MAPPING THE TRANSITION FROM A TRADITIONAL UNIVERSITY INTO AN ENTREPRENEURIAL UNIVERSITY

BY

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DECLARATION

I, Tharusha Naidoo, confirm that the work of the Research Project titled, "Mapping the transition from a traditional university into an entrepreneurial university" is my original work and that none of its parts in entirety or part of has been published before. Sections, where works of other authors and documents reviewed were used, have been recognized and referenced accordingly.

Tharusha Naidoo   01/08/2020

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Signature   Date

ABSTRACT

The study aims to map the transition of a traditional university into an entrepreneurial university. The concept of the entrepreneurial university has been established as a game changer in the development and innovation spheres at higher education institutions worldwide. In the year 2002, the South African Higher Education sector embarked on a modelling and redefining journey which gave birth to the National Plan for Higher Education. The Entrepreneurship Development in Higher Education has undertaken work done on the entrepreneurial university which gave rise to the mapping that breeds ground towards policy. This study sought to investigate whether there is a conducive environment at Rhodes University, with an entrepreneurial climate to develop institutional capabilities and build new networks. The research highlights the current direction of Rhodes University and elaborates on the potential for the transition towards an entrepreneurial university.

An overview of the entrepreneurial university was provided through an analysis of literature, which dominated in the more developed countries compared to South Africa. The researcher adopted a qualitative research study to capture the direct experiences of the individuals that are in the institution. A questionnaire was designed using the Organisation for Economic Co-operation and Development Guiding Framework and the direct perceptions of academics from the university were documented. The objectives were firstly, to explore elements of leadership and governance that enhance transformation of Higher Education Institution from a traditional university towards an entrepreneurial university. Secondly, to investigate internal resources that enhance Organisational Capacity with specific reference to people and incentives. Lastly, to determine how Teaching and Learning strengthen entrepreneurship development.

The interviews revealed that the challenges faced by the institution were closely linked to those recognized by existing literature. What was interesting to note, limited funding and support were regarded as the most significant problems, closely followed by unskilled people and lack of infrastructure. It is suggested that cultivating and nurturing

an entrepreneurial culture is of paramount importance together with the creation of a policy framework. Furthermore, the study concluded with practical recommendations proposed to management regarding the three strategic lenses. The research also illustrated that Rhodes University may not be viewed as being entrepreneurial but certainly has pockets of entrepreneurship and innovative activities.

Key words: Higher Education; Entrepreneurial University; Entrepreneurship

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-Om Namah Shivaya-

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"Be the change you wish to see in the world."
Do we have what it takes to play our part
in this entrepreneurial revolution?

- Mahatma Gandhi
(World renowned activist and leader)

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LIST OF ABBREVIATIONS

- 4IR   -   Fourth Industrial Revolution

- COP   –   Community of Practice

- DEA   –   Department of Environmental Affairs

- DHET   –   Department of Higher Education and Training

- EDHE   –   Entrepreneurship Development in Higher Education

- EP   –   Erasmus Program

- ERAS   –   Ethical Review Application System

- ESER   –   Economic and Social Research Council

- EU   –   European Union

- GDP   –   Gross Domestic Product

- HEI   –   Higher Education Institution

- HEI's   –   Higher Education Institutions

- HELTASA   –   Higher Education Learning and Teaching Association of Southern Africa

- MBA   –   Masters of Business Administration

- MRC   –   Medical Research Centre

- NMU   –   Nelson Mandela University

- NUEEBR   –   National University Entrepreneurship Ecosystem Baseline Report

- OECD   –   The Organisation for Economic Co-operation and Development

- RBT   –   Resource Based Theory

- RUESC   –   Rhodes University Ethics Standards Committee

- RUIDP   –   Rhodes University Institutional Development Plan

- RUIPP   –   Rhodes University Intellectual Property Policy

- SDG'S   –   Sustainable Development Goals

- SAIAB   –   South African Institute Aquatic Biodiversity

- SARCHI   –   South African Research Chairs Initiative

- SME's   –   Small Medium Enterprises

- SU   –   Stellenbosch University

- UNESCO – United Nations Educational Scientific and Cultural

  Organisation

- UCT – University of Cape Town

- UFH – University of Fort Hare

- UKRI – United Kingdom Research and Innovation

- UKZN – University of Kwa-Zulu Natal

- WSU – Walter Sisulu University

- WRC – Water Research Council

CHAPTER 1

INTRODUCTION, BACKGROUND, CONTEXT AND SCOPE

1.1 INTRODUCTION

The Higher Education sector encounters complex dilemmas with regards to defining its core existence. Challenges linked to this include but are not limited to, leadership, budgets (Kenno, Lau, Sainty, and Boles, 2020), information technology (Hasan, Hoque, Chowdhury, Mohib, and Ahad, 2020), reconceptualising (O'Leary and Cui, 2020), diversity and differentiation. These further include grappling with transition challenges to transform when there are barriers in place (Gravett and Kinchin, 2020). These challenges need to be addressed by the organisation first in order to move forward successfully.

Education is seen in the light of an investment which yields returns for the individual and the economy (Case, Marshall, McKenna, and Mogashana, 2018). Higher Education in Africa has two faces according to the Ernst and Young World Bank Report (2012). The one face speaks to the traditional university which struggles to survive the changes in today's dynamic world. The second face speaks to the concept of an entrepreneurial university. The concept of an entrepreneurial university is illustrated by innovation, teaching and learning, exchange of knowledge and governance (Guerrero, Toledano, and Urbano, 2011). This requires taking into consideration the importance of entrepreneurship in the economic development of the country and sustainability for future generations. It is important to analyse the role played by entrepreneurial universities as a knowledge powerhouse (Guerrero and Urbano, 2012). Entrepreneurial universities portray a significant dual part as producers and disseminators of knowledge (Guerrero and Urbano, 2012), it creates job opportunities and generates socio-economic value through synergies with industries and institutions (Etzkowitz, 2004).

1.2 BACKGROUND AND CONTEXT TO THE STUDY

The research study focusses on Rhodes University (RU), which is a small, public higher education institution and juristic person in terms of the Higher Education Act No.101 of 1997, as amended and existing under the laws of the Republic of South Africa (Higher Education Act No.101 of 1997). This university, located in Grahamstown / Makhanda, prides itself in being recognised nationally and internationally as a research-intensive traditional university (Rhodes University Institutional Development Plan 2019). It is home to 15 renowned South African Research Chairs Initiative (SARCHI chairs). The university's mission is to be, "an outstanding internationally-respected academic institution with sound moral values and social responsibility" (RUIDP, 2019).

1.2.1 The research-intensive traditional university

RU has various partners and funders that it collaborates with. These include, but are not limited to research partners and funders such as: South African Institute Aquatic Biodiversity (SAIAB); Water Research Commission (WRC); Medical Research Council (MRC); Economic and Social Research Council (ESRC); European Union (EU); Erasmus Programme (EP); Higher Education Learning and Teaching Association of Southern Africa (HELTASA); Department of Environmental Affairs (DEA); Department of Higher Education and Training (DHET); and United Kingdom Research and Innovation (UKRI) . A number of Higher Education Institutions (HEI's) in South Africa such as: University of Fort Hare (UFH); Nelson Mandela University (NMU); Walter Sisulu University (WSU); Stellenbosch University (SU); University of Capetown (UCT); University of Kwa-Zulu Natal (UKZN). African partners such as: University of Rwanda (UR); University of Makarere (UM); University of Addis Ababa (UAA); University of Lagos (UL); University of Dar es Salaam (UDES); University of Cheikh Anta Diop (UCAD). International collaborative higher education partners include, but are not limited to: University of Kassel; Sheffield University; Lanchester University; University of Leeds and University of Queens etc.

Figure 1: Rhodes University, The Research-Intensive Traditional University
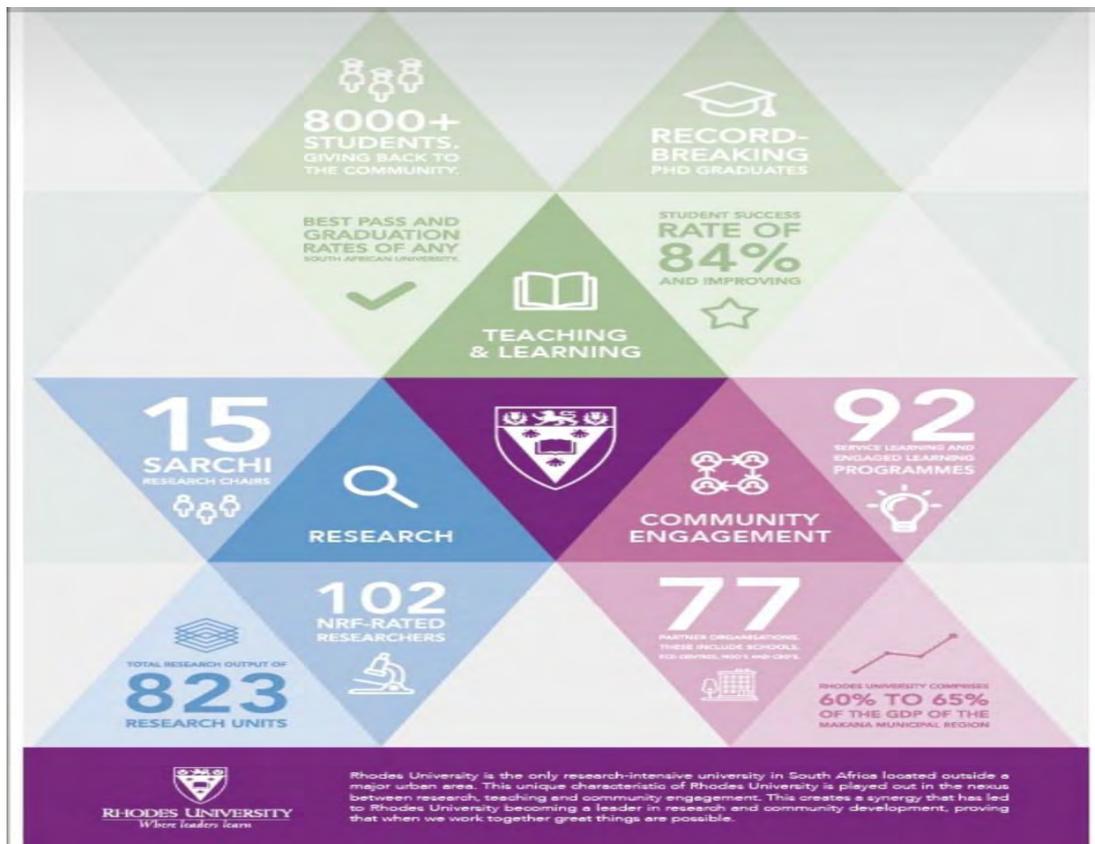
RU is viewed as the only research-intensive traditional university in the country which is situated outside an urban zone (RUIDP, 2018). As shown in Figure 1 above, an info gram which reveals RU's core elements as the defining unique features.

1.2.2 Rhodes University research output

There are 44 research institutes and related entities at the university comprising of six faculties – Faculty of Science, Faculty of Pharmacy, Faculty of Law, Faculty of Humanities, Faculty of Education and Faculty of Commerce. Rhodes University is home to 15 South African Research Chairs Initiative (SARCHI's). The SARCHI's are: Distinguished Professor Martin (field of insects in sustainable agricultural ecosystems); Professor Rosemary Dorrington (field of marine natural products research); Professor Adrienne Edkins (field of molecular and cellular biology of the eukaryotic stress response); Professor Mellony Graven (field of South African

numeracy); Professor Russel Kaschula (field of intellectualisation of African languages, multilingualism and education); Professor Janice Limson (field of biotechnology, innovation and engagement); Distinguished Professor Heila Lotz-Sisitka (field of global change social learning systems development); Distinguished Professor Catriona Macleod (field of critical studies in sexuality and reproduction); Distinguished Professor Christopher McQuaid (field of marine ecosystems and resources); Distinguished Professor Tebello Nyokong (field of medicinal chemistry and nanotechnology); Professor Marc Schafer (field of mathematics education); Professor Charlie Shackleton (field of Interdisciplinary science in land and natural resource use for sustainable livelihoods); Professor Ruth Simbao (field of geopolitics and the arts of Africa); Professor Oleg Smirnov (field of radio astronomy techniques and technologies) and Honary Professor Olaf Weyl (field of inland fisheries and freshwater ecology). There are 102 NRF-Rated Researchers and RU has a total output of 823 Research units (RUIDP, 2018).

1.2.3 Teaching and learning

There are approximately 8000 students on the campus who are also involved with giving back to the community (RUIDP, 2018). RU prides itself in having the best pass and graduation rates for a South African University (RUIDP, 2018). The institution is proud of its record-breaking PhD graduates and has a student success rate of 84% and improving (RUIDP, 2018).

1.2.4 Community engagement

Rhodes community engagement activities are done with approximately 77 community partner organisations that Rhodes engages and interacts with (RUIDP, 2018). These include schools, non-governmental organisations, funders, collaborators etc. It is through this programme that there are approximately 92 service learning and engaged learning programmes offered (RUIDP, 2018). The institution contributes between 60-65% of the Gross Domestic Product (GDP) of the Makana Municipal Region (RUIDP, 2018).

1.2.5 Rhodes University strategic goals

In 2018, RU institutional council approved the release of an Institutional Development Plan which documented the institutions strategic direction (RUIDP, 2018). This document highlighted seven strategic goals as viewed in Table 1 below. The Table 1 below depicts where Rhodes University is and its strategic goals.

Table 1: Rhodes University Strategic Goals

GOAL 1	Maintain and strengthen our general formative degree offering and the research-teaching- community engagement nexus which enable our students to access powerful knowledge.
GOAL 2	Enable access to Rhodes University by all academically qualifying students and provide them with conditions which enable all students to flourish and which promote their holistic development as critical citizens.
GOAL 3	Maintain and strengthen our unique institutional niche as a research-intensive university outside a major urban area.
GOAL 4	Ensure financial and environmental sustainability practices at Rhodes University through good governance, leadership and management.
GOAL 5	Attract, nurture and retain staff of high calibre and maintain an inclusive, welcoming, affirming and positive institutional environment.
GOAL 6	Provide relevant/appropriate academic infrastructure, equipment and facilities to support our academic project.
GOAL 7	Promote Rhodes University as an institution for public good in local, provincial, national and international contexts.

(RU Institutional Development Plan, 2018)

1.3 RESEARCH SCOPE

The South African Higher Education sector in the year 2002 embarked on a modelling and redefining experience which resulted in the National Plan for Higher Education (RUIDP, 2018). This approach gave rise to the identification of three kinds of universities. The first was termed traditional universities which undertook qualifications that were foundational and specialised (RUIDP, 2018). Within the traditional universities existed a few universities which were tagged as "research-intensive." These "research-intensive" universities were fortunate enough not to be hampered with by the blending and mixture process that took place thereafter (RUIDP, 2018).

This was due to the fact that 80% of the research output was marked as valuable to the economy in the national planning. Rhodes University was one of the universities in this category. The second was categorised as universities of technology which undertook qualifications focussed on natural talent and abilities (RUIDP, 2018). The final category was a mixture of the two and called Comprehensive Universities (RUIDP, 2018).

1.4 RELEVANCE

In this section, it is essential to first define the key concepts to determine the relevance of this research study.

1.4.1 Definitions of terms and concepts

- **Entrepreneurship Ecosystem** – An environment that works together with the aim of developing a creative and intellectual space where entrepreneurs can flourish and succeed (Ashri, 2013).

- **Entrepreneurial University** - The wide definition of the entrepreneurial university has varied throughout the years as it considers new sources of funds like patents, research funded by contracts and entry into partnerships with private enterprises (Etzkowitz, 2003). An entrepreneurial university is described as a university that has the capability to work together in teams, not afraid to bear risks and address challenges, be creative, acknowledge and produce opportunities (Guerrero-Cano, Urbano, and Kirby, 2006).

- **Traditional University** – Traditional universities are not concerned about profit and loss but competing in the market place through knowledge (Etzkowitz, Webster, Gebhardt, and Terra, 2000).

1.4.2 Entrepreneurial ecosystem at higher education

Entrepreneurship Development in Higher Education (EDHE, 2019), has three major goals which focus on: 1) Developing entrepreneurial universities - by creating a conducive environment that will ensure universities adapt and undertake projects whereby third-stream income is generated through innovative business ideas (EDHE, 2019). 2) Entrepreneurship development in academia - by implanting an entrepreneurial seed within all students and graduates (EDHE, 2019). This can be achieved across all disciplines and is intertwined with learning, research, teaching and community contribution (EDHE, 2019). 3) Student entrepreneurship – mobilising the national student and graduate resource to create successful enterprises that will promote wealth and job opportunities (EDHE, 2019). There is a committed EDHE Community of Practice (CoP) in line with the three goals for entrepreneurship in academia (EDHE, 2019).

A baseline study of entrepreneurship education at Higher Education Institutions conducted on all 26 South African universities through the British Council and Entrepreneurship Development in Higher Education (NUEEBR, 2020; EDHE, 2019). This study contributed to the formation of the National University Entrepreneurship Ecosystem Baseline Report (NUEEBR, 2020). This report provides input into the curriculum; teaching and learning; funding for entrepreneurship development; audit; policy and creation of an enabling environment for the 26 universities in South Africa. It further explains how these institutions are contributing to the generation of an entrepreneurial culture. Recommendations highlighted learning and best practices for working towards the creation of a national policy framework (NUEEBR, 2020).

The research findings of the report include:

Review:

a) EDHE to create a framework to assist the universities with commencement of a review of their entrepreneurship development programs (NUEEBR, 2020).

<u>Forming an entrepreneurial climate</u>:

a) Identifying a champion at the universities to establish responsibility for entrepreneurship development (NUEEBR, 2020).
b) Boost awareness through EDHE Communities of Practice within universities (NUEEBR, 2020).
c) Develop concise strategies (NUEEBR, 2020).
d) The universities to form a committed and well-skilled team with strategic vision for entrepreneurship development (NUEEBR, 2020).
e) Evident opportunities for students. (NUEEBR, 2020).

<u>Syllabus</u>:

a) Entrepreneurship thinking integrated into programmes (NUEEBR, 2020).
b) Work towards forming partnerships with foundations and partners (NUEEBR, 2020).
c) Evaluate and look for the entrepreneurial cultural abilities (NUEEBR, 2020).

<u>Education and Knowledge Sharing</u>:

a) Needs assessment of the university should be undertaken (NUEEBR, 2020).
b) The British Council to increase its support (NUEEBR, 2020).
c) Funds, should be available to support staff who have the intention to pursue entrepreneurial activities (NUEEBR, 2020).

<u>Capital for entrepreneurship development</u>:

a) Funding allocated for entrepreneurship development by government partners (NUEEBR, 2020).

