu literatury.

Słowa kluczowe: ekosystem, działalność przedsiębiorcza, uniwersytety, intraprzsiębiorczość, bezrobocie.

JEL: L26, M13

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1. Introduction

Universities around the world are becoming ‘hotbeds’ of innovation and entrepreneurship, spinning off successful ventures that benefit the economy as a whole (Pepler, 2013, p. 5). They play a very important role in enhancing national development because of their central role in the production of high level manpower and research that are necessary for the achievement of national goals (Macarthy and Yang, 2017, p. 1). In the modern knowledge economy, higher educational institutions are being required to operate more entrepreneurially, commercialising the results of their research and spinning out new, knowledge-based enterprises. Like most large organisations, particularly those operating in the public sector, universities were not traditionally suited to this role and often face the same sort of barriers to intrapreneurial activity as their counterparts in the private sector. Therefore, it is imperative for universities to reinvent themselves continually through intrapreneurship (sometimes referred to as corporate entrepreneurship [CE] throughout this study) if they want to remain relevant and in existence. The concept of intrapreneurship has been a subject of interest to scholars and practitioners for the past few decades (Gretschmann and Schepers, 2016, p. 10). The term ‘intrapreneurship’ is strongly related to, and expands on, the notion of ‘entrepreneurship’ while the latter traditionally focuses on improving one’s ability to set up and maintain a business (Boon, Van der Klink and Janssen, 2013, p. 211). It is on this basis that throughout this study these concepts will overlap and be used interchangeably as a result of their dependency on one another. Intrapreneurship is recognised as a potentially viable means of promoting and sustaining competitiveness and transforming businesses and industries into opportunities for value-creating innovation (Groenewaldt and Van Vuuren, 2017, p. 1).

Accordingly, many academic and professional staff members at universities believe that being entrepreneurial “*will drive out their other more fundamental university qualities, such as intellectual integrity, critical inquiry and commitment to learning and understanding*” (Rizk and Azzazy, 2016, p. 98). They often see their roles as teachers and researchers and not as entrepreneurs, and many university managers are concerned about the likely negative impact on their institution’s research performance if their leading academics become involved in entrepreneurial activity (Hadidi and Kirby, 2016, p. 141). However, in the South African context, there is a pressure on state funding as a result of the fees-must-fall campaign that pressured government to spend more money on free education. This necessitates intrapreneurship at many universities in order to create new revenue streams and accordingly many universities acknowledge the importance of entrepreneurship in their structures. Universities promote intrapreneurship by incubating new business ideas, diversify revenue streams, and advance a new model of education that moves beyond traditional boundaries (Balmaekers, 2015, p. 1). This

study is meant to study the intrapreneurship ecosystem at South African universities. It will then analyse the specific dimensions that promote and support corporate entrepreneurship using Corporate Entrepreneurship Climate Instrument (CECI) in Kuratko, Morris and Covin (2011, p. 382).

2. Problem Statement

While South Africa continues to report strong positive societal attitudes towards entrepreneurship, data from the 2016 Global Entrepreneurship Monitor (GEM) survey confirm South Africa's persistent low levels of entrepreneurial activity relative to other countries participating in GEM (Herrington, Kew and Mwanga, 2017, p. 6). In order to be more responsive to the changing economic, social and technological realities, universities in South Africa are being encouraged to foster intrapreneurial behaviour and innovativeness to ensure success of the higher education sector (Mathu, 2016, p. 3). Widespread calls have been made in various studies for universities to change from their customary way of doing things and come up with innovative and sustainable alternatives if they are to continue being relevant and competitive. While both theoretical and empirical research on entrepreneurial ecosystems has been growing in recent years, the intrapreneur ecosystems has not received attention, especially within the universities context, thus leaving the supportive framework conditions insufficient. It is on this basis that the higher education system is perceived to be not doing enough to encourage entrepreneurship (Carmody, 2015, p. 1). In an attempt to address this problem, the government of South Africa introduced a platform for Entrepreneurial Development in Higher Education (EDHE). The reason behind the establishment of EDHE is to create an enabling ecosystem that will promote entrepreneurship within universities in SA.

Through the literature and primary data, this study will attempt to establish the extent to which the internal climate at South African universities is conducive to entrepreneurship. The study will achieve this by making use of the Corporate Entrepreneurship Climate Instrument (CECI) in Kuratko, Morris and Covin (2011, p. 382) and analysing the specific dimensions which promote and support corporate entrepreneurship. CECI is a diagnostic tool for assessing, evaluating and managing the internal environment of a company in a manner that supports entrepreneurship (Kuratko et al., 2011, p. 381). According to Kuratko, Hornsby and Covin (2014, p. 42), the instrument has been shown to be psychometrically sound.