The EDHE has undertaken work done on the entrepreneurial university which has further given rise to the mapping that breeds ground towards policy.

1.4.3 Entrepreneurial vs traditional university (the pros and cons)

RU as a traditional university faces some challenges. These are directly and indirectly linked to the location, infrastructure and culture (norms and traditions).

Traditional Universities are established to be the guardian of reason, inquiry and philosophical openness, preserving pure inquiry and focussing on social mobility (Allan, 2018). This makes RU a traditional university. As a traditional university, its strategic mission is supported with good values and is responsible for social impacts (RUIDP, 2018). This research will map the transitional path for RU. Traditional universities are not concerned about profit and loss but competing in the market place through knowledge transfer (Etzkowitz, Webster, Gebhardt, and Terra, 2000). Table 2 below, indicates these realities in contrast to the benefits of an entrepreneurial university.

Table 2: The Entrepreneurial vs The Research-Intensive Traditional University

Professors and academics/researchers can serve as role models for start-up businesses (Sperrer, Müller, and Soos, 2016).	An old infrastructure and having to be responsible for the upkeep of such (RUIDP, 2018).
Professors and academics/researchers may come to realise their own innovations whilst collaborating together with their students (Sperrer, Müller, and Soos, 2016).	The poor or lack of local government infrastructure and effect on the university (RUIDP, 2018).
Provides additional third-stream income (Zawdie, 2010).	Inadequate financial resources (RUIDP, 2018).
A few businesses can see new academic undertakings as a threat for competition and may decide to restrict the roles of universities to purely services of research and consulting. This interpretation is aged and can be perceived to be in contrast to the entrepreneurial university as it would heavily constrain economic development (Etzkowitz, 2000).	Fluctuations in the student body profiles (RUIDP, 2018).

This type of university cements strong relationships with internal and external stakeholders which leads to students being exposed to education which is relevant (Sperrer, Müller, and Soos, 2016).	Little and unhurried transformation in senior leadership and academic staff demographics (RUIDP, 2018).
The entrepreneurial university provides a clear setting whereby the internal resources and capabilities can be associated to the external environment (Sperrer, Muller, and Soos, 2016).	Numerous processes are outdated and no longer required (RUIDP, 2018).
Creates job opportunities and generates socio-economic value through synergies with industries and institutions (Etzkowitz, 2004).	Traditional universities are not concerned about profit and loss but competing in the market place through knowledge (Etzkowitz, Webster, Gebhardt, and Terra, 2000).
Preparing the students for the 4IR to help improve entrepreneurship and education (Naude, 2017).	Entrepreneurial goals are not present in the IDP (2018).

1.5 RESEARCH PROBLEM

Clark (1998), elucidates the pressure experienced by universities to undergo the process of transformation and alludes that there seems to be an "imbalance in the environment-university relationship." The researcher conducted this study to map the transition from a traditional university towards an entrepreneurial university. The researcher was interested in investigating the university's current status and whether it was open to transforming itself into an entrepreneurial university.

Mapping opens a pathway to successful business improvement and creates a bigger picture that represents something significant. It creates accessibility, simplicity and accuracy. It is important in an organisation to break down silos and help employees understand where they fit.

There appears to be no entrepreneurial goals at RU as highlighted in Table 1. However, goal three highlights that the institution wishes to maintain and strengthen its reputation as a "research intensive traditional university…" (RUIDP, 2018).

Opportunities of transforming research output into knowledge economy, commercialisation of research and creating spinoff companies are missed. This brings the researcher to question, why is the institution not tapping into these spaces. This research question guided the problem. The transition towards an entrepreneurial university provides a sustainable funding model for current and future generations (Clark, 1998). It is not clear if there is a lack in cultivating and nurturing an entrepreneurial culture within the institution. Thus, mapping this transition could open pathways for successful improvements towards a bigger picture that represents something unique and significant.

1.6 RESEARCH AIMS AND OBJECTIVES

This study maps the transition from a traditional university towards an entrepreneurial university using the Organisation for Economic Co-operation and Development (OECD) Framework as a tool. To achieve this, the guiding objectives are:

- To explore elements of leadership and governance that enhance transformation of a Higher Education Institution from a traditional to an entrepreneurial.
- To investigate internal resources that enhance Organisational Capacity with specific reference to people and incentives.
- To determine how Teaching and Learning strengthen entrepreneurship development.

1.7 GUIDING FRAMEWORK

This researcher utilised the guiding framework suggested by the OECD (2012) and depicted in the representation below in Figure 2. The framework depicts seven lenses which drive an entrepreneurial university. The lenses include: 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 International Institution and Measuring the Impact of the Entrepreneurial University.

For this study the researcher selected three strategic lenses of the framework highlighted below which helped explore the elements of leadership and governance, investigate internal resources and determined how teaching and learning strengthened entrepreneurship development.

Figure 2: A Guiding Framework for Entrepreneurial Universities
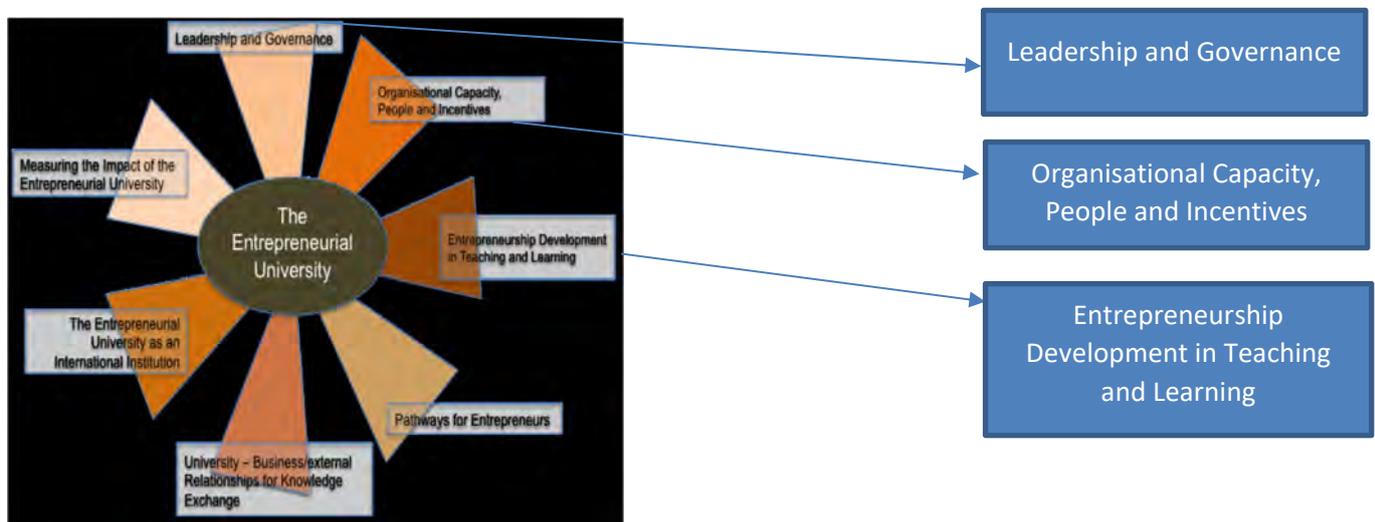
(OECD 2012)

The OECD forms part of the European Commission (consisting of 36-member countries) and provides a framework that guides universities on being entrepreneurial. The OECD, (2012) provides a guiding framework for universities to be entrepreneurial by providing tools for the efficient management of cultural and institutional change. Institutions are rated on Leadership and Governance; Organisational Capacity, People and Incentives; Entrepreneurship Development in Teaching and Learning; Measuring the Impact of the Entrepreneurial University; Entrepreneurial University as an International Institution; University – Business or External Relationships for Knowledge Exchange and Pathways for Entrepreneurs (OECD, 2012).

As an approved tool, the OECD tool has been benchmarked as a successful framework that provides guidance into determining whether a university has the necessary: entrepreneurial culture, mind-set and structures in place to be entrepreneurial. There is insufficient evidence on the use of the OECD tool in South Africa. However, its effectiveness as a tool has been acknowledged. The tool has proven to be successful in a number of universities outside South Africa.

Justification for this study is to focus on the three key strategic lenses which is based on the following: leadership and governance (the strategy); organisational capacity (resources) and teaching and learning (method of execution). The researcher does not undermine the significance and importance of the remaining four lenses but places emphasis on the strategic three in relation to RU. This, will assist the researcher in identifying the strategic opportunities that enables the university in the transformation towards an entrepreneurial front. The researcher acknowledges that the research is a mini-thesis and is restricted to pertinent areas of relevance to RU. This study is part of a bigger research study done on RU, looking at the institution, the students and academia. Thus, this mini-thesis forms part of a bigger Masters of Business Administration (MBA) cohort research where fellows focus on adding value to the remaining four lenses.

Figure 3: The Three Strategic Lenses
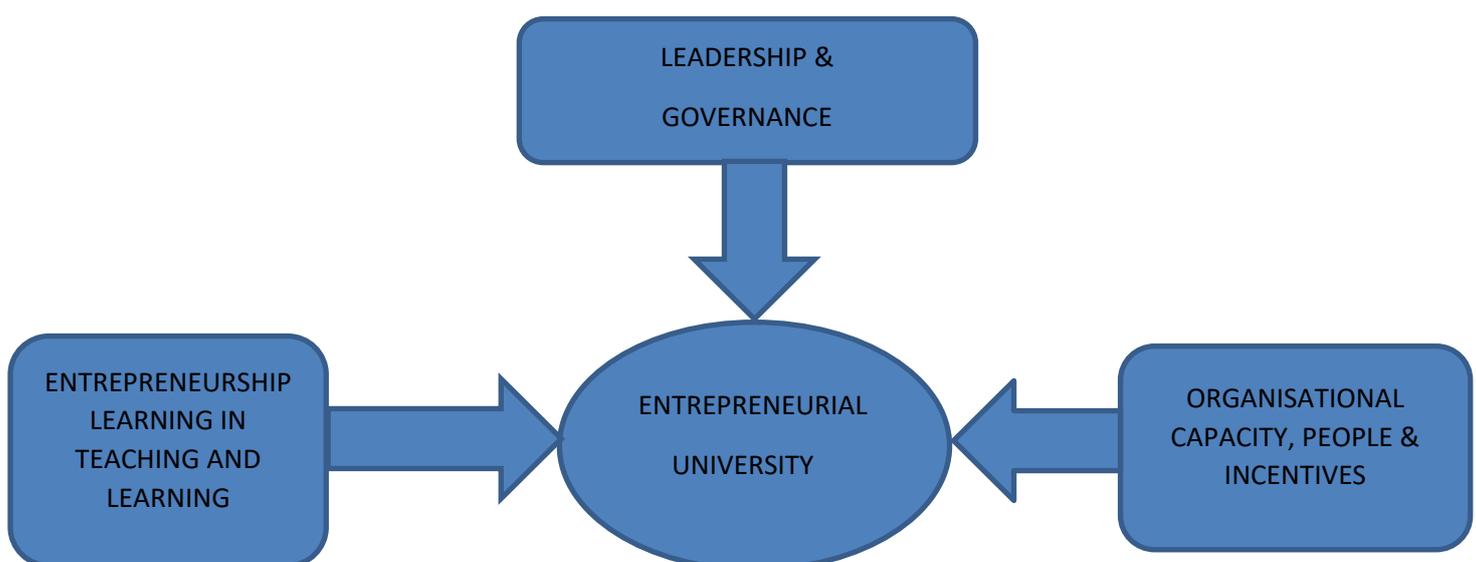
(created by the author)

This study focusses on three strategic lenses as seen in Figure 3 above focusing on leadership and governance, organisational capacity and entrepreneurship development in teaching and learning. They have been adapted from the OECD tool.

1.7.1 Leadership and governance

The first component which the researcher will be discussing, that contributes to the development of an entrepreneurial university is: Leadership and Governance. An entrepreneurial mind-set is born from efficient leadership and effective governance (OECD, 2012). Both are highly regarded towards the development of an entrepreneurial university. In this section the researcher will delve into areas of the university strategy, commitment to applying the entrepreneurial strategy, entrepreneurial activities, autonomy in departments and university influences.

1.7.2 Organisational capacity, people and incentives

The second component which the researcher will be discussing, that contributes to the development of an entrepreneurial university is: Organisation Capacity, People and Incentives (OECD, 2012). Universities can be conflicted by their individual organisation structures which can make it challenging and limits the various entrepreneurial activities (OECD, 2012).

1.7.3 Entrepreneurship development in teaching and learning

The third component which the researcher will be discussing, that contributes to the development of an entrepreneurial university is: Entrepreneurship Development in Teaching and Learning (OECD, 2012). This includes entrepreneurial mindsets, skills, entrepreneurship champions, promoting entrepreneurship in teaching spaces, support mechanisms, collaborations with external stakeholders and diversification of research findings.

1.8 CHAPTER OUTLINE

The research is presented in six chapters which identify the following fundamental issues:

Chapter One: This part looked at the introduction, background and context for the study. The relevance and research problems were emphasized. The guiding framework was introduced as the tool used to highlight the three strategic lenses.

Chapter Two: Review of literature. In this chapter the understanding of the concept of entrepreneurial university, the entrepreneurial climate and the entrepreneurial ecosystems are introduced and unpacked in greater detail. The chapter will also highlight the status of the realms at Rhodes University as explored in the literature available.

Chapter Three: This chapter looks at the methodology and conceptual framework used in this research.

Chapter Four: This chapter emphasises the fundamental findings of the study.

Chapter Five: A discussion on the results of the study highlighting the fundamental themes taken out from the findings is provided in this chapter.

Chapter Six: This chapter provides the conclusion for the study and recommendations for future research.

1.9   CONCLUSIONS

It can be determined that this chapter provided the context, scope and background for the study as an overview, identifying the problem was not easy, thus a case was built to highlight the benefits of an entrepreneurial university and the challenges faced by a research-intensive traditional university.

The researcher explored elements that enhance transformation and strengthen entrepreneurship development at a strategic level, whilst reviewing the organisation's internal resource capabilities.

The next chapter will look at existing literature on the entrepreneurial university which will digest the concept and the strategic focus areas, as well as unpacking a few studies.

CHAPTER 2

REVIEW OF LITERATURE

2.1   INTRODUCTION

The entrepreneurial university is a concept that surfaced in the early 1980s with many views on how higher education institutions could play their part in economic growth and social change (Klofsten, Fayolle, Guerrero, Mian, Urbano and Wright, 2019). The rift between Ivory Tower and Entrepreneurial University gives recognition to both the useful and theoretical implications of research (Etkowitz 2011). The model and preparation of how to transition a university into an entrepreneurial player is at the primary attention of academic and policy all over the world. (Etzkowitz, Alarmartine, Keel, Kumar, Smith, and Albats, 2018).

Universities are experiencing the next academic revolution which takes into consideration the third mission of developing the economy (Sánchez - Barrioluengo, Uyarra, and Kitagawa, 2019). However, diverse universities respond in a different manner to the outside macro environmental demands (Sánchez - Barrioluengo, Uyarra, and Kitagawa, 2019).

2.2   UNDERSTANDING THE ENTREPRENEURIAL UNIVERSITY

The nationwide climate for universities is always shifting (Jacob, Lundqvist, and Hellsmark, 2003). Building an entrepreneurial university is a long-term plan as it is essential to incorporate specific modifications for realisation. The modifications include, but are not limited to infrastructure and cultural changes. (Jacob, Lundqvist, and Hellsmark, 2003). The pressure to commercialise knowledge creates great uncertainty for the role of universities (Jacob, Lundqvist, and Hellsmark, 2003). The demand for the concept together with its goals with regard to the challenges that universities are faced with has contributed to the ambiguity in the definition (Jones and Paton, 2020).

Traditional Universities are established to be the guardian of reason, inquiry and philosophical openness, preserving pure inquiry and focussing on social mobility (Allan, 2018). Traditional universities are not concerned about profit and loss but competing in the market place through knowledge (Etzkowitz, Webster, Gebhardt, and Terra, 2000).

Entrepreneurial universities consist of changing academic traditions, decision-making levels, research values and sub-organisation cultures (Klofsten, Fayolle, Guerrero, Mian, and Urbano, 2019). Entrepreneurship can be understood as an innovative activity which mixes current resources with the capacity to produce new capital (Soran, Şeşen, Genç, Castanho, and Kırıkkaleli, 2020). Knowledge transfer plays a new and vital role by universities (Treviño, 2020). Technological, cultural, social and scientific entrepreneurships all contribute to this transfer and displays a critical part in the universities fourth function (Treviño, 2020).

In an entrepreneurial university, there are many interrelationships which are made internally amongst research, teaching and culture (Treviño, 2020). Simultaneously, connections are created to help unravel social problems (Treviño, 2020). Emphasis is placed on the aim of building linkages between the core purposes of the universities and this will boost the students' fundamental education in diverse parts of knowledge (Treviño, 2020). The Triple Helix Model (Etzkowitz, 2002) has a high presence on the RU campus and places emphasis on the third mission (Zawdie, 2010) which is to find ways to bring in an additional third-stream income. The Triple Helix Model exhumes a change from a university-industry nexus which is more linear in nature (Etzkowitz, 2002), towards holistic innovative synergies. These shifts are braced by environmental regulations and government subsidised programs (Etzkowitz, 2002). The synergies morph into "university-industry-government" interactions (Etzkowitz, 2002) forming more stronger bonds.

2.3   GUIDING THEORY

The Resource – based theory (RBT) has evolved over the years and stands proudly as one of the theories for conceptualising organisations. Research indicates that this

theory has reached a maturity level and in 2011 there appeared to be great concern and debate about whether this theory was on the decline or needed revitalisation (Barney, Ketchen, and Wright, 2011). For this study, the RBT will be used due to its focus on competitive advantage (Grant, 1999). Grant (1999) underpins this theory accurately by concentrating on the internal resources of the organisation, and how these can be exploited by the organisation to gain a competitive advantage. The crux of the research will be based on the interpretation of the internal resources to support the creation of value and competitive advantage at a higher education institution. Intangible resources such as intellectual property, transformation and knowledge together with the tangible resources such as academic programmes, infrastructure, policies and leaders, will be assessed.

It is important for an institution to pin-point its resources and capabilities in order to realise the quality of these resources and the potential thereof. The theory has gained popularity with the reputation of being a theory that delineates the value of resources and capabilities (Barney, Ketchen, and Wright, 2011). On the other hand, these rare qualities can create serious challenges in the organisation which may prohibit or restrict the competitive advantage and reveals the implications for the management of future strategy research (Coff, 1997). Colbert, (2004) also illuminates the complex strategic human resource management and interprets the resource-based view by aligning the theory with complexity. Therefore, the RBT of competitive advantage can be a source of sustainable competitive advantage for the organisation (Davis, 2017). The entrepreneurial university provides a clear setting whereby the internal resources and capacities can be associated to the external environment (Sperrer, Muller, and Soos, 2016).