3. Literature Review

The introduction of entrepreneurship programmes and the involvement of universities in entrepreneurial activities have certainly brought a massive change to universities and their ecosystem (Yusoff, Rajah, Ahmad and

Ismail, 2017, p. 893). This was necessitated by the pressures of declining government subsidies (Higher Education South Africa, 2014, p. 1). The fees-must-fall campaign in South Africa has pressured the government to redirect most of the fiscal revenues to fund free higher education for students, and thus creating funding constraints for universities (Ngoepe, 2016, p. 1). The financial situation was worsening and the system had been under financial stress before the protests against fee increases at tertiary institutions began (Council on Higher Education, 2016, p. 9). Considering the statement above, entrepreneurship at higher education institutions is not only necessary but essential; however, the goal should be to ultimately develop into 'entrepreneurial universities', vibrant entrepreneurship ecosystems characterised by a breadth and depth of initiatives across three major dimensions: academic entrepreneurship, enterprise support and exhibiting entrepreneurial behaviour (Human Resource Development Council, 2014, p. 15). The university supports the entrepreneurial ecosystems in many ways, for example through education of qualified personnel and entrepreneurs, development of innovative technologies, provision of counselling services (Erasmus multilateral project, 2013, p. 18). As mentioned earlier, universities are becoming 'hotbeds' of innovation and entrepreneurship, spinning off successful ventures that benefit the economy as a whole (Peppler, 2013, p. 5). There are many examples of successful ventures coming out of universities but showcase examples might include: Google developed by two Stanford PhD students for their PhD research, Dell Corporation created by Michael Dell at the University of Texas in his dorm room, Facebook and Microsoft both created by students at Harvard. Local SA examples could include Mark Shuttleworth and Ludwick Marishane (inventor of Drybath), both from the University of Cape Town. Institutional entrepreneurship can be seen as both process and outcome (Peppler, 2012, p. 5).

While intrapreneurship is accepted by academics and practitioners as a legitimate route towards increased levels of organisational performance (McGlone, 2014, p.1), current research suggests that the scope of intrapreneurship is widening as organisations not traditionally recognised as being entrepreneurial now are required to become oriented towards intrapreneurship in order to survive (Phan, Wright, Ucbasaran and Tan, 2009, p. 197). This is a direct result of changing conditions within the global business environment which require organisations to become more intrapreneurial and innovative in the ways that they revitalise their businesses (Auerswald, 2015, p. 13).

3.1. The Concept of Intrapreneurship and Ecosystem

According to Boon, Van der Klink and Janssen (2013, p. 211), the concept of intrapreneurship is strongly related to, and expands on, the notion of entrepreneurship, while the latter traditionally focuses on improving one's ability to set up and maintain a business. Recent views elaborate

on the concept of entrepreneurship by also including the development of certain personal qualities and mind-sets, irrespective of whether one owns a business or is self-employed (Boon, et al., 2013, p. 211). Intrapreneurs are employees thinking and acting as entrepreneurs within a company, who are aware of and accept the goals of the company (Jairam, 2016, p. 1). Though the definition is somewhat contentious, the concept of intrapreneurship (sometimes referred to as corporate entrepreneurship) generally refers to the development of new ideas and opportunities within large or established organisations, directly leading to the improvement of organisational profitability and an enhancement of competitive position or the strategic renewal of an existing organisation (Yellamraju, 2015, p. 1). Corporations can support profit-making innovations by encouraging employees to think like entrepreneurs and so by granting them the freedom and flexibility to pursue their projects without becoming bogged down by bureaucratic inertia (Hisrich and Kralik, 2016, p. 30). According to Covin and Miles (1999, p. 49), there is a commonality among all firms that could be reasonably described as entrepreneurial. This commonality is innovation, risk taking and proactiveness (Omisakin, Nakhid, Littrell and Verbitsky, 2016, p. 9). Kitagawa, Webber, Plumridge and Robertson (2015, p. 4) describe the relevant components of a successful innovation ecosystem as individuals, organisations and resources, specifically including government, demand, invention, funding, infrastructure, entrepreneurs and culture. This network is described by Isenberg (2010, p. 3) as the 'entrepreneurship ecosystem'. The fundamental ideas behind entrepreneurial ecosystems were first developed in the 1980s and 1990s as part of a shift in entrepreneurship studies away from individualistic, personality-based research towards a broader perspective that incorporated the role of social, cultural, and economic forces in the entrepreneurship process (Dodd and Anderson, 2007, p. 343).