2.4   GUIDING FRAMEWORK

OECD and the European Commission's Higher Education Innovate group outline the characteristics of an entrepreneurial higher education institution. Coming first on the list, is Leadership and Governance closely shadowed by Organisational Capacity, People and Incentives (Gibb et al, 2013) (Etzkowitz, Alarmartine, Keel, Kumar, Smith, and Albats, 2018).

The OECD Guiding Framework has been developed to assist universities who have a vested interest in evaluating themselves with a set of questions (OECD, 2012). It further highlights their present-day condition by also considering their home-grown and nation-wide surroundings. The higher education sphere is constantly bracing itself against extraordinary problems in the line of its core, purpose, and identity (OECD, 2012).

2.4.1 Leadership and governance

Proposition a = Leadership and Governance.
Entrepreneurial focussed strategic leaders (including those at governance and leadership levels) tend to enhance institutional entrepreneurial capabilities that strengthen an entrepreneurial institution.

Governance and entrepreneurship have a positive affiliation to each other as an economic growth enhancing factor (Méndez-Picazo, Galindo-Martín, and Ribeiro-Soriano, 2012). The concept of an entrepreneurial university highlights the importance of public policy on a global scale. It revisits the history of policies from earlier years (Gibb and Hannon, 2006) and acknowledges that there has been inconsistency and minimal commitment over time, which has restricted the impact. The relationship between governance, entrepreneurship and economic growth has to be scrutinised. Entrepreneurship has an isolated area of study that is distinctive from other domains (Vecchio, 2003). A number of hypotheses referred to in describing entrepreneurship also originated from the conventional theory of leadership (Vecchio, 2003). Entrepreneurship can be viewed as leadership within a particular setting (Vecchio, 2003).

Examining the connection between governance, economic growth and entrepreneurship means that governance can be interpreted as how an organisation is governed (Méndez-Picazo, Galindo-Martín, and Ribeiro-Soriano, 2012). It entails how government conducts itself, including a number of procedures which consist of historical, cultural, social and political factors (Méndez-Picazo *et al,* 2012). There is not any specific way in which to interpret the word governance and at times it is linked to concepts such as democracy, corruption and institution (Méndez-Picazo *et al,*

2012). Governance would have an unintended influence on economic growth (Méndez-Picazo *et al*, 2012). There exists an optimistic association between governance and entrepreneurship which directly boosts economic growth (Méndez-Picazo *et al*, 2012). It is important to determine what type of civilisation we wish to build and that we can preserve (Méndez-Picazo *et al*, 2012).

There exists pressure with globalisation. The need for sustainable funding and policy adaptability is paramount. An entrepreneurial approach will guide leaders of the university and assist them with recognising and managing challenges with regards to creating a good strategy (Klofsten, Fayolle, Guerrero, Mian, and Urbano, 2019).

During the past couple of years, universities have been at the forefront of many difficulties. As a result of these demands and forces, universities are championing for sustainability and mapping new pathways to address these prospects for the sustainability of themselves (Soran, Şeşen, Genç, Castanho, and Kırıkkaleli, 2020). United Nations Educational Scientific and Cultural Organisation (UNESCO), alludes to the key for sustainable development which is to transform the university in its entirety. This transition towards an entrepreneurial university may be great encouragement for sustainable development (Soran, Şeşen, Genç, Castanho, and Kırıkkaleli, 2020).

2.4.2 Organisational capacity, people and incentives

Proposition b = People and Incentives.
Having good leaders with the right mindset and skills (internal capabilities) to drive the entrepreneurial spirit throughout the organisation by motivating entrepreneurial activities with incentives that enhances entrepreneurship.

Resources can be described as a strength or weakness of a firm (Saffu and Manu, 2004). Performance of organisations are impacted by strategic planning, the business' skills, resources and former experience of the owner. The RBT contends that sustained competitive advantage is created by the inimitable resources which make up the essence of an organisation. This means that the resource-based view defines how owners of businesses can form their organisations from the resources and

capabilities that they hold or attain (Saffu and Manu, 2004). In other words, sustainable competitive advantage can be obtained by using and developing existing resources and sourcing capable personnel who suit the new mould.

Academic entrepreneurship is incentivised by translational research and start-up funding and disincentivised by budget reduction (Etzkowitz, Alarmartine, Keel, Kumar, Smith and Albats, 2018). Universities can be conflicted by their individual organisation structures and methodologies which can make it challenging and limits the various entrepreneurial activities (OECD, 2012). In this part of the research, the researcher assesses the strategic objectives of a university by investigating particular areas that a university may visit if it requires a minimisation of the restrictions to fulfilling its entrepreneurial agenda (OECD, 2012). This will include *inter alia,* the financial strategy, attracting and retaining the right people and incentivising entrepreneurial behaviour in individuals (OECD, 2012).

The entrepreneurial university involves support mechanisms for educators and learners to help boost incubators which are profitable and innovative (Etzkowitz, 2003). Incubators are vital for nurturing entrepreneurship within the university community. In order to foster entrepreneurship within the university community one requires formal and informal mechanisms to assist (Guerrero, Toledana, and Urbano, 2011). The formal mechanisms consist of the university's missions, governance and education curriculums (Guerrero, Toledana, and Urbano, 2011). The informal mechanisms include entrepreneurial attitudes and role models (Guerrero, Toledana, and Urbano, 2011).

The universities that would like to transform into entrepreneurial universities should have at least the formal mechanisms, however, the formal mechanisms are a must for accomplishing an entrepreneurial culture (Guerrero, Toledana, and Urbano, 2011). Education curriculums and leaders that people can look up to, have a strong impact on students (Guerrero, Toledana, and Urbano, 2011). Similarly, the university mission and governance and entrepreneurial attitudes have a great impact on the attitudes of academics (Guerrero, Toledana, and Urbano, 2011).

2.4.3 Entrepreneurship development in teaching and learning

Proposition c = Teaching and Learning.
Embedding entrepreneurship into all curricula to strengthen entrepreneurship development in education.

It appears that entrepreneurship education in South Africa is in its early phase even though it can be used to enhance the reputation of a university (Matlay and Mitchell, 2006). There is however, dedication from universities in research and academic programs in the field of entrepreneurship (Matlay and Mitchell, 2006). Entrepreneurship education is valuable for individuals, organisations and societies (Klofsten, Fayolle, Guerrero, Mian, and Urbano, 2019). Universities help unravel the entrepreneurial culture, promoting entrepreneurship and assisting entrepreneurial behaviours (Klofsten, Fayolle, Guerrero, Mian, and Urbano, 2019). Universities are seen as research-based organisations that create moral groups, joining knowledge production to knowledge diffusion (Klofsten, Fayolle, Guerrero, Mian, and Urbano, 2019). The uncertainty rests on whether or not we can teach people to be entrepreneurs, however there is minimal consistency (Henry, Hill, and Leitch, 2005). It seems only a few parts of entrepreneurship can be taught. There is great pressure experienced by universities to undergo the process of transformation (Clark, 1998).

University culture, routines and policies afford a good environment for faculty, staff and student entrepreneurship (Pittaway and Cope, 2007). A few cultivate entrepreneurial training as an extension of their training tasks and others develop technology transfer as an extension of research (Etzkowitz, Alarmartine, Keel, Kumar, Smith and Albats, 2018).

The entrepreneurial university enhances the values and perceptions towards transformation (Guerrero and Urbano, 2012). Every university has a different community and its attitudes towards entrepreneurship comprises of entrepreneurship curriculums, teaching, role models and reward systems (Guerrero and Urbano, 2012). Viewing a department of the university as having a strong or weak entrepreneurial presence may have an impact on whether an academic would participate in events that are entrepreneurial and have a slight impact on whether an academic would

engage in traditional activities (Kalar and Antoncic, 2015). A strong entrepreneurial presence would indicate that an academic's perceptions to technology and knowledge transfer would not be harmful to academic science (Kalar and Antoncic, 2015).

2.5 PROPOSED FRAMEWORK

The below Figure 4 is the researcher's conceptual framework. This is how the researcher understands the current status of the university to be. RU has the potential to develop into an entrepreneurial university, therefore the researcher thought the findings would add value for strategic management decision makers. The researcher believes that if three of these lenses are evident at RU at a strategic level then there is a possibility of transformation for the university from a traditional university towards an entrepreneurial university.

Figure 4: Strengthening Internal Capabilities towards an Entrepreneurial University (Proposed Conceptual Model)
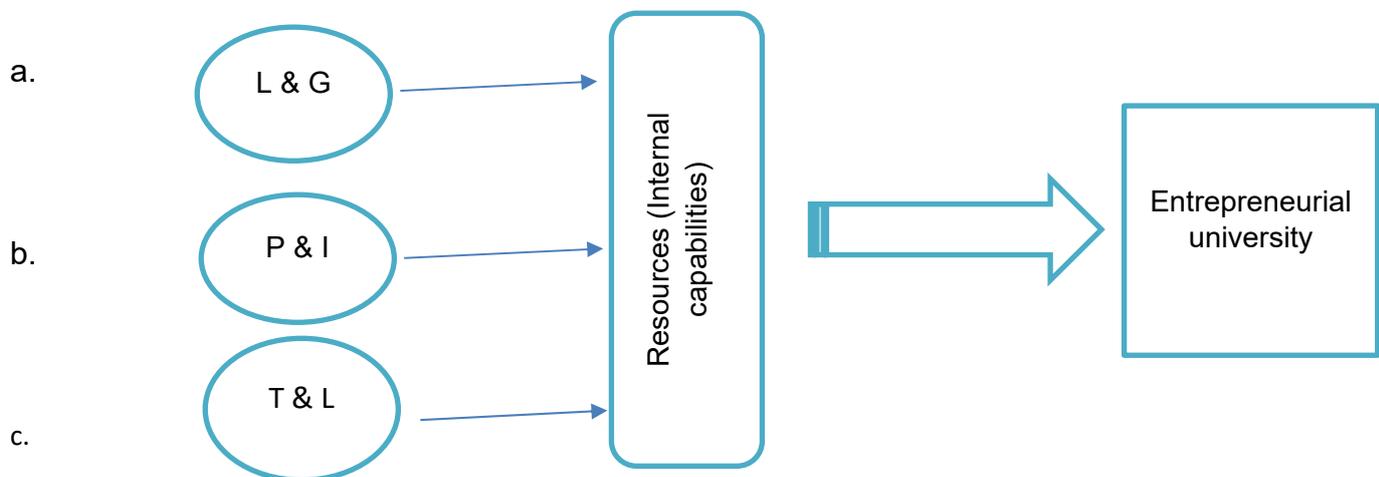
L & G= Leadership & Governance

P & I = People & Incentives

T & L =Teaching and Learning

Proposition a = Leadership and Governance

Entrepreneurial focussed strategic leaders (including those at governance and leadership levels) tend to enhance institutional entrepreneurial capabilities that strengthen an entrepreneurial institution.

Proposition b = People and Incentives

Having good leaders with the right mindset and skills (internal capabilities) to drive the entrepreneurial spirit throughout the organisation by motivating entrepreneurial activities with incentives that enhances entrepreneurship.

Proposition c = Teaching and Learning

Embedding entrepreneurship into all curricula to strengthen entrepreneurship development in education.

Rhodes University places great emphasis on research outputs and teaching students to be academics. It is still very much a traditional university. It may have the potential to transition over time into an entrepreneurial university by changing / adapting its focus, culture and curricula.

2.6 OTHER STUDIES DONE ON ENTREPRENEURIAL UNIVERSITIES

The universities mentioned below are studies that correlate with similar implications and findings relating to this research. However, kindly note that the highlighted cases below are studies done at universities of technology. The researcher acknowledges that RU is not a university of technology.

A study done in *Austria* evaluated current programs and initiatives at the respective three (Technology University Graz, Technology University Vienna, MU Leoben) universities (Sperrer, Muller, and Soos, 2016). Findings indicated that the journey of the entrepreneurial university depicts the next direction for growth in higher education. This meant that there was a suitable platform available for development at the Technology University Austria, more specifically with regards to nurturing and cultivating an entrepreneurial culture amidst the scholars. However, all students don't

opt to take the entrepreneurship courses and there is limited entrepreneurial understanding in faculties (Sperrer, Muller, and Soos, 2016).

A study done in *Dublin* utilised the OECD-European Commission Guiding Framework for entrepreneurial universities. It is contended that the entrepreneurial university provides a clear setting whereby the internal resources and capacities of three institutions can be associated to the external environment and the requests of their stakeholders (Jameson and O'Donnell, 2015). The findings proposed a developmental design to transform into an entrepreneurial university. This meant that the university has to be bold and courageous in making the transition which needs to be reflected in the redefined vision and mission (Jameson and O'Donnell, 2015).

Another study was done in *Latvia* which looked at the forces of changing traditional universities into entrepreneurial universities. The aim was to make sure that there is sustainable education in Latvia (Bikse, Lusena-Ezera, Rivza, and Volkova, 2016). Findings illustrated that transitioning from a traditional university towards an entrepreneurial university was at a very premature phase in Latvia. This meant that it was essential to boost efforts to guide youthful entrepreneurs with developing collaborations, links and fostering knowledge together with outside stakeholders (Bikse, Lusena-Ezera, Rivza, and Volkova, 2016).

2.7 CONCLUSIONS

The researcher acknowledges the Triple Helix model and that a more holistic approach needs to be taken when transitioning towards an entrepreneurial university. Working together in synergies is fundamental.

The three lenses that have been discussed are three elements for strategic decisions at high level. Entrepreneurial focussed strategic leaders (including those at governance and leadership levels) tend to enhance institutional entrepreneurial capabilities that strengthen an entrepreneurial institution. Having good leaders with the right mindset and skills (internal capabilities) to drive the entrepreneurial spirit throughout the organisation by motivating entrepreneurial activities with incentives enhances entrepreneurship. Embedding entrepreneurship into all curricula helps

strengthen entrepreneurship development in education. The Resource-Based Theory has been applied inhouse to investigate the university's internal capabilities.

Higher education institutions need to provide a stimulating and encouraging environment for entrepreneurial activities. This can be achieved by being bold and courageous. Entrepreneurial Universities reflect the next direction for growth in higher education institutions.

The next chapter discusses the methodology utilised for the collection of data for this research.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter looks at the methodology used in this research by illustrating the linkages between the research aims, the research methods, the data collection together with the interpretation of the results. This has been conducted through the research process.

3.2 RESEARCH DESIGN

According to McDaniel and Gates (1996), a research design is an orderly strategy that is pursued until the objectives of the research are fulfilled.

The researcher adopted an interpretivist paradigm to unpack the understanding and explaining of the reality through the experiences of diverse people (Mack, 2010). Interpretivists have a certain belief that social sciences are unlike the natural sciences and that the two differ greatly (de Vos, Strydom, Fouche, and Delport, 2011). The reality construed to the understanding is what research partakers give to their real world (de Vos, Strydom, Fouche, and Delport, 2011). Knowledge ascends from the understanding of depictions and true meaning (Schurink, 1998) Thus, making this qualitative study to be exploratory.

As a qualitative research methodology, it was appropriate to encapsulate the views and opinions of various role players. Similarly, the qualitative research study is mainly concerned with the direct experience of the people that are in the organisation, instead of utilising the outsiders understanding (Mack, 2010). This entails the *status quo* theories regarding the social world (Rossman and Rallis, 2003). A qualitative research approach engages relevant persons in (strategic leadership and governance, organisational capacity, and teaching and learning), through interviews to gain a better insight into their experiences (Marshall and Rossman, 2014). Thus, individual

experiences from various role-players have been interviewed and reviews of selected relevant documents have been analysed.

3.3 RESEARCH APPROACH

3.3.1 Population

There is a population of 1724 consisting of RU academic and support staff. There are 44 research institutions and related entities at the university comprising of six faculties. For the 2018 RU Research Reports, the researcher targeted the Top 30 Researchers at RU from different faculties. From the six faculties in existence at Rhodes University namely: Faculty of Law; Faculty of Commerce; Faculty of Humanities; Faculty of Education; Faculty of Science and Faculty of Pharmacy, only the Faculty of Law and Pharmacy were not represented in the Top 30. Rhodes University is home to 15 SARCHI's and 7 provided feedback in my research. The Faculty of Law and Pharmacy were not represented in the Top 30 sample. The researcher tracked the years 2014 to 2018 of the Top 30 Researchers from the Faculty of Commerce; Faculty of Humanities; Faculty of Education and Faculty of Science.

3.3.2 Sample

This was done through a purposive sampling to select a sample of 30 participants (Guarte and Barious, 2006). This type of sampling used in qualitative research for participants selected can resolutely inform an understanding of the research problem (Creswell, 2007). The sample consisted of researchers employed by RU in Grahamstown / Makhanda. Interviews were conducted with researchers in different departments at RU, selected from the Top 30 Researchers on campus. From this group the researcher targeted the Top 30 Researchers for 2018 (RU Research Report, 2018). Thirty questionnaires were distributed to the potential participants. Seven participants agreed to an interview, six participants agreed to complete the questionnaire, three participants confirmed they were not available for the research and eight non-participants failed to respond. The researcher acknowledges six valid responses that consisted of constructive feedback. A total number of 19 out of the 30 researchers responded (65%) consisting of seven interviews, six questionnaires and

six valid responses. Valid responses are responses that are effective and includes valid points which contribute to this study. Nine academics of the Top 30 researchers for 2018 are South African Research Chairs Initiative (SARCHI) at RU.

3.4 RESEARCH METHOD

3.4.1 The research process

Figure 5 below sets out the research process undertaken during the study. The researcher collected data by conducting seven interviews and collating six questionnaires. Thereafter, the researcher grouped the themes that emerged from the data and compared them to the literature. The relationships between the categories were assessed and the findings analysed accordingly. From the findings, the researcher ascertained the results which led to the recommendations and conclusions.