3.2. Entrepreneurial Ecosystem

A concept used today to describe the framework of entrepreneurship is the entrepreneurial ecosystem. While work on entrepreneurial ecosystems is still in its infancy, there are already several empirical studies showing how a rich entrepreneurial ecosystem enables entrepreneurship and subsequent value creation at the regional level (Stam and Spigel, 2016, p. 3; Alvedalen and Boschma, 2017, p. 893). While the term is used more and more frequently, it must be stated that there is no reliable definition and that the term is used in many different contexts. Entrepreneurial ecosystem is composed of individuals, organisations, institutions that can influence successful entrepreneurial behaviour (Diaconu and Dutu, 2015, p. 14). According to Isenberg (2014, p. 3), entrepreneurial ecosystem includes the following components: a conducive culture; enabling policies and leadership; availability of appropriate finance; quality human capital; venture-friendly markets for products; a range of institutional and infrastructural supports. Though

recent interest in entrepreneurial ecosystems amongst academic researchers is driven by its popularity with policy-makers and entrepreneurs, it is part of a larger trend in entrepreneurship studies that incorporated the role of social, cultural, and economic forces in the entrepreneurship process (Stam and Spigel, 2016, p. 1). Both the innovation and entrepreneurship literature recognises the relevant role of universities and in some way considers them as the key actors or linkages among all the actors involved in the ecosystems (Guerrero, Urbano, Fayolle, Klofsten and Mian, 2016, p. 555).

The term entrepreneurial ecosystem is defined as a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory (Stam and Spigel, 2016, p. 1). According to Erasmus multilateral project (2013, p. 8), entrepreneurial ecosystem comprises anything and anyone which/who is of relevance to entrepreneurship and its development in any way. Each activity that facilitates entrepreneurial growth is a component of this ecosystem (Taich, Merissa, Carter, and Wilcox, 2016, p. i). Entrepreneurs are most successful when they have access to the human, financial and professional resources they need, and operate in an environment in which policies encourage and safeguard entrepreneurs (Simatupang, Schwab and Lantu (2015, p. 7). Typically, successful ecosystems have emerged under a unique set of pre-existing circumstances as well as with conditions subsequently created (Guerrero et al., 2016, p. 555). According to OECD (2012, p. 4), in order to develop as an entrepreneurial organisation with an entrepreneurial culture, the entrepreneurial activities should be established in the strategy. OECD (2012, p. 4) further goes on to say that a university should have a working mission statement with an entrepreneurial vision for the future of the institution. In South Africa, the government introduced a platform for Entrepreneurial Development in Higher Education (EDHE) to create an enabling climate that will promote entrepreneurship within the universities (Peppler, 2013, p. 5).

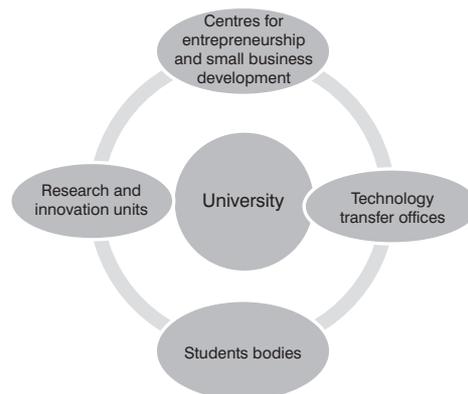
3.3. University-Based Entrepreneurship Ecosystem (U-BEE)

All over the world, universities are at the hub of economic development providing infrastructure, resources, and means to develop entrepreneurial communities (Hoskinson and Kuratko, 2014, p. 29). Scholars describe the interactions between universities, the finance community, service providers, faculty, and entrepreneurs that help to support economic development and innovation (Hoskinson and Kuratko, 2014, p. 29). According to Stam and Spigel (2016, p. 7), the necessary dimensions of an entrepreneurship ecosystem are governance, innovation, infrastructure, and culture. The U-BEE includes multiple levels the individuals (student, faculty, staff, practitioner, and administration), groups (faculty, students), organisations (incubators, centres), events, and community stakeholders (government, policy-makers, industry, funders) (Brush, 2014, p. 30). Brush (2014, p. 30) further explains

that central to the U-BEE are internal entrepreneurship activities (intrapreneurship), revolving around curricular, co-curricular, and research activities. There are many different models for coordinating and integrating entrepreneurial activities across a university and, therefore, a university should have an entrepreneurship structure in place coordinating activities within the institution and with other stakeholders within the local entrepreneurship ecosystem to score highly (OECD, 2012, p. 4).

3.4. University's Intrapreneurial Ecosystem

While entrepreneurs have their ecosystem mapped out to bring support from all parts of the world, the intrapreneur ecosystem is different and calls for skills that do not necessarily apply to the entrepreneur (Forgaty, 2014, p. 1). Smith, Gusz and Borden (2014, p. 1) maintain that higher education institutions have a stodgy and bureaucratic reputation, but empowered intrapreneurs present an opportunity for them to evolve and thrive in an increasingly competitive market. At a micro level, the internal entrepreneurship ecosystem is a central component of the U-BEE, but focuses primarily on the entrepreneurship activities across a campus or school and within the departments directly connected to entrepreneurial activity (Brush, 2014, p. 30). According to Hoskinson and Kuratko (2014, p. 34), an institution having a separate department of entrepreneurship faculty, or a college of entrepreneurship, would reflect a higher commitment while on the other hand, a school embedding entrepreneurship under strategy or management may have a lower commitment. Arnold and Magia (2013, p. 5) believe making intrapreneurship an organisational value can involve adopting formal programmes to promote intrapreneurial skills in employees. Traditionally, the university's intrapreneurial ecosystem is embedded in the structure as set out in the figure below.