Figure 5: Researcher's Research Process

Primary data (transcripts) - Conduct 7 interviews and 6 questionnaires

Secondary data - Document review

Group themes

Compare emerging concepts with literature

Classify each concept

Assess relationships between categories

1: Collect Data

2: Themes

3. Comparison

4. Categorise

5. Analyse Findings

6. Results

7. Recommendations

8. Conclusions
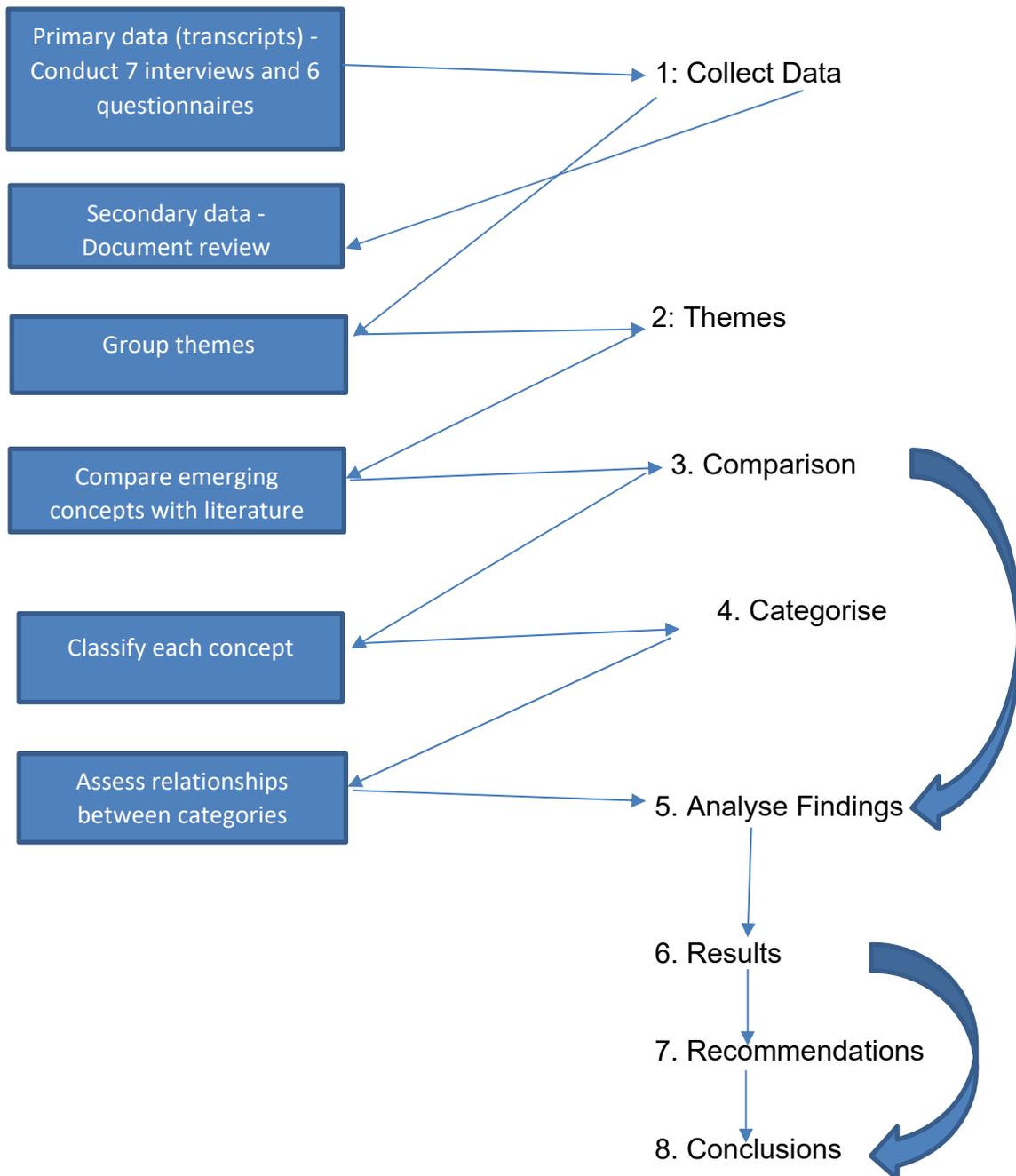
3.5 RESEARCH INSTRUMENTS

Questions in the interview schedule and questionnaire highlighted the pillars of an entrepreneurial university as portrayed in the OECD Guiding Framework. The interview questions and questionnaire focussed on leadership and governance;

organisation capacity, people and incentives and teaching and learning in entrepreneurship development.

Questionnaire: A semi-structured questionnaire was used for the data collection. The questionnaire focused on those aspects which relate to the leadership and governance of a university. It also looked at the strategy, attracting and retaining the right people and incentivising entrepreneurial behaviour in individuals. Furthermore, it evaluated the organisational structure to support entrepreneurial development.

Interview schedule: A semi-structured interview schedule was used for the data collection. The interview guide focused on those factors which relate to the leadership and governance of a university. It also looked at the strategy, attracting and retaining the right people and incentivising entrepreneurial behaviour in individuals. Furthermore, it evaluated the organisational structure to support entrepreneurial development.

Document review: For the document review process, the researcher reviewed publicly available institutional documents and reports, these are discussed under the data collection heading below. The document review process was useful to the research as it helped the researcher triangulate the data collected and analyse the relevancy of the findings. (Patton, 1999).

3.6 DATA COLLECTION

Primary and secondary data was collated and collected from a number of sources and used in this study. Various verbal interviews, including face-face interviews and questionnaires were used.

3.7 DOCUMENT REVIEW

The Rhodes University Research Reports were reviewed by the researcher for the various years (2014 – 2018) together with other publicly available documents such as:

- RU Research Report for 2014; 2015; 2016; 2017 and 2018.

- National University Entrepreneurship Ecosystem Baseline Report.
- RU internal strategic documents:
  - RU Institutional Development Plan (RUIDP).
  - RU Intellectual Property Policy (RUIPP).

3.8 DATA ANALYSIS

Triangulation was used to validate the combination of gathered data. The data analysis process focussed on a deductive thematic analysis for the research (Braun and Clarke, 2008). This analysis was approached on a regular, and flexible basis which utilised theory as its starting point (Pearse, 2019). The analysis of the data consisted of themes and integrated propositions (Pearse, 2019). All interviews were recorded, transcribed and notes scrutinised.

Triangulation refers to a number of methods including sources of information in qualitative research to help create an understanding and tests validity (Patton, 1999). The researcher utilised documents to review, questionnaires and semi-structured interviews to collect data. The various methods of collecting data assisted the researcher with triangulation to help validate findings.

3.9 TRUSTWORTHINESS, VALIDATION AND GENERALISABILITY

The researcher utilised documents to review, semi-structured interviews and questionnaires to collect data. The various methods of collecting data assisted the researcher with triangulation to help validate findings. To ensure trustworthiness and credibility of data for qualitative research, the researcher used two methods - document review and semi-structured interviews together with questionnaires.

3.10 RESEARCH ETHICAL CONSIDERATIONS

Anyone who is involved in research should be aware of the arrangement pertaining to what is appropriate and inappropriate in research (De Vos, Strydom, Fouche, and Delport, 2017). The researcher is an employee of the institution and safeguarded

against reporting of results that were not accurate and prevented any biasness. The researcher acknowledged the complexities of insider research and confidentiality which was addressed in the methodology and ethics. Institutional information that is already in the public domain was utilised. The researcher sought permission and authorisation from RU with reference to the ethical standards and obtained same prior to commencement with the research. The permission letter to conduct research at RU dated 25 November 2019 is attached hereto, marked as "Annexure A."

Ethical clearance and ethics applications were approved by the RU Ethics Standards Committee (RUESC) before commencing with field work. For this process an ethics application for human subjects was submitted to the Ethical Review Application System (ERAS) to RUESC. The ethics confirmation letter of approval dated 28 November 2019 is attached hereto, marked as "Annexure B."

Participants were approached personally, via email, letters and telephonically at their work places with permission to interview. Specific dates were proposed and the most suitable to both parties agreed-upon. The interview request letter is attached hereto, marked "Annexure C." The researcher informed the participants regarding the nature of the study and its purpose and objectives. The researcher made sure that the participants were aware that the interviews will be held in strict confidence and that the data collected would be used for research purposes. The interview schedule was shared prior to the interviews. Kindly see the interview schedule and questionnaire attached hereto, marked "Annexure D." The participants were also given the option of reading the thesis once published as per verbal arrangement. The researcher sought permission from each participant to record the interviews and in all interviews the researcher was granted permission to do so. The researcher obtained the signed consent from all the participants for the study. A template of the consent form is attached hereto, marked "Annexure E."

3.11 CONCLUSIONS

In this chapter it could be concluded that particulars on methodologies and research design which spoke to the research process were explored and discussed. A detailed

discussion on the methodologies and research design that have been utilised as part of the gathering data process have been listed.

Explanations on how the data was broken down and analysed were highlighted. This section provided details on authentications for specific approaches and methods such as: trustworthiness, validation, generalisability and triangulation. Furthermore, the ethical considerations that were undertaken for the study were confirmed.

CHAPTER 4

FINDINGS

4.1 INTRODUCTION

This section presents findings which are later discussed and integrated to showcase how data has been categorised and linked with literature. This segment of the research analyses key findings regarding the perceptions of academics at the university on transitioning towards an entrepreneurial university. The study implemented the approach suggested by Goulding (2002), whereby data is presented for understanding purposes and not to overburden the reader. The categories are backed up by interview quotes, a method recognized by Glaser and Strauss (as cited by Goulding, 2002). The researcher presented findings from interviews by quoting generously to present the participant's views as accurately as can be.

This chapter consisted of data from the semi-structured interviews, questionnaires and document reviews. Furthermore, an analysis of the data via thematic analysis was conducted whereby similar responses were inserted into themes.

4.2 RESULTS

4.2.1 Document Review

4.2.1.1 Analysis of Rhodes Research Reports (2014 – 2018)

Table 3: Entrepreneurial Activity at Rhodes University (2014 – 2018)

Year	Department	Entrepreneurial Activity
Rhodes University Research Report (2018)	Department of Biotechnology and Biotechnology Innovation Centre (RUBIC)	Charles Faul, a Masters Biotechnology student, was selected as one of the Mail and Guardian's 200 Young South Africans in the Science category. He was also profiled in Destiny Man's Science, Technology and Healthcare category for 2018. The recognition is for his entrepreneurial activities, most

		notably development of Fieldlab, a lab-in-a-box capable of field-based disease detection. ARIPO patents granted include the development of aptamers for newer forms of diagnostic sensors for malaria
	Institute for Environmental Technology (EBRU)	Patents Treatment of a hydrocarbon component. South Africa. 2018. RSA 2017/07232. Treatment of a coal component. South African Patent Number. South Africa. 2018. RSA 2017/07229.
Rhodes University Research Report (2017)	Department of Biotechnology and Biotechnology Innovation Centre (RUBIC)	Technology and Innovation Awards RUBIC showcased two (2) new prototypes at the Innovation Bridge Technology Matchmaking and Showcasing Event which was hosted by the Department of Science and Technology (DST). Two MSc students won the Best prototype award for FieldLab. The invention entailed a lab in a box for on-site medical diagnostics. FieldLab continued with its lucky spree and won first place (half a million rand prize) in the Innovation Hub's GAP Biosciences national awards. The second prototype, Amyoli received positive attention as a portable prototype which removes bacteria and metals from water on-site Nanofibers based prototype development for water treatment. Generation of novel aptamers for diagnostic and therapeutic applications (linked with HIV monitoring). This has been earmarked for possible patenting. Prototype development for new diagnostic for discriminating between different species of malaria. Research in development of new cell phone-based applications.
	Institute for Environmental Technology (EBRU)	Basic activities are supported by a strong emphasis on technology transfer from laboratory to full scale commercial / industrial process application and implementation. Development of green technology have profound implications for use of coal discard as an organic substrate to replace topsoil in phytobioremediation

		strategies for sustainable large-scale rehabilitation of coal. Final applications submitted to South African Patent Office for processes relating to the bacterial degradation of bituminous coal discard and the biodegradation of petroleum hydrocarbons.
Rhodes University Research Report (2016)	Department of Biotechnology and Biotechnology Innovation Centre (RUBIC)	Post graduate students partnered with Business School's Postgraduate Diploma in Enterprise Management "Leanstart up boot camp as part of entrepreneurship training. Progress was made towards technology transfer with the award of a Technology Innovation Agency grant. This award made it possible for seed funding to help the process of advancing research from the laboratory into marketable prototypes.
	Institute for Environmental Technology (EBRU)	A patented passive mine water treatment process.
Rhodes University Research Report (2015)	Department of Biotechnology and Biotechnology Innovation Centre (RUBIC)	RUBIC showcased a prototype CD4 diagnostic device at the launch of the UNICEF Global Innovation Centre in New York. The invention was based on a simple low cost diagnostic device based on aptamer Nano-technology , an Android smartphone app and a plastic 3D printed housing that aims to allow for point-of-care CD4 counts critical to successful HIV treatment programmes.
	Chemistry	Professor Nyokong received UNESCO medal for her contribution to the Development of Nanoscience and Nanotechnologies.
	Institute for Environmental Technology (EBRU)	Patent applications for the treatment of mine wastewater and the bacterial degradation of bituminous coal discard and petroleum hydrocarbons are complete.
Rhodes University Research Report (2014)	Chemistry	Professor Nyokong: Appointed by United Nations SecretaryGeneral Ban Ki-moon as part United Nations Secretary-General's High-Level Panel on Technology Bank for Least Developed Countries.
		Patents Cromhout, M.E., Fogel, R., Frith, K.A. and Limson, J. Cromhout, M.E., Fogel, R., Frith, K.A. and Limson, J. (2014) Analysis of human immune status. South Africa. 2014. 2014/01017. Frith, K.A., Fogel, R., Cromhout, M.E. and Limson, J. Frith, K.A., Fogel, R., Cromhout, M.E., Goldring, D. and Limson, J. (2014)

		Malaria Aptamer. South Africa. 2014. 2014/05720.
	Institute for Environmental Technology (EBRU)	Patents Isaacs, M.L., Render, D.S. and Cowan, A.K. Isaacs, M.L., Render, D.S., Cowan, A.K. and Persson, U.T. (2014) The treatment of waste water. South Africa. 2014/03438. A provisional patent for the treatment of acid wastewater was filed based on collaborative studies carried out by EBRU. Research into technologies for the biodegradation of waste coal and the rehabilitation of coal discard dumps continued, and commercial production of the Fungcoal technology is imminent. Two additional patent applications relating to this technology and for the biodegradation of hydrocarbons have been filed.

The entrepreneurial activity at Rhodes University appears to have increased over the years. Researchers have accomplished great inventions and have been recognised for their achievements. In addition to this, nine patents have been registered with the Patents Office in South Africa and the same nine patents have been granted. There was no evidence of commercialisation. There is a common pattern existing every year as the innovators belong to the RUBIC, EBRU and Chemistry departments. These departments are technologically inclined and drive the entrepreneurial spirit.

Table 4: South African Research Chairs Initiative (SARCHI) at Rhodes University

Academics:	Field of Research:	Part of Top 30 Researchers For 2018
Distinguished Professor Martin Hill	Insects in sustainable agricultural ecosystems.	x
Professor Rosemary Dorrington	Marine natural products research.	
Professor Adrienne Edkins	Molecular and cellular biology of the eukaryotic stress response.	x
Professor Mellony Graven	South African numeracy.	
Professor Russel Kaschula	Intellectualisation of African languages, multilingualism and education.	
Professor Janice Limson	Biotechnology, innovation and engagement.	
Distinguished Professor Heila Lotz-Sisitka	Global change social learning systems development.	x
Distinguished Professor Catriona Macleod	Critical studies in sexuality and reproduction.	x

Distinguished Professor Christopher Mcquaid	Marine ecosystems and resources.	x
Distinguished Professor Tebello Nyokong.	Medicinal chemisty and nanotechnology.	x
Professor Marc Schafer	Mathematics education.	x
Professor Charllie Shackleton	Interdisciplinary science in land and natural resource use for sustainable livelihoods.	X
Professor Ruth Simbao	Geopolitics and the arts of Africa.	
Professor Oleg Smirnov	Radio astronomy techniques and technologies.	X
Honary Professor Olaf Weyl	Inland fisheries and freshwater ecology.	

Nine out of the 15 South African Research Chairs Initiative (Sixty percent) above form part of the TOP 30 Researchers for 2018.

4.2.1.2 Analysis of RU Technology Transfer Office

Rhodes University appointed a Contracts and Intellectual Property Manager in 2015 and a Technology Transfer Manager in 2017 at the Research Office. In 2019, the Intellectual Property Portfolio was handed over to The Technology Transfer Office (which is part of the Research Office) thereafter the department recruited a Patent Administrator and Technology Transfer Officer in 2018 and 2019 respectively. The Technology Transfer Office is responsible for the management of disclosures, intellectual property awareness, protection and exploitation of intellectual property (RUIPP, 2017). The Technology Transfer Office has confirmed that no patents have been commercialised to date.

4.2.1.3 Analysis of RU Intellectual Property Policy

The Rhodes University Intellectual Property Policy 2017 (RUIPP) sets out provisions in benefit sharing agreements in the event commercialisation arises. There are set estimates of revenue distributions for commercialised intellectual property emanating from publicly funded research and development institutions; private institutions and revenues in non-monetary forms. This can be seen as an incentive to drive entrepreneurial activities at the university.

4.2.2 Respondents

4.2.2.1 Respondents' Demographics (years: 2014-2018)

Based on findings as seen in Table 5 below, depicts the 13 participants where seven of the 13 participants (approximately 54 %) were male and eight were female (approximately 46%). From the Faculty of Science there were eight respondents, the Faculty of Commerce had one respondent, the Faculty of Humanities had two respondents and the Faculty of Education had two Respondents.

Table 5: Respondents' Demographic Data

Participants:	Gender:	Faculty:	Year for Top 30:
A1	Male	Science	2018
B2	Female	Humanities	2018
C3	Female	Education	2018, 2016
D4	Male	Science	2018
E5	Male	Science	2018, 2017, 2016, 2015, 2014
F6	Male	Science	2018
G7	Female	Science	2018, 2017, 2016, 2014
H8	Female	Science	2018, 2017
I9	Female	Commerce	2018, 2014
J10	Female	Science	2018, 2017, 2015
K11	Male	Education	2018, 2016, 2015
L12	Male	Science	2018, 2016
M13	Male	Humanities	2018, 2017, 2016, 2015, 2014

4.2.3 Perceptions of an Entrepreneurial University

4.2.3.1 Entrepreneurship

On gaining an understanding of participants around entrepreneurship, the following responses were made:

A1	The ability for individuals to create opportunities be it in whatever field and have the necessary skills to do so.
B2	It has to do with a business and making money. Creating ideas and innovation.
C3	This is the ability to package and market products and services.
D4	It is the art and science of taking the risk associated with converting ideas, processes and products into saleable commodities that others may buy.

E5	I don't really understand entrepreneurship, I think it has a commercial connotation, but I am not sure. I don't really understand the difference between entrepreneurship and innovation.
F6	I guess the translation of ideas and knowledge into working solutions, mostly in business (starting a business), but I'd include social innovations etc.
G7	Making a plan around something. That's immediately what come to my mind. A solution or a plan that addresses a particular need in a way. It has elements of ingenuity and creativity. How do you take advantage of things that have been overlooked? How do you fill a gap in a new kind of way? It is a very much positive connotation. It's probably quite an applied term. Entrepreneurial is more about making use of something and applying the fundamental principles.
H8	The propensity of an individual to independently or in collaboration with others embark on a business that offers some product or service desirable to society, and which is accompanied by some economic return.
I9	From a management point of view, it is basically developing and managing your own business or business venture in order to make a profit. You will also need to accept the risk. It's about profits and risk and the willingness to start a new business. You plan, organise and direct. The other important thing is you have to be self-motivated and understand what you are offering. Understanding your market is the crux. You need basic management skills and financial skills that are ideal to your business. You should know how to network, be flexible, have passion and be resilient. In order to make money you need certain characteristics.
J10	It is the process of establishing and running businesses.
K11	Where I come from I see entrepreneurship as a sustainable concept rather than a commercial one. A university should do more to sustain itself financially. I would not agree that a university should transform into making money. I am not about making money. This is a very bad place to make money. Universities don't make money. We are not an entrepreneurial university.
L12	Undertaking commercial activities, taking risk in the expectation of future profit, exploration of business opportunities, innovation in the commercial sphere.
M13	Questions around innovation, ingenuity, creativity and I would presume risk taking is also essential in the economic sense.

On interpreting and defining an entrepreneurial university, the respondents made the following comments:

Participants	Answers
A1	I don't think there is any one definition. I think an entrepreneurial university deals with the social economic requirements of the country and responds in a way where we can address the shortages in terms of skills. Entrepreneurial universities are also cognisant to the requirements of the economy and perhaps play leading role in generating knowledge. It also entails developing new knowledge. Universities also have a social responsibility and it changes according to where you are in the world. In South Africa the issue of social responsibilities is far greater than in other countries. There is a strong history of exploitation and poverty.
B2	I don't know. It could be a type of university. First of all I have never heard of it. Secondly it would be a university at its teaching core teacher's

entrepreneurs. That is what I would think. It could mean that. A space for entrepreneurs to excel. It could also be a university which has courses with entrepreneurship modules. It makes money to fund itself. Short courses could be one way to attract persons from outside that don't necessarily want a degree but just want to improve themselves. The fee structure is different because they attract business minded people. The university makes money.

C3   A university that is primarily concerned with contributing products and services in ways that drive economic sustainability.

D4   An entrepreneurial university is one that embeds entrepreneurship into the ethos of the university and the curricula it teaches, as well as fostering and supporting entrepreneurial behaviour.

E5   Again, I don't really know. It could be that an entrepreneurial university is one that takes concepts, ideas, inventions and commercializes them. However, I think entrepreneurship is a philosophy rather than an action.

F6   One that supports the design, or establishment, or operation of businesses from ideas and knowledge generated in and through the university.

G7   Well that's difficult. It is probably a university that is looking more at application. I would probably think of it as a new university that instead of creating knowledge it applies knowledge. My major concern is that the value cannot be achieved in a short term. We run a huge risk. How can we take that strong and fundamental elements? The entrepreneurial thing has a time element. The majority of universities in America for example, in my understanding, is that they have had about hundreds of years of research before making the transition. The basic fundamental research becomes the platform because you have to understand the problem. You have to understand the nature of the problem. The concern is how you marry both of those aspects. It feels that we are being pushed in the direction of innovation and that it is going to come at our own expense, in the haste to capitalise on application. We not allowing the space for that fundamental work to be done. It should not be done at the expense of the university. There is limited resources and you are taking knowledge from elsewhere and applying it. The expectations around the amount of time it takes to be entrepreneurial is used wisely and in different disciplines. I don't know whether a university can be both entrepreneurial and traditional. I don't know if it should be. We doing this move in South Africa but we don't have the industry. How do you teach the fundamental principles and create the spin out and engage with the community? You get pulled in all the directions. It's taking a body of knowledge and making it compatible. Teach people how to think, not necessarily how to do. This is very interesting to me. I have seen the global trend of companies wanting a product to show the government. I don't feel it's the best way. The entrepreneurial space is disjointed. I want to retain the fundamental component. I haven't seen enough evidence. You have to have a degree of flexibility to allow students to take the fundamental and entrepreneurial. If you look at the most successful entrepreneurs, they are natural at it. I wonder how you teach students and staff to be entrepreneurial. The skills required for the current environment would be very different. It may not even be academic. As academics we in it for the passion.

H8   One that fosters and rewards the ideas of entrepreneurship.

I9	I read up about this. I thought what on earth does this actually mean. I was with the former UPE before joining RU. I was instrumental with introducing an entrepreneurial course in one of the B-Degrees. From an academic and curriculum point of view it means practical work. You can't teach entrepreneurship without practical training. It can be in the form of service training. It has to be in small numbers. I also worked at the UPE Technicon. DUT has a very different philosophy. Entrepreneurial university has the nexus between theory and practice. You will have to interact with business people closely. You must be able to network and have good relationships. It's a university that provides leadership and contributes to creating entrepreneurial thinking, actions, institutions and capital. There is a strong relationship between the university and entrepreneurial society. Some authors have indicated that there are six key elements to an entrepreneurial university which are: good leadership and governance; incentives, entrepreneurship in teaching and learning, a culture of entrepreneurship; stakeholder partnerships and internationalisation. Innovation and entrepreneurship are the two keys things to begin with. I am not sure if I have answered it. If you speak to people in education this is definitely not going to go down. I have two different views. The one is curriculum based – some knowledge and some theory. It is very different to a traditional university. You can't be successful in teaching entrepreneurship in a classroom. Community engagement should be part of it. On the other hand if you look at it from a leadership point of view, it is different. I separate the two. You can still have an innovative traditional university. Successful business leaders like Apple, Steve Jobs etc. they have that willingness to take that risk. You have to be an intelligent person with some form of education and learning. Quite a few of our students are quite entrepreneurial and have approached lecturers to assist with creating their businesses. We have a little section on entrepreneurship in our syllabus. A very small piece and it is from an academic and knowledge point of view.
J10	A university that support establishing businesses and engages with establish with business partners.
K11	I am not sure how to answer this question but from a social sciences perspective. An entrepreneurial university is one that attracts funding to sustain its research and its program. If I come from a faculty that does research on particular products and has partnerships then an entrepreneurial university would be one that generates capital and makes money through its research work. This would be commericalised.
L12	A university with extensive engagements to the industry, an active commercialization program, a university that receives substantial funding from the industry and other commercial organisations.
M13	That's the big question. I am not comfortable with the term. I am not too sure. It's using an economic metaphor to describe an academic institution. The use of metaphors can be quite problematic. It depends how one is using the term entrepreneurial. If it is about innovation, ingenuity and creativity and risk taking. That is part and parcel of entrepreneurial university. I am concerned it may be taking us in directions we shouldn't be going.

On the interpretation and definition of a traditional university, the following responses were made:

A1	I think traditional universities are largely involved with the generation of knowledge for the sake of knowledge. It doesn't necessary feel that it has a responsibility. At the same time, I think many universities have been critically involved in the development of skills of young adults which makes them more attractive to the job market. The idea of traditional universities are also the focus points of research and development. Most of the research takes place at Universities.

B2	A university where teaching and learning is at the heart of everything. I would say Rhodes University is a traditional university. Private universities act completely different from public universities. The way higher education has gone, they have been forced to think of themselves as something else. You need this other stream of income to come in. Private universities you can transform from onset. With Rhodes University it's small and in this town it's the biggest employer for the community.
C3	This is a university which focusses on the public good and contributes to social justice and environmental sustainability. This is knowledge over profits.
D4	A traditional university is one that undertakes knowledge generation (research) and knowledge transfer (teaching) purportedly for the good of the society in which is it embedded.
E5	I am not sure that there is a definition for a traditional university. Universities by their very nature are diverse in what they do. Thus, we have fully comprehensive universities, research intensive universities and undergraduate universities and mixtures of the lot. I don't believe that universities can be pigeon-holed into a single category.
F6	One that's focussed on teaching (skills and knowledge), research, and in our case community outreach, but where converting the knowledge to economic or social activities is not the focus.
G7	In South Africa, it would be formal classes, a rigid timetable. Very structured. The interaction with a person perceived to be the expert. Courses have changed over the years. Getting to know the language and content is important so that you can change it and research it. We are teaching "old" work from years ago. But you have to know it. The fundamentals are where you start. The place of a university is to teach people how to think. This usually occurs at postgrad and not so much during undergrad due to the nature.
H8	A traditional university in my understanding is one that imparts the ability to think independently to all its students. A university is not about the transfer of domain specific knowledge, but about using the transfer of domain specific knowledge to foster critical and independent thinking. The difference between a traditional university and an entrepreneurial one is that the latter supports and prioritises monetisation of the independent thought.
I9	It is an institution of higher education and research that grants degrees for undergraduate and postgraduate. It comes from a Latin word, *"universitas"* which means a community of teachers and scholars. As Mabizela said, "emphasise the centrality of knowledge as the key defining feature for us as a university is a risky undertaking, particularly in a society that shows a disappointing and dangerous distain for knowledge and intellectual integrity." Access to knowledge and how we create knowledge is vital. It is about generating, sharing and applying knowledge in service of humanity. Knowledge needs to be at the core. It's about gaining access into the university and the epistemology of knowledge. Different disciplines will have a different epistemology. Our concept and understanding of knowledge will be different to other fields. Lecturers need to create that safe space for students to understand. You need to provide context to the students. The other important thing about knowledge is the context of application and trans-disciplinary. Moving across disciplines is important in creating knowledge.
J10	A university that holds teaching and research activities at its core.
K11	I don't know. The moment you hang onto anything traditional you are then classified as anti-transformational. For me a traditional university would be around a classical university with diverse faculties, with diverse views and respect to different paradigms and all working towards generating new knowledge of some form. Its diverse in its offerings and diverse in its generation of knowledge.
L12	A university with a funding model based largely on government subsidies, research grants and student fees, without substantial industrial or commercial commitments, with a curriculum based on arts and sciences rather than industrial input.
M13	It parts its knowledge for the sake of knowledge. A space where one can use one's intellect for the sake of generating knowledge. Knowledge used for a better community.

With regards to Rhodes University as an entrepreneurial university or working towards transitioning towards an entrepreneurial university, the respondents made the following comments:

Participants	Answers
A1	No. One it is not part of the Institutional Plan. There are certain departments which have a greater leaning towards entrepreneurial. They also have strong links with industry and whereas other departments nothing at all. It is not part of an everyday discussion. If you speak to an average academic and you ask them what is an entrepreneurial university, they would go – I don't know and they against it. Perhaps RU needs to be somewhere in between where it facilitates processes to allow individuals and department to demonstrate entrepreneurship and create safe spaces whereby meet the traditional requirements and functions of a university. The capstone courses which is a new development RU is to some extent entrepreneurial. It upskills people with degrees already. If they see it is additional income it will be very beneficial.
B2	They are far from transitioning. Maybe it's because I don't really know what's happening for instance at the Business School. I feel like it's at Rhodes but not really at Rhodes. I know where it is but I have no idea what goes on there. I think the location plays a role. I don't think they expose themselves enough. An officer administrator in my office did a course there at the Business School. It was interesting to listen to what she was learning.
C3	No, I hope not.
D4	No, because it does not embed entrepreneurship into the different curricula nor does it offer much support for entrepreneurial behaviour.
E5	No, I would not agree, I think that Rhodes University is a university that has many years had some entrepreneurial people with the academic, support and technical staff. I don't think that Rhodes is transitioning towards an entrepreneurial university, I think it supports a diversity of philosophies around entrepreneurship.
F6	No, I think we aspire to getting more income, especially third – stream income, but being entrepreneurial requires support and direction that isn't currently visible. The university has a chance to participate actively in the development of our society and providing solutions beyond HCD and knowledge generation.
G7	I do see that RU has supported some entrepreneurial endeavours. For example, Janice in RUBRIC. The fact that the university has allowed it to exist as an entity, means that there is support. It's a good sign. Martin Hill's centre is also a good example of application of research. They are simply amazing. Having someone in your position is great, we haven't had it for so many years. The difficulty is that entrepreneurship is very hard to do and assess it. Especially at PhD level. How do you teach it? Do you wait until they get a patent which is useless and worthless if you don't do anything about it especially in a country that doesn't examine patents? This mind-set of what has value and what doesn't. How do you measure it? A Nobel prize winner that visited our university years ago, he said it's the same like having a pension. If you try and push this transition to quickly to a product, you don't give it enough time.

H8	Some faculties at Rhodes already contribute to entrepreneurship – others don't even appear to be transitioning to that state.
I9	Right now, RU is definitely the only research-intensive institution in South Africa and located in an urban rural area. In 2002, they identified different types of universities. This falls under traditional and we offer formative and professional qualifications. We are still a research-intensive university. The staff being research active, there is a couple that is too much research active which is a risk for us. The Institutional Development Plan, on page 18 our goals include research outputs. Our vision and mission we are an internationally respected academic institution. The scholarship to enhance mankind. As a peer academic we are definitely traditional and definitely research based. We have academic freedom that encourages research. On page 30 and 31 there are strengths of RU. Knowledge comes through very strongly. The scholar teachers are very important. The Plan also elaborates the reputation as a research-intensive university. There is a lot of innovation going on in research. Innovation in science there is a massive contribution to the public good. Science lends itself more to the technology transfer. There is a strong innovative and creative space. Whether you call that entrepreneurial. I am not sure. You don't have to be entrepreneurial to be innovative. It certain fields of research at RU we are innovative. There is a culture that the sky is the limit. It is very open. For example, UJ has told their staff that all research needs to speak to the 4th Industrial Revolution. RU is very free. You try to channel your research, we are free. That is a nice thing.
J10	No.
K11	No I don't think so. Whether it's transitioning to one, I am not sure. I am not aware of an explicit agenda to transitioning. We are marketing ourselves as a research university. Looking at the relationship between research and entrepreneurship would be interesting and whether our research should be entrepreneurial driven – I am not sure. In some instances, I suppose so. Pharmacy is a classic example because its linked to industry. It's a tricky one. Schools have the same thing. Schools operating as a business and learners as clients. Universities are also moving in the same direction. There is a difference between a scholar and a client. We should not be relying on the state and I think it is very problematic in our current problematic climate. It is a double edge sword. On the one level I fully support the move towards sustainability and towards a third-stream income but at the same time I am very weary of commercialisation and selling our scholarly project down the drain.
L12	I find it difficult to judge. A fundamental science such as astronomy has, traditionally, very limited scope for commercialization and business spin-offs (although there have been some spectacular exceptions – for example, the development of wi-fi was driven by a radio astronomer, and the ensuing patents have proven to be very profitable both for him and his employer, CSIRO). We are thus extremely reliant on the traditional funding model – one simply cannot expect a consistent stream of "wi-fi grade" inventions and spin-offs – and from this "ivory tower" it is not easy to see what the rest of the university is doing or needs to be doing. Arguably, fundamental research must be (majority) funded by the government, if it is to happen at all.
M13	It depends what you refer to as entrepreneurial. My concerns is the use of the term entrepreneurial tends to imply that the university must be geared to serving the interests of outside. Whether it's the state. That is problematic.it

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will interfere with the autonomy. If it's strictly ingenuity. Then that is what an intellectual need to do whether it's a pin-off outside the university or inside. Don't see the notion as reconfiguring.

The majority of the respondents felt that RU was definitely not transitioning towards an entrepreneurial university.

4.2.3.2 Leadership and governance

With regards to whether entrepreneurship played a major part of the university strategy, the following responses were made:

A1	No, it doesn't. The fact that we recently released our Institutional Development Plan and it wasn't part of it at all. They could have added an addendum to include that. Perhaps the university can look at ways to address the financial constraints within the university and at the same time be cognisant that it is not operating within a vacuum.
B2	Yes and No. No because it is not in our Institutional Plan and yes it plays a major part in teaching.
C3	No. There is a lack of clarity which makes us vulnerable to entrepreneurial discourses.
D4	No, it does not. The word is hardly mentioned in high-level documents and policies of the university.
E5	No, and I don't think it should. The university should provide a platform for people to express their academic and scholarly aspirations in the way that they can.
F6	Nope. We have the core functions to drive the ideas etc. and ensure skills development, but that's about it. There is no clear support for developing these ideas into start-ups, businesses, services, science park, etc. There is no clear plan to bring in the community and ensure they develop as well – local businesses, markets to take up products, services to support the operation and cleaning of new start-up offices, so many areas of opportunity. There is also no drive to diversify our income stream beyond some tentative steps to "third-stream" income. Perhaps there even needs to be a change in contract with our students, especially senior undergrad and postgrad. Rather than just paying for services and an education, students need to be part of a team trying to achieve the same goals. This moves them from being "clients" to being investors or at least members of a team.
G7	We are hearing more about it.
H8	Yes.
I9	Not my definition of entrepreneurship. I have defined it differently. I am looking through a specific lens. We are cautious about risk as an institution. A traditional university like RU, they really treasure the intellectual space to have open challenging discussions. From this emerges solutions for the greater good in society. The space is open to be innovative and contribute toward innovation in society. It is knowledge and intellectual based but not practical. So, no it does not play a part in the university strategy.
J10	No.
K11	I like these three pillars very much. I don't think that our governance model and leadership model is conducive to entrepreneurial university. We are incredibly bureaucratic, pedantic and small minded in our administration. This is administration at all levels. I can see it in my own little environment here, although I don't want to bore you with that. I generate my own funding. This SARCHI is not funded by the university. It's funded by NRF and outside money. Just to access that money is a major nightmare. There is no incentive to bring in money. Here is the controversial thing, I am aware of outside agents who offer to manage your research funding. I know of a SARCHI whose funding does not go through the university it goes through his agent. He still publishing under the university but all his funding is managed privately. I would definitely consider in collaboration with the university. It has become so onerous to deal with finance and research finance. If I am entrepreneurial I want to be recognised as an entrepreneur but that is very difficult in a university like this. So, if we are

	going to transition into an entrepreneurial university that will have major repercussions on administration.
L12	I don't know.
M13	Well, I don't know if explicitly. Insofar as the transformation agenda, the university does have the capacity to unlock its entrepreneurial spirit. We need to create students who realise their own potential in terms of teaching and learning. We need to create more space and harness more spaces to innovate and think creatively. There are times where we tend to subdue the students. The transformational agenda is quite critical.

A reference was made on the RUIDP however, this strategic document is silent on the entrepreneurial goal. There appeared to be a lack of clarity as most of the researchers were not aware of what was happening on campus in this space. It is not stated in policies. There seemed to be no platform available to discuss the entrepreneurial agendas and no support offered. The definition of entrepreneurship is varied and wide. The transition would be a huge administration burden. The transformation agenda has the capacity to unlock its entrepreneurial spirit. A space to innovate would be useful and beneficial.