Source: The author's own compilation

3.4.1. Technology transfer offices

The role of this office is to support and facilitate the protection and commercialisation of the university's intellectual property by:

- Managing IP disclosure and protecting IP identified with the potential to create socio-economic value,
- Facilitating the commercialisation of IP through licensing, sales or spin-outs,
- Raising awareness of relevant national and institutional policies and regulations,
- Promoting a culture of entrepreneurship and innovation (<http://www.tto.uwc.ac.za>).

3.4.2 Centres for entrepreneurship and small business development

These centres fulfil a co-ordinating role for the current and new entrepreneurship related activities at universities. They further cultivate the entrepreneurial culture and provide support to start-ups or provide a conducive environment to nurture small businesses (www.entrepreneurship.uwc.ac.za).

3.4.3. Research and Innovation (R&I) units

The significance of research and innovation in attaining vital economic growth in developed nations has been resolutely recognised by many theoretical and empirical studies such as those of Adam Smith (1776), Schumpeter (1934), Solow (1957) (Nicolaidis, 2014, p. 1). R&I units play a key role in supporting innovative and entrepreneurial activity within the university environment and wider economies (<https://www.southampton.ac.uk/business-school/about/departments/strategy-innovation-and-entrepreneurship.page>).

3.4.4. Students bodies

According to Bergmann, Hundt and Sternberg (2016, p. 2), student start-ups are a significant part of overall university entrepreneurship. Against the above backdrop, there has been a substantial growth of student societies at universities across the world, many of them engaging in entrepreneurial activities (Gibb, Haskins, Hannon and Robertson, 2012, p. 7). Thus, student entrepreneurship structures are becoming the vehicle for articulating the students' need for entrepreneurship curriculum at the university (Gibb et al., 2012, p. 7).

3.5. South African Universities Intrapreneurship Ecosystem

The key to the success of establishing a culture of entrepreneurship in South Africa is education, which depends on all the stakeholders, including the state, universities, and students themselves (Isaacs, Visser, Friedrich and Brijlal, 2007, p. 613). Selected South African universities that have built successful entrepreneurship systems include:

3.5.1. University of Johannesburg (UJ)

The University of Johannesburg Centre for Entrepreneurship (UJfCE), previously the Centre for Small Business Development (CSBD), was launched on 22 September 2006 by the University of Johannesburg, within the Faculty of Management, as an outreach centre to facilitate business development in townships (<https://www.uj.ac.za/faculties/management/Centre-for-Small-Business-Development/Pages/Contact-Us.aspx>).

3.5.2. University of Pretoria

Through its Business School, the Gordon Institute of Business Sciences (GIBS), the University of Pretoria has established an Enterprise Development Academy (EDA). The Academy specialises in understanding entrepreneurship in constraint, enabling business owners to understand the environment within which they work, and thrive within it. GIBS also has a programme in Social Entrepreneurship. The programme brings together the best practices in civil society with the best practices in business from around the world (<https://www.gibs.co.za/eda>).

3.5.3. Durban University of Technology (DUT)

In 2015, DUT launched the Centre for Social Entrepreneurship to help people in developing innovative social enterprises that add value to both their local and rural communities to address social challenges such as unemployment and inequality (Mdledle, 2015, p. 1).

3.5.4. University of Cape Town (UCT)

UCT has established the Bertha Centre for Social Innovation and Entrepreneurship, which is the first academy in Africa dedicated to advancing social innovation and entrepreneurship (<http://www.gsb.uct.ac.za/berthacentre>). It was established as a specialised centre at the UCT Graduate School of Business late in 2011, in partnership with the Bertha Foundation, a family foundation that works with inspiring leaders who are catalysts for social and economic change and human rights.

3.5.5. WITS University

Wits Commercial Enterprise (Pty) Ltd is a private company, wholly owned by the University of the Witwatersrand, focused on the marketing and commercialisation of the University's intellectual capital through short course management, research support, intellectual property management and technology transfer (<https://wits-enterprise.co.za/about>). The Wits Business School also has a Centre for Entrepreneurship with a community outreach to bring entrepreneurship education to local communities.