On the commitment at high level to implementing the entrepreneurial strategy, the respondents made the following comments:

A1	No. Not for the sake of entrepreneurial nature. It has been driven by financial gain. Example the capstone courses. The university does have a policy whereby it allows the academics to do 20% consultancy private work. That in itself is for the individual. It is for private enrichment. RU salaries have always been poor, then they came up with private work. Then it brings you to an antagonist relationship. The institutional reputation can be at risk because there is no control over the private work. It has previously come back to haunt us. Because you doing consultancy work, the commitment to your students lacks. It is not fair. There is a conflict of interest and you don't have to declare it. This is a significant risk to the university.
B2	I have no idea.
C3	No. There is again a lack of clarity. It is important that there is a strong senate to resist managerial forces which are closely tied to entrepreneurial approach.
D4	I don't know, but I have not seen any evidence of such, nor is it debated in the strategy forums I have ever attended.
E5	I am not sure what is meant by "at a high level," but I have found the university structures very supportive of entrepreneurial pursuits.
F6	I don't think so. I think there is a desire to move to more entrepreneurial university, but maybe not the experience or the well-constructed strategy.
G7	No, not really.
H8	Yes and no. In faculties where this is already entrenched, yes, in others no.
I9	It is not in the culture. We are still a research university. I feel we can be innovative but not entrepreneurial.
J10	No.
K11	No, I don't think so. There is however, a commitment at a higher level to support and acknowledge research and research outputs. Whether that recognition is seen as being entrepreneurial, this would need some sort of discussion. It could be argued that we are entrepreneurial, we support entrepreneurs in the way we support our researchers. They ultimately bring in the subsidies and the cash but entrepreneurship goes beyond the subsidy. We are not selling our research. We go cap and hand to the state and they have a formula that they apply. Our subsidies are not based

	on quantity at all, it is based on quality. Quality is sorted out at the peer review level. I don't think this is entrepreneurial.
L12	I don't know.
M13	No. I don't think so. I haven't seen any mandate or heard any entrepreneurial talks. Perhaps it is coached differently. Many universities overseas are depicting themselves as entrepreneurial universities.

A respondent mentioned that it is driven by financial gain and that the institution could be exposed to reputational risk. There appeared to be a lack of clarity and one respondent argued that perhaps it is coached differently. Comments were made regarding no evidence, not in the culture and there is no mandate.

With regards to the university having a model for coordinating and integrating entrepreneurial activities across the university, the following responses were made:

A1	No.
B2	Definitely not.
C3	No.
D4	No, it does not.
E5	I don't know, I have not come across one.
F6	Not that I am aware of.
G7	No.
H8	I don't believe so.
I9	No, it doesn't.
J10	No.
K11	No.
L12	I don't know.
M13	No.

A consensus was reached by all respondents that there is no model for integrating entrepreneurial activities.

On whether the faculties and units have autonomy to act, the respondents made the following comments:

A1	Yes, to a certain degree.
B2	Sometimes, I think its semi-autonomous. Now with the IDP it has to.
C3	Yes, there is a strong autonomy.
D4	Yes, but the question is vague in that it does not stipulate in what spheres they may have autonomy.

E5	I don't understand this question. As a research unit, we have autonomy to act on a number of things, but all within the broader university mandate.
F6	Maybe in principle, but without other aspects like the financial freedom, they cannot act independently. Some of this could be established with greater clarity, but is not in place currently.
G7	Yes, in certain areas.
H8	I think they do within their faculty or unit. Although I believe that despite what happens at a higher level, entrepreneurship definitely comes from individuals and groups of individuals.
I9	We are quite decentralised.
J10	I don't know.
K11	This is a good question. The autonomy would be there. I might have blinkers on. I am not aware of any entrepreneurial agenda.
L12	I don't know.
M13	I am not sure. We have certain autonomy.

There appeared to be diverged views with faculty and research units. There seem to be diverse opinions with regards to understanding on autonomy functioning within the rest of the institution.

With reference to the university being a driving force for entrepreneurship development in the wider, regional, social and community environment, the following comments were made by the respondents:

A1	Not the institution but I think individuals in the institution drive that. The institution then gets great benefit. The university claims that for themselves even though the academics produces it.
B2	I think yes, within Grahamstown. Only within the community. The location and because its small is a restraint.
C3	No. However, there is strong community links. We are a small university with a great community engagement component. The intention for the university and community to integrate is vital.
D4	No, it is not. However, one must first ask should it or even does it want to? If the answer to that is no, then the fact it is not a driving force is not an issue. But if the answer is that it should, then the fact it does not could be interpreted as failure.
E5	Once again, I don't think the university should be a driving force, the university provides an enabling environment for the academic programme, of which entrepreneurship might be one aspect.
F6	No, as illustrated above, there are very few areas where we are taking the lead in becoming a hub of activity for the community (both local and more broadly). Where these exist, they are driven by individuals. For example, with the Covid outbreak there is an opportunity to work with the community to raise awareness, develop a local hand-sanitizer, local grocery delivery, local app for indicating where you might need help if you are self-isolating, etc. We could develop further adult education programs to upskill people through the business cycle, so that after the outbreak some of the community to learn to grow their business, diversify into household cleaning products, cosmetics, distribution, manufacturing, I don't know. We could develop contacts with businesses that need services – analyses, training, short courses, we could link businesses with students to develop career opportunities and skills, develop and test policies for implementation nationally.
G7	In certain situations. Bio Tech for example have a very good reputation.
H8	Once again in certain domains within the university, this is the case. Not in all however, although this should be stated with a caveat, in that some of the entrepreneurial development may not be as visible to make it widely known.
I9	In terms of our regional and community environment, there is a lot of contributions made through our community engagement. Assisting schools with extra lessons. There are some business skills being shared. We allow people to be creative and contribute to the community. In the faculty of commerce, there is contribution in parting commerce related knowledge.

J10	No.
K11	No, I don't think it pushes an entrepreneurial agenda. However, we are the biggest employer in this town. If you look at entrepreneurship in that way – then we are a huge player and if Rhodes University went under, this town would go under. I am not sure if it drives the entrepreneurial agenda but we are an entrepreneurial player. This whole entrepreneurship agenda is very tricky and trying to identify it in the context of a higher education is complicated.
L12	I don't know.
M13	No.

4.2.3.3 Organisational Capacity, people and incentives

The respondents made the following comments with regards to the university's entrepreneurial objectives being supported:

Participants	Answers
A1	No.
B2	I don't know. I know there is a lot of funding but its not all for the entrepreneurial objectives. The Drama students have a lot of plays. Its very difficult for them to get money. As much as its part of their curriculum they don't invest in it a lot.
C3	Yes, there is a lot of investments not specifically for entrepreneurial university but for sustainability. The real purpose is for the public and planet. There must be a balance with survival. We are to serve, we are not a market.
D4	This is a misaligned question because the university does not have entrepreneurial objectives. Therefore, one cannot expect it to have a wide variety of funding sources for such.
E5	I don't know what the entrepreneurial objectives of the university are.
F6	No.
G7	Yes, RU does do some of it. They try to secure funding. It is largely self-driven. We look for the funding ourselves. The funding received is very limited. You have to be self-motivated.
H8	Minimally, an again mostly focussed in areas that are already supporting entrepreneurial activities.

Participants	Answers
I9	No not really. We have funding. There is research funding which can be innovative in nature. There could be support for tech transfer and incubators.
J10	No.
K11	It depends what you mean by investment. I am not sure. I don't think we do enough to secure funding. We far too dependent on state subsidies. We do have fundraising initiatives like our Alumni. We need a clear vision. The implementation constraints are huge.
L12	In our field it is a narrow variety of funders, and limited stakeholders, but we are very much not typical for the university as a whole.
M13	No.

It seems that there is an acknowledgement of funding models from research, self-driven funding projects for sustainability with no entrepreneurial objectives. Other source of funding includes: state subsidies, Alumni, support for technology transfer, incubators and stakeholders.

On whether the university has a sustainable financial strategy in place to support entrepreneurial development, the respondent made the following comments:

Participants	Answers
A1	I don't think it even has a financial strategy in place to support the institution.
B2	I don't know. The last two years there was always talk about wanting to close the university. There is a lack of transparency and now there is so much administration burdens. I don't know how much money is in their kitty.
C3	Yes. However, we have to be careful. Emphasis again on we serve the public. We are not a private institution with private interests. The Technology Transfer Office has an element of entrepreneurship. Durban University of Technology where I previously worked for years is an entrepreneurial university and markets itself as such.

D4	Not that I am aware. Once again, this is not unexpected because it does not have an entrepreneurial goal. Therefore, why would it allocate funds to achieve an unstated goal?
E5	I am not familiar with the university's financial processes, but if my understanding of entrepreneurship is correct then I believe that the university should enter into contracts with staff whereby they are given a loan that should be paid back, with interest should the entrepreneurial pursuit realize commercial benefit.
F6	No.
G7	I have no idea. I would imagine that finances are restrained at the moment. I worried it may be taken from somewhere else.
H8	I don't believe so. I feel that at the moment the university is struggling just to keep day-to-day business happening. I get the feeling that there are many more pressing commitments where money needs to be spent, than expanding entrepreneurial pursuits.
I9	They are trying to have a strategy in place but it's not to support the entrepreneurial development. There could be support for tech transfer and incubators. Depends on how we define it.
J10	Not that I am aware of.
K11	No.
L12	In our field it is a narrow variety, and limited stakeholders, but we are not typical for the university as a whole.
M13	No. It is not in the Institutional Plan.

There appears to be no financial strategy in place. A respondent highlighted that there are more important aspects that RU needs to spend money on as finances are

restrained. There seems to be no support for the entrepreneurial agenda and / or a lack of transparency.

On whether there are mechanisms in place for breaking down traditional boundaries and fostering new relationships and synergies, the respondents made the following comments:

A1	No. The university needs to relook its strategy in terms of research and the types of research it wants to develop. The University instead of being a jack of all trades, should have hubs of excellence. Those hubs will draw on excellence and allow us to become leaders in our field. We not going to be able to compete with UCT and SU. We shouldn't be looking at that. We should look at what our strengths are now and see how we can utilise it in a more efficient way without compromising the institution. We need a strategy. It can't be business as usual. We need to respond in a more positive way. We need to headhunt and attract students.
B2	I think students with the protests tried to break down traditional boundaries. I find where you work there is a hierarchical structure but now where I work. I think in different departments. There is a synergy between support staff and students. For example, because of the space we have a kitchen, for support staff. More recently our tea lady's friends all come to eat in our kitchen. They are about four but they don't have any other space to eat. It happened when one of the Admin staff members left. I think it has to do with race. Since 2015 the hierarchical structures have changed. They just eat and chat and they don't bother us. There is no extra cost to us.
C3	"Wicked problems" is what I refer to as problems with no clear boundaries. We need to work across boundaries. Rhodes University has good centres to do this. Tally Palmer and Heila Lotz-Sisitka are great examples of academics who work across disciplines. We need people that are deeply steeped in disciplines. Traditional universities like Rhodes, have strong disciplinary boundaries.
D4	No overt mechanisms. However, there are examples of individual staff seeking to make links with staff in other disciplines and departments to foster more integrated and interdisciplinary perspectives and insights, and to seek synergies.
E5	I am not sure that there are boundaries. Rhodes University is small and it is simple to collaborate broadly across the different disciplines on campus. But, these collaborations, entrepreneurial, or not, should arise organically due to the needs of a project, not forced through policy.
F6	Not really, apart from looking at the IP side.
G7	Yes, that is self-driven. Rhodes has in its favour, its small size and flat structure. I feel that we don't have that hierarchical structure. There is a collegial culture. The subsidy strategies also play a role in our assessment. That something works against you and my department and what it gets is based on what my department brings in. These types of initiatives can prevent collaborations.
H8	There are some inter-disciplinary research projects currently underway at the university, but as far as I know these were set up by independent groups. I do not know of university wide mechanisms to integrate new teams.
I9	There is interdisciplinary collaborations. At the post grad level, staff and students work very closely. The teaching environment is different. It is more about the research at the end of the day. For undergraduates it is different.
J10	Not that I am aware of.
K11	In a way, I think. We have a Director of Transformation which we never had before.
L12	I am not sure what the "traditional boundaries" are in physics and astronomy, and if there is a need to break them. The synergy we have between staff and students is based on research activities, and if the research is interesting and fruitful, then so is the synergy. But again, this type of "blue sky" research relies on traditional funding models continuing to function, so it is difficult to map onto an entrepreneurial scale.
M13	The synergies are quite limited to be honest.

A need to synergise was emphasised, this includes: working across boundaries, having a collegial culture and forming interdisciplinary collaborations. It appears that the university strategy needs to be revisited in line with the transformation agenda.

With regards to whether the university is open to recruiting and engaging with individuals who have entrepreneurial attitudes, behaviours and experience, the following responses were made:

A1	I am not sure.
B2	It comes back to money and their vision. Only if there is a vision then they would go around head hunting.
C3	We have a set salary. The space is in service for the public good. We need to improve and be better at articulating what we are and why we are. There is very poor articulation regarding what we are and what we stand for. There is a great divide. Communications need to improve this.
D4	I assume so. But I haven't seen evidence either for or against this.
E5	I don't know, this is a question for the HR division.
F6	No - the recruitment is driven by equity considerations.
G7	I don't there is. They may be willing to look at those people. I don't know if they specifically recruit.
H8	Yes, I think the will is certainly there.
I9	It would depend on the type of job. I would say they are open to innovative and intellectual people. People who are motivated and have entrepreneurial characteristics. The university is looking for specific jobs at the moment.
J10	Yes.
K11	I am not aware of.
L12	In the "traditional" (commercial) sense of entrepreneurial, I cannot really see from my ivory tower. However, successful graduate students share many attitudes and behaviours with successful entrepreneurs (innovation, self-motivation, drive, focus, work ethic, structured and logical thinking), and, in fact, one often sees the ones that leave research (not everyone has the opportunity go on to become a research scientist, after all – the pyramid narrows towards the top) become successful in business. So, I would say on our side we are very open to engaging such individuals, we are just trying to get them to do "blue sky" science rather than business enterprise.
M13	Well, there might be in certain departments.

One respondent articulated that it comes back to vision and money. Another respondent urged that there is a need to improve articulating what we are and why we are as there is a great divide.

With reference to whether the university invests in staff development to support its entrepreneurial agenda, the respondents answered:

Participants	Answers
A1	Staff at RU attend many courses and training. We get money from the Department of Labour. The reality is working at RU is a good job.

B2	No.
C3	No, not particularly.
D4	No, because it does not have an entrepreneurial agenda.
E5	Again, does the university have an entrepreneurial agenda?
F6	Very minimally, e.g. through courses that are developed in departments and divisions, which are then made available to interested staff. E.g. through the IP Office who run workshops on aspects of funding IP protection, TIA, etc.
G7	No not really. For example, in teaching there is workshops and writing workshops that are available to staff. There doesn't seem to be funding available for workshops. There are in-house workshops.
H8	Minimally – once again I feel that the lack of funding is the major obstacle here.
I9	There is no entrepreneurial culture. They would invest in staff development to increase knowledge, innovation and skills and competencies that can be used to enhance the job.
J10	I guess so.
K11	No, it does not.
L12	I cannot judge.
M13	No.

There is an acknowledgement to certain staff development initiatives such as: funded courses, training, Technology Innovation Agency (TIA) and intellectual property workshops, teaching and writing workshops. However, there is a confirmation that there is indeed no entrepreneurial agenda in existence because there is no

entrepreneurial culture. Some respondents expressed diverse views and stated there is a lack of funding for developmental support.

On whether there are clear incentives and rewards for staff who actively support the university's entrepreneurial agenda, the following responses were made:

A1	No. I sat on the promotions committee. There are no incentives.
B2	I am not sure. Dan Wylie writes a lot of books and self-publishes. He is retired now. He is Professor Emeritus. If they publish an article they get some money. They might get recognition. Rhodes University doesn't give any money to academics for articles. Other Universities like Unisa you get incentives. The Department of Higher Education gives about R120 000.00 per article. Rhodes gives you nothing. Stellenbosch gives you R10 000.00 which goes into a research account. It's frustrating when you hear what other universities are doing. How I understand it, is that the money is put into a kitty for student bursaries. We do get some money if we request it. I would prefer to get the money but I understand what they trying to do. Whether it is true or not I don't know.
C3	No. There should not be. We should all do our work with passion and purpose and with the right intentions. Financial incentives drive perverse consequences. We need to be clear on whose interest we do and we do not serve. Drive for exchange of value instead of use value.
D4	Not that I am aware of.
E5	Not that I am aware of, and there shouldn't be. There are incentives for doing your job well, and that is promotion. An academic's job is to teach and create new knowledge, which the university supports, any entrepreneurial innovation that leads to commercialization should be the property of the university.
F6	Not unless the IP develops to the point where it can generate some income for licensing, or selling etc.
G7	I think probably yes in supporting the broader academic. They feature them highly; their research would be picked up by communications. There will be some acknowledgment.
H8	Not that I am aware of.
I9	No, I am not aware.
J10	Not that I am aware of.
K11	I would say yes and no. If a staff member is productive then there are promotions available. One can attract funding but access can be difficult. The moment you are productive, you can access your funds. Young staff struggle with promotions and it creates publication paranoia.
L12	I cannot judge.
M13	No.

There is an acknowledgement that there are no incentives and financial rewards however, recognition and promotions are awarded in certain departments. One respondent exclaimed that it is not about the money, one must work for passion and purpose with the right intentions.

On whether the university gives recognition to other stakeholders who contribute to the entrepreneurial agenda, the following answers were provided by respondents:

A1	I think we recognise industry funders. Certain departments like Biochemistry and IT. Funders do get some form of recognition such as a name of a building or laboratory or a simple thank you.

B2	No, I don't think so. We don't work in that field. I think it is more the science people. The nanotechnology department which create patents. We just write books in our department. Sam Naidu won the VC's book award. In that case that is a recognition. Recognition is different for promotion which plays a huge role. I was working at Stellenbosch and the entrepreneurial approach has a greater impact. They are very advanced. I think people in Drama have opportunities to get recognised at our Arts Festivals. We get academic recognition.
C3	No.
D4	What other stakeholders?
E5	I am not sure what is meant by "other stakeholders."
F6	To some extent I think so, especially if the entrepreneurial outcome is linked to others who made investments.
G7	Yes. I think they do. We are good at advertising relationships and a strong alumnus.
H8	Yes, in terms of mentioning these stakeholders in any news related to the various entrepreneurial schemes.
I9	No, we don't have an entrepreneurial agenda. There is no incentive for research here. You do it because you want to do it and because you have a passion to do it.
J10	I assume so.
K11	Yes.
L12	I cannot judge.
M13	No.

There appears to be recognition given to stakeholders who contribute to the entrepreneurial agenda, this includes: thank you's to industry funders, academic recognition, naming a building or laboratory and advertising relationships through a strong Alumni and campus news. It seems that no financial incentives are evident.