3.5.6. University of the Western Cape (UWC)

UWC has its Centre for Entrepreneurship and Innovation to provide the environment with a fellowship of support to new and existing entrepreneurs. The centre builds a research programme in entrepreneurship that is relevant to the needs of South Africa and that can drive relevant policy development, and collaborates with national and international partners active in the area of entrepreneurship and entrepreneurship development (<http://www.entrepreneurship.uwc.ac.za/>).

3.6. Climate Conducive to Intrapreneurship

In today's business environment, one of the primary tasks of the business leader is to foster an environment in which entrepreneurial thinking is encouraged and readily takes places. Intrapreneurship or CE often fails because large organisations represent hostile environments for creative ideas (Shamiyeh, 2014, p. 237). Shamiyeh (2014, p. 237) continues to say that innovative proposals are frequently defeated by financial control systems and other formalities that are typical of large bureaucracies. According to Francu (2014, p. 119), it is the bureaucrats' behaviour (that of employees of public institutions) that often hinders the activities of the entrepreneurs. Fostering a climate for innovation will include more than simply removing bureaucracy. A climate for innovation should bring new solutions to old problems (Netshifefhe, 2008, p. 41). Therefore, leadership (like business leaders) must think innovatively to cope with the increasing paradoxes. According to Van Antwerpen (2012, p. 1), if a business does not adopt a proactive attitude towards innovation and the creation of new ventures, it is unlikely to survive in an increasingly aggressive, competitive and dynamic market place. Muñoz, Jesús de Pablo, Peña and Salinero (2016, p. 2) indicate that the need for CE has arisen from a variety of pressing problems among larger businesses, including stagnation, decline and weakness of managerial practice and turnover of innovative-inclined employees who were constrained by the bureaucratic inertia of their businesses. According to Hisrich and Peters (1998, p. 47), organisational characteristics that promote corporate entrepreneurship are: rewards for innovation, management support of entrepreneurial projects, resource availability, risk-taking, and tolerance for failure. Furthermore, these characteristics are contained in the Corporate Entrepreneurship Climate Instrument (CECI) in Kuratko, Morris and Covin (2011, p. 382) and have been widely discussed throughout this study.

- Reward for innovation

Innovative firms have capabilities to monitor the market changes and respond quickly, thus capitalising on emerging opportunities (Nkosi, 2011, p. 16). Reward systems and other motivational tools are key drivers of corporate entrepreneurship designed by organisations to influence behav-

our and encourage employees to take on specific roles and responsibilities (Bhardwaj and Momaya, 2011, p. 189). A firm's incentive structure influences employees perceptions and may encourage employees to display supra-normal levels of entrepreneurial behaviour (McGlone, 2014, p. 12).

– Management support

The role of university management is to provide encouragement, support, and resources needed for employees to seek out, develop, and pursue creative and entrepreneurial initiatives within the organisation (Bhardwaj et al., 2011, p. 189) while at the same time mitigating the risks associated with it (Bouchard, 2001, p. 2). According to Kuratko, Hornsby and Covin (2014, p. 39), top management support has been found to have a direct positive relationship with an organisation's innovative outcomes. Senior management cultivate the strategy and vision for the organisation; in doing so, they provide a roadmap for the firm's future direction and to achieve its objectives (McGlone, 2014, p. 8). Therefore, it is necessary to create management teams who think more like entrepreneurs and less like professional managers, whereby entrepreneurship and entrepreneurial behaviour become one of the crucial dimensions of the revitalisation process (Paunovic and Dima, 2014, p. 271). Management should seek to create an environment in which entrepreneurial behaviour is valued and encouraged as an organisation wide directive (McGlone, 2014, p. 8), while also establishing the appropriate boundaries designed to protect the corporation's reputation, resources, and identity (Belousova et al., 2010, p. 6).

– Resource availability

According to Othman, Arshad, Aris and Arif (2015, p. 121), a firm's resources are an essential factor that influence competitive advantage and performance. The availability of slack resources usually encourages experimentation and risk taking behaviours (Van Zyl, 2015, p. 9). In this paper, the concept of resource availability refers to whether financial support is available for innovative ideas, whether resources are readily available and whether the process to obtain resources is streamlined (Jordaan, 2008, p. 58). Resources are defined as '*anything perceived by the individual to help attain his or her goals*' (Nielsen, Ogbonnaya, Känsälä, Saari and Isaksson, 2017, p. 102). Nielsen et al., (2017, p. 102) further say that resources thus enable employees to successfully complete their tasks and goals, as a way to enhance their well-being and capacity to perform well. According to Govender (2010, p. 42), entrepreneurial ventures are resource consuming activities and, therefore, a firm's ability to pursue innovation will be constrained by available resources. Employees are entitled to see the availability of resources for innovation activities in order to encourage them to experiment and take risks.

– Risk taking

This is about taking bold actions by venturing into the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain environments (Kayode, Olarewaju and Idowu, 2016, p. 104). According to Kuratko et al. (2011, p. 66), it involves the willingness to pursue the opportunities that have a reasonable likelihood to produce losses or significant performance discrepancies. Entrepreneurship in general involves a reasonable awareness of the risks involved including financial, technical, market, and personal and an attempt to manage these risks (Kuratko et al., 2011, p. 66).

– Tolerance for failure

Failure in this paper means unsatisfactory progress in the innovation process (Tian and Wang, 2011, p. 5). According to Hutchison-Krupat and Chao (2014, p. 1), flexible rules and low levels of bureaucracy, or policies that allow continued investment in promising projects despite early failures, are signs of a corporate culture with high tolerance for failure. Internal environment and company strategy are influenced by culture so the needs must be fulfilled by internal culture (Kamatigam, 2017, p. 13). It is well documented that a culture that is focused on cost control measures reflects low tolerance for failure (Smith, 2014, p. 1). University students also have higher risk tolerance. Young entrepreneurs are among the largest segment of current entrepreneurs in the world (Petrilla, 2016, p. 1).

3.7. Universities as Entrepreneurship Ecosystem

Institutions of higher learning acknowledge the key role that universities have in the country in catalysing entrepreneurship. In recent times, universities are perceived as one of the key mechanisms determining the competitive position of countries as well as the level of economic growth and social development (Pavlova and Chernobuk, 2016, p. 1). In a knowledge-based economy, the university-based entrepreneurship ecosystem becomes key to the innovation system both as a human capital provider and as a seedbed of new firms (Frederick, 2011, p. 12). University-based entrepreneurship ecosystem refers to the elements of a particular university's environment that help or hinder the emergence of an entrepreneurial university (Frederick, 2011, p. 14). Universities are passing from revolution to revolution (Frederick, 2011, p. 9). Originally, since the middle ages, universities were dedicated to teaching and conservation of knowledge. This meant that the 'first academic revolution' added research as a major mission to teaching. The second revolution sees the academy taking on another mission to promote economic and social development. Nowadays, universities perform three functions: educational, research and entrepreneurial (Pavlova and Chernobuk, 2016, p. 1). According to the two

authors, Pavlova and Chernobuk (2016, p. 1), the entrepreneurial function, which is the most recent for universities, is often associated with the third university mission aimed at making universities more entrepreneurial.

3.8. Entrepreneurial University

According to Jameson and O'Donnell (2015, p. 70), the term 'entrepreneurial university' is not new, having been introduced by Burton Clarke (1998) to define a particular mind-set to be found within the attributes of such an institution. An entrepreneurial university actively seeks to innovate in how it goes about its business (Taylor, 2012, p. 289). Entrepreneurial universities seek to become 'stand-up' universities that are significant actors on their own terms (Taylor, 2012, p. 289). Using the principles of corporate entrepreneurship to create entrepreneurial universities has been widely reported in the literature (Frederick, 2011, p. 11). In order for universities to develop as institutions with an entrepreneurial culture, the entrepreneurial activities should be established in the strategy (OECD, 2012, p. 4). The modern university is an important component of the entrepreneurial ecosystem due to the fact that it can influence the behaviour of entrepreneurial success (Diaconu and Dutu, 2015, p. 20; Jameson and O'Donnell, 2015, p. 70). The distinctive principle of the entrepreneurial university is that it empowers all staff, students, external stakeholders and communities to effect a meaningful change in the world around them, and does so by directly engaging in such a change through its own activities (Jameson and O'Donnell, 2015, p. 72). Hannon (2013, p. 12) defines an entrepreneurial university as an institution that creates an environment within which the development of entrepreneurial mind-sets and behaviours is embedded, encouraged, supported, incentivised and rewarded. OECD (2012, p. 1) designed a self-assessment tool to help interested universities assess themselves against statements that are organised under the following seven areas:

- Leadership and governance
- Organisational capacity, people and incentives
- Entrepreneurship development in teaching and learning
- Pathways for entrepreneurs
- University-business/external relationships for knowledge exchange
- The entrepreneurial university as an internationalised institution
- Measuring the impact of the entrepreneurial university

According to the OECD (2012, p. 1), these statements are factors likely to be characteristic of the entrepreneurial university.