4.2.3.4 Entrepreneurship in teaching and learning

On whether the university structure stimulates and supports the development of entrepreneurial mind-sets and skills, the respondents provided the following comments:

A1	Not from an institutional point of view. There are however, individuals and fields of studies like applied sciences and chemistry. It is run at a departmental and institutional level.
B2	Some departments. The Nano-technology department and the pharmacy students who won the Hult prize. I think water research like Nelson's work and scientists have a stimulating environment.
C3	No. Staff development at CHERTL is focused on ensuring an understanding for the public good. It is often but not always anti-entrepreneurial approach.
D4	No, it is not.
E5	The university should teach critical thinking of which entrepreneurship should be one aspect.
F6	No, apart from individual or isolated Departmental efforts. Courses, Open days, competitions, etc.
G7	In so much that it is very open and tolerant. It doesn't dictate, it is very much down to the specific individual. It depends on what course you are teaching. There are certain instances where you would argue that being entrepreneurial is irrelevant in certain fields.

H8	No. Within the more business / scientific / professional faculties there is greater support for development of entrepreneurial mind-sets, however, this is largely due to the faculty structures and not the whole university.
I9	This word trouble me and how we define it. The university will support innovation. We allow space. They provide seed funding. The university to a certain extent supports mind-sets and skills.
J10	Not really.
K11	Not across faculties.
L12	On the physics side, many of these skills are developed naturally. There is no particular emphasis on the commercial aspect of this, nor, in my opinion, should there be.
M13	No.

With reference to whether staff take an entrepreneurial approach to teaching in all departments, promoting diversity and innovation in teaching and learning, the following responses were made:

A1	No. It's because certain branches of study lend themselves more. The way in which you teach is embedded already. As a marine biologist, my teaching is providing an understanding of how ecosystems work and then providing my students with the tools. Certain fields are open to it. Not in an institution level.
B2	Yes, but not all departments. The nature of the discipline plays an important role. The faculty of education I think goes to school to promote.
C3	Yes, we promote diversity and innovation in teaching and learning however, this is not viewed as an entrepreneurial approach.
D4	I doubt it, certainly not in the departments I know.
E5	I can't answer this question as I am not familiar with what other departments do. In my department we encourage students to be innovative, not sure about entrepreneurial.
F6	No.
G7	Some do as is commensurate with their disciplines and the level and nature that they are teaching. Everybody is aware of the sustainability goals and they try to incorporate that into their teaching.
H8	I have seen amazing innovation in teaching and learning in the past few years by some staff. However, I am not sure whether this is university wide, or only in the departments that I have worked / interacted in.
I9	I can't speak for other departments and I am not certain about the entrepreneurial approach. We are seriously encouraged to be concerned about diversity. This is at the forefront. In our department this is highlighted. We encourage the students to think out of the box, we stimulate thinking and include mini case studies. We give a lot of content. At the same time, one is stimulating the ability to think for yourself so that they can move into life-long learning. This will assist when they reach the workplaces. The main thing is to teach them to think and create solutions and problem solve. We get them to think about the social, economic and environmental impact. The triple bottom line.
J10	I guess only in Bio-tech Innovation Centre.
K11	Not across faculties. We do promote diversity and innovativeness and we strive on social consciousness.
L12	These are two different questions. Diversity and innovation can be promoted without an explicitly entrepreneurial approach, and we strive to do this constantly.
M13	It depends on the use of the term entrepreneurial. We try to teach in an innovative way but we don't have established courses to push students in that direction. We are sensitive to that. We teach students to think critically and out of the box.

On whether the entrepreneurial behaviour is supported throughout the university experience; from creating awareness and stimulating ideas through to development and implementation, the respondents provided the following answers:

A1	No. It depends on the department you are in. The real danger with regards to entrepreneurial university, is that students would still need that foundation that fundamental background. Academics are concerned about this. Technikons used to fill this space nicely as they were more practical. If I look at my sister and brother's studies at the Technikons and their studies were more applied and practical. This country needs more of these practical people. People who can build our economy. Most of our students don't have the training to be entrepreneurs and create jobs. I understand why there is this pressure. The fundamental knowledge leads to the broader application.
B2	Not throughout the university. Pharmacy for example they have. There is a story telling innovation hub but I am not sure what is happening there. A lot of innovation and technology is happening but we are not aware.
C3	No, I hope university individuals develop a responsibility for society and the planet. This may include entrepreneurial activities and it may not.
D4	Not at all.
E5	To my mind there is nothing stopping people from being entrepreneurial.
F6	No.
G7	We are encouraged to think about it. I am not sure about the support. It depends about the model or if you are wanting to foster awareness and whereby you contact the right people who will move the innovation into a commercial space. What is that model and how do we do it. Maybe a possible strategy is to target the students. You would need to support them also for a while. You could take students to work in this incubator space. You could have innovation post-docs. There is a generational difference. The younger people are willing and wanting to engage in this entrepreneurial space to create jobs. A co-model would be better, it doesn't have to be either or. It can be in different phases. In the essence of teaching the staff member can start it and the student can take over from there.
H8	CHERTL and various other departments/individuals certainly try to stimulate ideas, but I am not sure to what extent these are taken up by individuals. Unfortunately, as entrepreneurial behaviour stems from individuals, it is hard to enforce it. There are some academic staff that I know of, that haven't changed their teaching habits for decades.
I9	No, I wouldn't say so. Perhaps in certain pockets of research. I find that the people have been here for a long time and they are not so open to change because this is how they have been doing it.
J10	I guess only in certain departments.
K11	Not explicitly. I have not seen this mentioned in any document.
L12	One could perhaps conclude that we do not have enough awareness of this in the fundamental sciences! However, this is not a university problem, this holds for the field overall, internationally.
M13	No.

With reference to the university validation of entrepreneurship learning outcomes, the following responses were made:

Participants	Answers
A1	Not really. The capstone courses are becoming a major discussion. There are also conversations about making students employable. What does the job sector need? It is going to happen at the individual level only.

B2	In ours, we don't have.
C3	No, not in particular.
D4	No.
E5	Yes, but more importantly the university validates critical thinking and innovation, which is more important.
F6	No.
G7	I don't know.
H8	Not that I am aware of. Academic outcomes seem to be the ones that are focused on.
I9	The business school has a post graduate diploma in business enterprises which we started. There is some concern about the entrepreneurial teaching. There is a lot of short courses offered at the business school. They offer courses for different courses. In the faculty of commerce, we do to a certain extent validate entrepreneurship outcomes. We do have a section in the curriculum and it is examined. So not in the purest sense like the PDM. We get them involved with the community and businesses – there is a nexus. In the past you had to start a business. At UCT they also do this. They have to start and run a business. The project is a big part of their results. We have Masters and Doctoral Degrees in Management. Strategic management is taught at the business school and also to our third-year students.
J10	I don't know.
K11	No.
L12	I cannot judge.
M13	No.

On the agreement of whether collaborating with external stakeholders is a key component of teaching and learning development in an Entrepreneurial University, the following comments were made by the respondents:

A1	Yes, it is critical. People who work at universities are oblivious to what industry requires and the timeframes. Departments that have a strong interaction with industry on a regular basis, they will modify their requirements to meet those standards. They prepare their students well. Its discipline.
B2	Yes, especially in a small university like this one which is not accessible to certain things. We need strong forces to help us.
C3	Yes, collaboration is important for any university. Traditional universities need to be careful that it serves public interests and not private interests.
D4	Probably.
E5	Not necessarily, entrepreneurship is a philosophy, commercialization often requires an external partner.
F6	Yes, especially with the peripheral community.
G7	Yes. It is important to have tangible stories and inspirational case studies.
H8	Yes, attending educational conferences in one's discipline and engaging in educational research should be high on the priorities for all staff members with the former being extremely important for new staff members.
I9	Yes, definitely.
J10	I have no experience to answer this question. Probably yes.
K11	Yes, all universities and stakeholders should complement each other to create powerful relationships.
L12	Yes, absolutely.
M13	Yes, definitely. It is important to work with government organisations.

With reference to whether research results are integrated into entrepreneurship education and training, the respondents answered the following:

A1	It can't be. If it was a discussion. It may come across that I am negative about RU but it finds itself in a very unstable environment and size. We don't have a large cash flow or buffer. We are very reactional. Financial risk is required and good leadership. The problems we have here is very difficult. There are no guarantees. You might have individuals who get together in certain departments to work towards it. it is a bottom up approach. I have been here for twenty-six years. It is very seldom that the VC or DVC will say they have secured funding and let's identify projects for entrepreneurship. I have seen that at other universities. How do we address our problems? Our geographical location is a real advantage. Our community outrage projects are great, they make a huge difference in society. The problem is how we secure funds to develop entrepreneurship. I think the Department of Trade and Industry and Department of Labour should be looking into this. They are best placed to facilitate this. This needs to be adopted with added incentives. We are a strongly based knowledge economy.
B2	Not at our university. Maybe in the Pharmacy department. I saw they were trying to recruit more students for the next Hult Prize. Maybe we can send another team. The Communication and Advancement know who is asking for money. Ellen who works there contacts the funders for money. She has a list of contact people.
C3	No. Rhodes definitely needs to work on the improvement of articulating our research results with regards to what and how it has been done. We are living in an anti-intellectual era subsidised by tax payers by the public.
D4	No.
E5	The appropriate ones, yes.
F6	No.

G7	Yes, it is driven by research. Depends on the research and the researcher.
H8	This is easier to do in some disciplines that others. My discipline is a rapidly changing one, and therefore not keeping up with technology and changes in the industry is not an option. Hence, the need to be very cognisant of incorporating new research results into the teaching.
I9	If you are teaching on this then yes, absolutely. Many of my previous research was based on entrepreneurship and skills. It is important to incorporate it.
J10	Depends on the research field.
K11	I am not sure. It may be marketable so perhaps there is a possibility.
L12	I cannot judge, given the limited to non-existent commercial impact of our research.
M13	No.

4.2.3.5 Other perceptions of respondents who provided constructive feedback on the entrepreneurial university

There was a cluster that did not feel comfortable on the topic however opted to provide general comments. Six researchers out of the Top 30 Researchers for 2018 elected not to participate in the full interview and questionnaire however; they gave valuable feedback for the study. Below are interesting perceptions from the six respondents and the Deputy Vice Chancellor regarding the entrepreneurial university.

N14	I cannot support the idea of a university becoming entrepreneurial. Universities, in my view, are about critical knowledge production, which may have no commercial benefit to the researchers or the institution. In addition, the language of entrepreneurship is too closely linked to the capitalist system, which I thoroughly oppose, and could slip into managerialism within universities.
O15	I do not know anything about entrepreneurship or an entrepreneurial institution.
P16	I am not certain I understand what is meant by an entrepreneurial university, but I am in fact strongly opposed to the inculcation of entrepreneurship as I understand it among university staff as I believe this acts in direct competition with what I see as a university's primary functions of developing and dissemination knowledge. I see examples around campus of individuals and even entire departments that follow an entrepreneurial model at the expense of both the university's capacity for knowledge generation and of students' education. I think this is because an entrepreneurial spirit is essentially driven by self-interest. This has a key role in the economy, but I see it as being in direct conflict with a university's primary purpose, which is not to make people rich. Sadly Rhodes (and other universities) develop policies that encourage entrepreneurship by providing space/time for people to undertake activities that are financially rewarding for them personally without contributing to education in the form of knowledge generation or teaching. Or community engagement for that matter. Usually this is a way of universities trying to allow people to play catch-up-up for generally poor salaries. I would deplore a move towards and entrepreneurial university, but I imagine I am in a minority.
Q17	I also have difficulties both being asked to define an entrepreneurial university and then to describe it. I don't agree with even wanting to describe a university as entrepreneurial.
R18	I am a sociologist and have no idea what it means to be an entrepreneurial university. In my opinion, the university should be geared towards its social responsibilities as opposed to entrepreneurial.
S19	A differentiated higher education system is a healthy system – global research shows that. RU was identified as a traditional university offering traditional academic programmes in the National Plan processes that took place in 2002. It did not become a University of Technology offering vocational programmes – its strength was seen to lie in traditional academic offerings. Since the

	National Plan was concluded, RU has confirmed its position as a research-intensive university. We are consistently in first or second place for pro-capita research production. We have also confirmed our commitment to general formative degrees – this is in our Institutional Development Plan. General formative degrees have been shown to be more "powerful" that vocationally oriented degrees in preparing students for workplaces which will undergo constant change. This is because they build theoretical, discipline-based knowledge. The IDP identifies a unique niche for RU as the only research intensive outside a major urban area. This then requires us to take cognisance of our location in teaching and learning and research through "engagement" with, for example, what it means to be a socially responsive South African citizen.
T20	I think you will have picked up the obvious areas of the university where entrepreneurship comes though more strongly – it is mostly disciplinary based, so that the business school and commerce faculty look at it formally, the IT and Bioinformatics disciplines practice it in an inherent way, and many of the older academic disciplines ignore it. Generally speaking, as a traditional university strong in the humanities, we have to acknowledge that the university is behind the curve in terms of using innovation as a cross cutter in the curriculum, in the way that it is more common in universities of technology.

But the point I wanted to make is that there are often lovely innovations in what people do in their research, and also teaching and learning practices, and some of these spins out into entrepreneurial spaces. So, a good example of this would be the kind of engaged research some people do, for example the entirely engaged approach taken by the Environmental Learning Research Centre, which has resulted in a number of spinoffs – not on the conventional commercial sense, but in the research, policy, and government implementation sense. This is more subtle than straight tech transfer.

Also, I wanted to point out this collection of short case studies compiled but Dr Nompilo Tshuma about reframing traditional understandings and practices of teaching and learning through technology, which I think is another less obvious channel of innovation, some of which end up in entrepreneurial engagements outside of the university. |

4.2.4 Content analysis

Table 5: Analysis of content emanating from the interviews and questionnaires

Concepts	Findings
Entrepreneurship	• Creating ideas and innovation. • Confusion between entrepreneurship and innovation. • Developing and managing your own business. • It is a sustainable concept. • Undertaking commercial activities. • Creating opportunities.
Entrepreneurial University	• There is not one definition. • Drives economic sustainability. • Embeds entrepreneurship into the ethos of the university and the curricula it teaches, as well as fostering and supporting entrepreneurial behaviour. • Takes concepts, ideas, inventions and commercialises them. • It applies knowledge. • Attracts funding to sustain research. • Generates capital and makes money. • Active commercialisation program. • Taking us into directions we should not be going.
Traditional University	• Generation of knowledge. • Focusses on research and development. • Teaching and learning is at the heart of everything.

	• Focusses on social good and contributes to social justice and environment sustainability. • Undertakes knowledge generation and knowledge transfer. • Formal classes, rigid timetable and very structured. • Generating, sharing and applying knowledge in service of humanity. • Diverse in its offerings and can be viewed as anti-transformational.
Rhodes as an entrepreneurial university	• It is not part of the Institutional Plan. • RU is far from transitioning. • Unaware of what is happening at the university. • Entrepreneurship is not embedded into curricula and no support for entrepreneurial behaviour.
Entrepreneurship as a major part of university strategy	• Entrepreneurship is not mentioned in the IDP. • There are no entrepreneurial goals listed in the Institutional Development Plan for Rhodes University. • Not stated in policies. • Lack of clarity. Most of the researchers were not aware of what was happening on campus in this space. • No platform available to discuss the entrepreneurial agendas. • No support offered. • A space to innovate would be useful and beneficial. • Definition of entrepreneurship is varied and wide. • The transition would be a huge administration burden. • The Transformation agenda has the capacity to unlock its entrepreneurial spirit.
Commitment at high level	• Driven by financial gain. • Reputational risk because of no control. • Lack of clarity. • No evidence of commitment for entrepreneurial objectives. • Not in the culture. • Coached differently. • No mandate. • Subsidies based on quality and not on quantity.
Model for coordinating and integrating entrepreneurial activities	• No model for integrating entrepreneurial activities.
Autonomy to act	• Autonomy exists. • Unsure of the autonomy. • Entrepreneurship comes from individuals and groups of individuals.
The university a driving force for entrepreneurship development	• Individuals must have the drive to pursue entrepreneurial goals. • Enabling environment helps boost creativity and entrepreneurial spirit. • Upskill people. • Community engagement is key. • Not visible. • Contacts by linking students with business partners. • RU as an entrepreneurial player.
Support for the university's entrepreneurial objectives	• There is funding but not for entrepreneurial objectives. • Self-driven funding. • Research funding. • Support for tech transfer and incubators. • Dependent on state subsidies. • Alumni. • Sustainability. • Limited stakeholders.

Sustainable financial strategy	• No financial strategy. • Lack of transparency. • Administration burdens. • We serve the public. • Technology transfer office. • Contracts with staff for commercialisation. • Finances are restrained. • More important aspects RU need to spend money on. • No entrepreneurial goals. • No support for entrepreneurial agenda.
Mechanisms for breaking down traditional boundaries	• Relook strategy. • Hubs of excellence. • Student protests. • Hierarchical structures in certain departments. • Wicked problems. • Need to work across boundaries and disciplines. • Synergies. • Collegial culture. • Subsidy strategies. • Interdisciplinary collaborations. • Transformation. • Limited synergies.
Recruiting individuals	• Vision. • Money. • Improve articulating what we are and why we are. • Great divide.
Staff Development	• Funded courses and training. • No entrepreneurial agenda. • TIA and IP workshops. • Teaching and writing workshops. • Lack of funding. • No entrepreneurial culture.
Incentives and Rewards	• No incentives. • Recognition. • No financial rewards. • Right intentions. • Work for passion and purpose. • Acknowledgement. • Access to funds. • Promotions.
Recognition	• Industry funders. • Thank – you's. • Name of building or laboratory. • Academic recognition. • Patents. • Advertising relationships. • Strong alumni. • News. • No incentives.
University Structure	• Individuals. • Nano-Technology. • Water research. • Stimulating environment. • Hult prize. • Anti-entrepreneurial approach.

	• Critical thinking. • Open days, competitions, courses. • Open and tolerant. • Faculty structures. • Seed Funding. • Skills developed naturally.
Entrepreneurial approach	• Nature of the discipline. • Certain fields. • Innovative. • Sustainability goals. • Life – long learning. • Out of the box thinking. • Triple bottom line. • Thinking critically. • Sensitive.
Support for entrepreneurial behaviour	• No awareness. • Responsibility for society and planet. • Commercial space. • co-model. • Younger people are willing. • Entrepreneurial behaviour stems from individuals. • Not open to change. • Haven't changes teaching habits for decades.
Validation of learning outcomes	• Capstone courses. • What job sector requires. • Innovation. • Critical thinking. • Short courses. • MBA's.
Collaboration with external stakeholders	• Collaboration is important. • Powerful relationships. • Government organisations. • Serves public interests not private.
Integration of Research results	• No large cash flow buffer. • Reactional. • Good leadership and financial risk required. • Alumni. • Anti-intellectual era. • Depends on research field.

4.3 THEMATIC ANALYSIS

In Table 8 depicted below, the behaviours, perceptions and attitudes towards an entrepreneurial university are displayed. There appears to be mixed attitudes of both positive and negative. The same is represented for perceptions, a mixed flow of good and bad.