3.9. Relationship Between Intrapreneurship and Organisational Performance

The existing literature on entrepreneurship has implicitly stated that intrapreneurship and company performance are positively related to each

other (**Zbierowski and Bratnicki, 2014, p. 8**). Consistent with the previous research findings, a study by Ambad and Wahab (2016, p. 272) revealed that the CE practices in large firms have significant effects on the firm performance. The findings imply that our universities need to pay more attention to increasing their entrepreneurial effort to achieve growth and sustainability. In another study on this, Nkosi (2011, p. 76) confirmed that there is an association between CE dimensions and company performance. CE activities such as innovativeness, proactiveness, risk taking (EO dimensions) were found to be positively related to firm profitability and growth. Thus, in order to survive and prosper, large firms must use their resources and capabilities to create competitive advantage so that they can not only achieve higher performance but also outperform their rivals (Ambad and Wahab, 2016, p. 272). Ambad and Wahab (2016, p. 272) further go on to say that in order to be more entrepreneurial and create competitive advantage, the firm must be able to take risks by committing substantial amounts of resources for high-risk projects with chances of very high returns. Nkosi (2011, p. 37) added his voice by saying that organisational performance in a fast and changing environment requires an entrepreneurial approach.

3.10. Literature Gap Statement and Potential Study Contribution

While research on the entrepreneurship ecosystem has gained momentum at the macro level and within the corporate environment, studies on intrapreneurship and its ecosystems, particularly within universities in South Africa, are mostly absent from academic studies. Thus, this study represents a significant step in addressing this gap in literature. It further contributes to the development of literature around the micro-level entrepreneurship study (intrapreneurship) at universities and the higher education environment in general. Previous studies have mostly addressed the entrepreneurship ecosystems and intrapreneurship in isolation, while this research attempts to address these relative to each other. Furthermore, this study will add value to the field and theory of intrapreneurial ecosystems and related areas of study. Firstly, insight into intrapreneurship at universities and its ecosystem will contribute to the body of knowledge of this phenomenon; secondly, generating knowledge about the intrapreneurial ecosystem may create a framework to facilitate the improvement of the existing ecosystem; and finally, the full study is expected to produce a framework of what an enabling intrapreneurial ecosystem should be like and ultimately show how an ideal entrepreneurial university should also look.

In Table 1, a summary of the collected literature is provided together with corresponding authors.

Topic item	Definition	Important findings	Author
Intrapreneurship	<p>Development of new ideas and opportunities within large or established organisations, directly leading to the improvement of organisational profitability and an enhancement of competitive position or the strategic renewal of an existing organisation.</p> <p>Intrapreneurs are employees thinking and acting as entrepreneurs within a company, who are aware of and accept the goals of the company.</p>	<p>Leads to the improvement of organisational profitability and performance.</p> <p>By being intrapreneurial, universities become more responsive to the changing economic, social and technological realities.</p> <p>Commonalities of intrapreneurial organisations include innovation, risk taking and proactiveness</p>	<p>Yellamraju (2015, p. 1); Nkosi (2011, p. 76); Jairam (2016, p. 1)</p> <p>Mathu, (2016, p. 3)</p> <p>Omisakin, Nakhid, Littrell and Verbitsky (2016, p. 9)</p>
Entrepreneurial ecosystem	Comprises anything and anyone which/ who is of relevance to entrepreneurship and its development in any way.	<p>Rich entrepreneurial ecosystem enables entrepreneurship.</p> <p>Dimensions of an EE include governance, innovation, infrastructure, and culture.</p>	<p>Alvedalen and Boschma (2017, p. 893); Stam and Spigel, (2016, p. 7); Erasmus multilateral project (2013, p. 8); Taich, Merissa, Carter and Wilcox (2016, p. i)</p> <p>Stam and Spigel (2016, p. 7)</p>

continued Tab. 1

Topic item	Definition	Important findings	Author
University-Based Entrepreneurship Ecosystem (U-BEE)	<p>Refers to the elements of a particular university's environment that help or hinder the emergence of an entrepreneurial university.</p> <p>The interactions between universities, the finance community, service providers, faculty, and entrepreneurs that help to support economic development and innovation.</p>	<p>Includes multiple levels: the individuals (student, faculty, staff, practitioner, and administration), groups (faculty, students), organisations (incubators, centres), events, and community stakeholders (government, policy-makers, industry, funders).</p> <p>Provides infrastructure, resources, and means to develop entrepreneurial communities.</p>	<p>Frederick (2011, p. 14); Brush (2014, p. 30)</p> <p>Hoskinson and Kuratko (2014, p. 29); Stam and Spigel, 2016, p. 7)</p>
Climate conducive to intrapreneurship	<p>An environment in which entrepreneurial thinking is encouraged.</p>	<p>CE often fails because large organisations present hostile environments for creative ideas.</p> <p>Innovation frequently defeated by financial control systems and other bureaucracies.</p> <p>Organisational characteristics that promote intrapreneurship are: rewards for innovation, management support of entrepreneurial projects, resource availability, risk-taking, and tolerance for failure.</p> <p>Reward systems and other motivational tools are key drivers.</p>	<p>Shamiyeh (2014, p. 237)</p> <p>Francu (2014, p. 119); Muñoz, Jesús, de Pablo, Peña and Salinero (2016, p. 2)</p> <p>Hisrich and Peters (1998, p. 47)</p> <p>Bhardwaj and Momaya, (2011, p. 189); McGlone (2014, p. 12).</p>

Topic item	Definition	Important findings	Author
Universities as entrepreneurship ecosystem		Institutions with a separate department of entrepreneurship, or a college of entrepreneurship, would reflect a higher commitment to it.	Hoskinson and Kuratko (2014, p. 34)
Entrepreneurial University (EU)	An institution that creates an environment within which the development of entrepreneurial mind-sets and behaviours is embedded, encouraged, supported, incentivised and rewarded.	EU can influence the behaviour of entrepreneurial success. Drives out their other more fundamental university qualities.	Hannon (2013, p. 12); Diaconu and Dutu, (2015, p. 20); Jameson and O'Donnell (2015, p. 70) Rizk and Azzazy (2016, p. 98)
Relationship between intrapreneurship and organisational performance		Intrapreneurship and company performance are positively related.	Nkosi (2011, p. 76); Ambad and Wahib (2016, p. 272); Zbierowski and Bratnicki (2014, p. 8)

Tab. 1. Summary of findings from the literature. Source: The author's compilation.

4. Methodology

This paper is based on secondary data, primarily through a literature review building on a PhD study. The study followed an approach classified as content analysis. Building on a conceptual analysis, the existence and repetition of statements in the literature were used as a basis to generate findings from the broader literature. Therefore, a relational analysis was followed by examining the relationships among concepts and statements discussed in the literature. The analysis was conducted using seven concept categories, namely: intrapreneurial ecosystem, University-Based Entrepreneurship Ecosystem (U-BEE), conducive climate, universities as entrepreneurship ecosystem, Entrepreneurial University (EU) and the relationship between intrapreneurship and organisational performance to arrive at the findings.

The full study will follow a mixed method approach. The purpose of mixed methods in the full study is that both qualitative and quantitative research, in combination, provides a better understanding of a research problem or issue than either research approach alone. Data collection will follow an exploratory sequential design. The purpose is to generalise the qualitative findings based on few individuals from the first phase to a larger

sample gathered during the second phase (Creswell and Plano-Clark, 2011, p. 86). The intent of the two-phase exploratory design is that the result of the first (qualitative method) can help develop, modify questionnaires and inform the second phase (quantitative).

4.1. Qualitative Method

Qualitative research is thus useful in exploring intrapreneurship because the subject is multifaceted, comprehensive and requires an approach that can capture what scholars have described as a very complex phenomenon. During this phase, semi-structured interviews will be used to gather data from the management of units where intrapreneurship happens at universities. Interviews will be conducted with directors of technology transfer units, deans, directors of schools and heads of departments or similar levels in terms of post establishments within universities.

4.2. Quantitative Method

For the second phase of the study, self-developed questionnaires (quantitative) will be used to collect data from lecturers and other staff members at the same level as lecturers. These staff members will be drawn from units that are relevant in supporting entrepreneurial development at each university. Closed-ended questions will be included in the questionnaire, where a Likert scale will be used to establish the level of agreement and disagreement of respondents with variables. According to Cooper and Schindler (2008:189), a Likert scale is the most frequently used variation of summated rating scales. The questionnaires will be administered through emails and SurveyMonkey.

5. Limitations of the Study

While many public documents and official statistics are freely available, the information analysed may not be representative of the wider population. Another major limitation of the analysis of existing data is that the researchers analysing the data are not usually the same individuals as those involved in the data collection process. Therefore, they are probably unaware of study-specific nuances or glitches in the data collection process that may be important for the interpretation of specific variables in the dataset (Cheng and Phillip, 2014, p. 374). Therefore, the researcher acknowledges the fact that the primary data may have been collected under different circumstances, thus impacting on the initial intended results. Lastly, there has not been a study on intrapreneurship at universities in South Africa, thus limiting the literature for this study. Therefore, future studies on this topic and the collection of primary data could help find a conceptual framework. Finally, this study on intrapreneurship focuses on a particular environment (South Africa) and the particular sector of the economy (universities); therefore,

its findings cannot be generalised to the entire population in the higher education sector especially outside South Africa.

6. Conclusion

It is well documented that more and more institutions would like to elicit entrepreneurial behaviours from their employees and are thinking of intrapreneurship as a potentially effective development tool. Therefore, it has become important for institutions of higher learning (universities) to try and realistically appraise the internal ecosystem for intrapreneurship to see if it can be embedded within the institutional environment. In view of studying the intrapreneurship ecosystem at universities in South Africa, there has been an interesting note in that the supportive framework conditions for intrapreneurship at universities in South Africa are insufficient. Literature suggests that there is a significant positive relationship between intrapreneurship and organisational performance. This statement is consistent with the finding that rich ecosystem enables intrapreneurship. Therefore, ignoring the internal ecosystem may achieve the opposite.

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