Table 6: Behaviours, Perceptions and Attitudes towards an Entrepreneurial University

Behaviours	Perceptions (Good / Bad)	Attitudes (Positive / Negative)
Innovative	Good	Positive
Reactional	Bad	Negative
Sensitive	Good	Positive
Lack of Awareness	Bad	Negative
Anti-entrepreneurial	Bad	Negative
Synergies	Good	Positive
Confusion	Bad	Negative
Sustainability	Good	Positive
Knowledge and Research	Good	Positive
Diverse	Good	Positive
Community Engagement	Good	Positive
Collaborations	Good	Positive
Support	Bad	Negative
Culture	Bad	Negative
Transformation	Bad	Negative
Funding	Bad	Negative
Incentives and Rewards	Bad	Negative
Recognition	Good	Positive
Training and Development	Good	Positive
Entrepreneurial Champions	Bad	Negative
Strategies	Bad	Negative
Stakeholders	Good	Positive
Autonomy	Good	Positive
Nurturing Environment	Bad	Negative
Commercialisation	Bad	Negative
Entrepreneurial Goals	Bad	Negative
Administration Burdens	Bad	Negative
University Structure	Bad	Negative
Leadership	Good	Positive
Discipline Specific	Bad	Negative

4.4 ASSOCIATION OF CONCEPTS

Figure 6 below, represents the relationships between the different concepts and how they are linked.

1) Shows how the university is linked with social and public good.

2) Displays how entrepreneurship is associated with economic growth.

3) Reflects research as enough 3rd stream income.

4) Illustrates how RU may not be viewed as being entrepreneurial but has pockets of entrepreneurship and innovative activities.

Figure 6: Synergy of Concepts
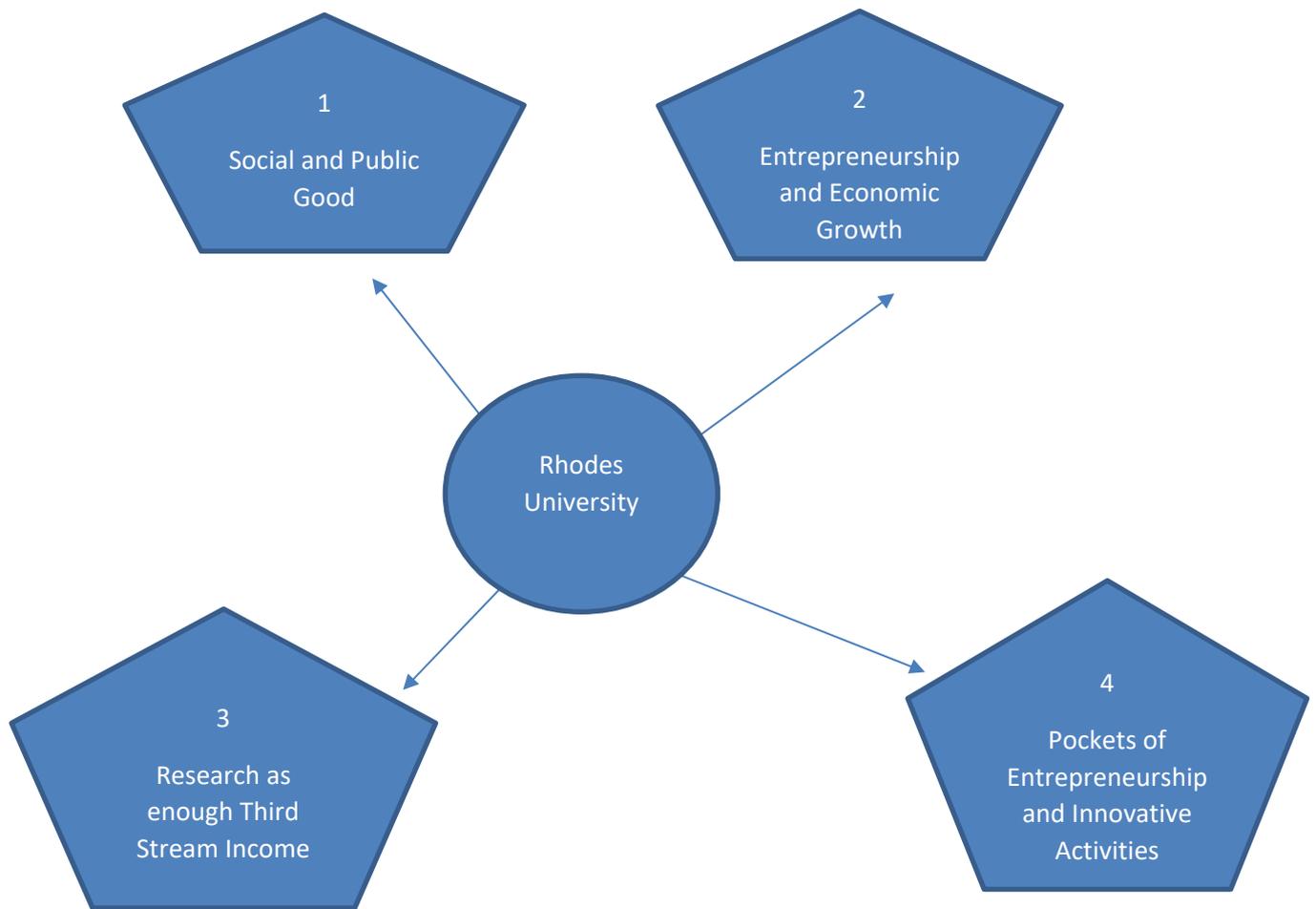
4.5 TRIANGULATION

Triangulation refers to a number of methods including sources of information in qualitative research to help create an understanding and tests validity (Patton, 1999). The researcher utilised documents to review, questionnaires and semi-structured interviews to collect data. The various methods of collecting data assisted the researcher with triangulation to help validate findings. The RU Research Reports correlated with concepts and themes that were identified in the participants questionnaires and interviews and the concepts and themes that emanated from the participants questionnaires and interviews were confirmed in the documents (RUIDP; Research Reports 2014 – 2018; NUEEBR and RUIPP).

4.6 CONCLUSION

It appears that that there are trends that have surfaced. It could be concluded that the diverse trends are linked to the purpose of HEI, the diverse understanding of entrepreneurship and entrepreneurial university, and how it fits into HEI. Based on findings it can be concluded that there is a high indication that RU is a research-intensive traditional university however, it has pockets of entrepreneurship and innovative activities taking place.

There are no entrepreneurial goals stated in the strategy and this could mean that there is a lack of awareness as a result of this. There also appears to be no clear rewards and incentives for entrepreneurial behaviour which could be a reason to demotivate students and staff to pursue entrepreneurial activities.

There are innovations in research, teaching and learning practices and some of these spins into entrepreneurial spaces. The Information Technology and Bioinformatics disciplines practice being entrepreneurial however, many of the older academic disciplines ignore it.

As a traditional university strong in humanities, it is acknowledged that the university is behind the curve in terms of using innovation as a "cross cutter" in the curriculum as done in universities of technology.

In the next chapter the researcher will discuss the data from the themes.

CHAPTER 5

DISCUSSIONS

5.1 INTRODUCTION

This chapter deals with the main themes that surfaced from the interviews as part of the findings. These themes are compared to aspects of entrepreneurial university in order to articulate a discussion which associates these findings to the guiding theory. This is accomplished by looking at the understanding of the concept, strategies towards strengthening internal capabilities and the entrepreneurial approach at strategic level.

5.2 REPRESENTATION

Out of the six faculties at the university, 62% of the participants came from the Science Faculty; 15% from the Humanities Faculty; 15% from Education Faculty and 8% from the Commerce Faculty. Participants were in the Top 30 for 2018 with some appearing more than once in the selected five-year periods (2014 – 2018). Only four appeared in 2018, whilst two have been in the Top 30 for five consecutive years.

From the identified faculties, participants came from the Department of Environmental Science, Department of Sociology and Industrial Sociology, Department of Chemistry, Department of Physics and Electronics, Department of Zoology and Entomology, Department of Biochemistry and Microbiology, Department of Education, Centre for Higher Education Research, Teaching and Learning, Department of Management, Department of Literary Studies and Department of Computer Science.

5.3 DISCUSSION ON FINDINGS

The following thematic areas came strongly from the finding.

5.3.1 Understanding entrepreneurship

Almost all the respondents but one, understood the meaning of entrepreneurship and briefly described characteristics of an entrepreneur (Puga, Garcia, and Cano, 2010). The respondents described an entrepreneur as, individuals who create opportunities, ideas, products and services. It involved the art and science of taking a risk. Many agreed that an entrepreneur had to be innovative and that it would be a person that has elements of ingenuity and commercial activities. Entrepreneurs help fill a gap and provide solutions to economic problems. Entrepreneurs can work individually or collaboratively. Developing and managing your own business is key to success. This correlates to the definition of an entrepreneur having a twofold influence on the economy. The one-fold speaks to boosting jobs, roping in innovation, creativity and on the other fold, its purpose is to collaborate with other countries and enhance their economies. The entrepreneur aims to gain financially (Puga, Garcia, and Cano, 2010).

Interesting to note that one respondent described entrepreneurship as a sustainable concept and not only a commercial one. The one respondent stated that he did not really understand entrepreneurship and that there was confusion between his interpretations of the difference between entrepreneurship and innovation. This confusion ties up with Rogoff and Lee's (1996) analogy of the definition described as, entrepreneurship obscures researchers in the same nature that tiny atoms have perplexed physicists.

5.3.2 Understanding an entrepreneurial and traditional university

A number of the respondents were uncomfortable with the term entrepreneurial and what it actually meant. The respondents also indicated that they haven't heard about it and needed to read up on it. A few of the respondents came up with very good definitions such as, an entrepreneurial university deals with social requirements and drives economic sustainability. It is probably a university that is looking more at application. There is no one hat that fits all heads scenario. To search and obtain one definition for an entrepreneurial university would be very problematic and contentious (OECD, 2012). There were varied thought processes surrounding the concept.

It could be acknowledged that entrepreneurial institutions are viewed as knowledge creators thus using an innovative approach can transition a traditional university. This can be achieved through attracting funds to sustain its research and strengthening partnership that takes developed products to markets. The aim should be to generate capital and make money (Puga, Garcia, and Cano, 2010).

However, when defining a traditional university an emphasis was on knowledge being core and sharing that knowledge with others for societal good.

5.3.3 Entrepreneurship as the university strategy

The findings of the study show that the participants all understand the vision and mission statement of the university. However, there is an absence of an entrepreneurial vision and mission at RU. The RUIDP appears to be silent on any entrepreneurial goals. This was confirmed by A1 when he acknowledged that it wasn't part of it at all and B2 it is not in the Institutional Plan. Thus, making this to contrast to what Klofsten, Fayolle, Guerrero, Mian, and Urbano (2019), as they indicated that an entrepreneurial approach would guide leaders of the university and assist them with recognising and managing challenges about creating a good strategy. C3 alluded that there is a lack of clarity which makes us vulnerable to entrepreneurial discourses whilst D4 stated that the word is hardly mentioned in high-level documents and policies of the university. Jameson and O'Donnell, (2015) endorsed the fact that a university would have to be courageous and bold in making the transition and needs to be eager to redefine its vision and mission.

Participants responded negatively and some were unsure of strategic commitment as commented by: M13, as he highlighted having not seen any mandate or heard any entrepreneurial talks and is something that is not in the culture as echoed by I9. This is contrary to what Guerrero, Toledana, and Urbano, (2011) who stated that, universities that would like to transform into entrepreneurial universities should have at least the formal mechanisms which is necessary for accomplishing an entrepreneurial culture.

Jacob, Lundqvist, and Hellsmark, (2003) allude to, building an entrepreneurial university is a process that takes ages and it is essential to incorporate specific modifications for realisation. These modifications include but are not limited to infrastructure and cultural changes. However, from the responses provided it is clear that there is no model for integrating entrepreneurial activities as there appears to be no infrastructure available and a lack of culture.

5.3.4 The university as a driving force for entrepreneurship development

Respondents highlighted that the university was not a driving force for entrepreneurship development. Instead, individuals have the drive to pursue entrepreneurial goals. Thus, providing an enabling and visible environment, helps boost creativity, upskill people and develop entrepreneurial spirit. There are a very few areas where the university is taking the lead in becoming a hub of activity for the community both (local and more broadly). Where these exist, they are driven by individuals according to F6. The Covid outbreak presents an opportunity to work with the community to develop adult education programs to upskill people through the business cycle, so that after the outbreak, the community learns to grow their businesses. We could link businesses with students to develop career opportunities and skills, develop and test policies for implementation nationally.

There was also a view that the university is not pushing an entrepreneurial agenda according to K11. Some have viewed the contribution made at community level such as being the biggest employer in this town and linked that to being entrepreneurial. This however falls short in meeting creativity and producing opportunities as some of the elements used in the definition of entrepreneurial. The limitation to employment which is the entrepreneurial performance where job creation becomes the impact thus making it part of the entrepreneurial ecosystem highlighted by Ashri (2013). This is supported by when K11 stated that RU is a huge player and if the university went under, this town would go under. I am not sure if it drives the entrepreneurial agenda but we are an entrepreneurial player.

When linking entrepreneurship with education there seems to be diverse responses whereby it's viewed as complicated in trying to identify entrepreneurship in the context

of higher education. These findings are contrary to Soran, Şeşen, Genç, Castanho, and Kırıkkaleli, (2020) as they argued that the key for sustainable development is to transform the university in its entirety and therefore this transition towards an entrepreneurial university may be great encouragement for their sustainable development.

5.3.5 Support for entrepreneurial objectives

The responses revealed that there is no clear support mechanisms, platform and spaces. E5 suggested that the university should   provide a platform for people to express their academic and scholarly aspirations in the way that they can. F6 further noted that there is no clear support for developing these ideas into start-ups, businesses, services, science park, etc. M13 agreed on the need to create more space and harness more spaces to innovate and think creatively. There are times when the students are subdued. I9 asserted that RU is trying to have a strategy in place but it's not to support the entrepreneurial development. These findings are contrary to what Etzkowitz (2003) recommended, that the entrepreneurial university involves support mechanisms for educators and learners to help boost incubators which are profitable and innovative.

5.3.6 Breaking down traditional boundaries

With people not being open to change (as indicated by I9), traditional barriers have been confronted through the transformation office (K11) where a transformation agenda gets elevated (M13). For entrepreneurial agenda to be elevated, the pressure experienced by universities to undergo transformation might be required (Clark 1998) similar to the one used in elevating the transformation agenda.

Although there seems to be an agreement by a few on autonomy, others seemed to be unsure. This could be at faculty or unit (H8), at individual and group level, others might see it or have blinkers on (K11), whilst others are not sure on the level of autonomy (M13).

5.3.7 Strategies towards strengthening internal capabilities

- Recruiting entrepreneurial champions

There is a need to improve and be better at articulating what we are and why we are, as this space is in service for the public good (C3). Communications can help diminish the great divide. RU currently, does not have entrepreneurial champions to drive awareness. EDHE suggests a champion should be identified and nominated at the universities to establish responsibility for entrepreneurship development (NUEEBR, 2020). The university has a TTO to boost awareness with workshops and assisting entrepreneurs and innovators with intellectual property (RUIPP 2017).

- Staff development and training

There appears to be some staff development and training available at RU such as: courses that are developed in departments and divisions, which are then made available to interested staff. E.g. through the TTO who run workshops on aspects of funding, intellectual property protection, TIA, etc. Etzkowitz, Alarmartine, Keel, Kumar, Smith and Albats, (2018) found that a few cultivate entrepreneurial training as an extension of their training tasks and on the other hand, others develop technology transfer as an extension of research.

- Incentives and Rewards

Guerrero and Urbano, (2012) illustrated that every university has a different community and its attitudes towards entrepreneurship comprises of entrepreneurship curriculums, teaching, role models and reward systems. B2 acknowledged that RU doesn't give monetary awards to academics for articles. Other Universities such as: Unisa awards incentives; the DHET gives about R120 000.00 per article and SU about R10 000.00 which goes into a research account. A1 similarly, confirmed that there are no incentives. Work should be done with passion, purpose, with the right intentions and not for any rewards. Financial incentives drive perverse consequences. We need to be clear on whose interest we do and we do not serve. Drive for exchange of value instead of use value.

From the findings, it appears that RU does not offer any incentives, this is opposed to Adnett and Tlupova, (2008) who illuminates that more awareness should be made regarding these funds at higher education institutions. Academic entrepreneurship is incentivised by translational research and start-up funding and disincentivised by budget reduction (Etzkowitz, Alarmartine, Keel, Kumar, Smith and Albats, 2018). The RUIPP (2017) sets out a Benefit Sharing agreement and offers arrangements for contributions for income generated.

There are numerous funds available targeting universities that are entrepreneurial. In South Africa there are a number of funding agencies. Research has been done for funding entrepreneurial activities. Funding is available for higher education institutions and medium enterprises as illustrated in the Table 7, attached hereto as Annexure "F" which lists the government incentives and a brief description of what these funds entails. The incentives provide support for SME's and HEI's. More awareness should be made regarding these funds at higher education institutions (Adnett and Tlupova, 2008).

- Recognition to stakeholders

RU practices recognition to stakeholders in the form of various acknowledgements such as: a name of a building or laboratory and a simple thank you (A1). Other forms include but are not limited to: mentioning stakeholders in news (H8), advertising relationships through strong alumni (G7).

- Stimulating and supporting entrepreneurial mind-sets

The findings depicted that the stimulating of entrepreneurial mind-sets generally come from the individuals themselves. A few departments which are discipline specific (B2) were highlighted at RU that are more innovative and supportive of entrepreneurial mind-sets (T20). On the other hand, there exists individual or isolated Departmental efforts (F6). The university supports innovation, allows space and provides seed funding (I9). Henry, Hill and Leitch, (2005) highlighted that the uncertainty rests on

whether or not we can teach people to be entrepreneurs, however there is minimal consistency. It seems only a few parts of entrepreneurship can be taught. Klofsten, Fayolle, Guerrero, Mian and Urbano, (2019) assured that Entrepreneurship education is valuable for individuals, organisations and societies.

5.3.8 The entrepreneurial approach at strategic level, when strengthening internal capabilities and during teaching and learning

The findings illustrate that the entrepreneurial approach at RU is dependent on the nature of the discipline which means that this is only applied to certain fields of study (G7) as the approach is not across faculties (K11). There are a few departments which encourage innovation which includes: life-long learning, thinking critically and out of the box. The importance of the triple bottom line (social, economic and environmental impact) with reference to sustainability was identified (I9). This will assist students when they enter the workplaces, teach them to think, create solutions and problem solve. There are efforts made to incorporate the sustainability goals into teaching. At the forefront, diversity is strongly encouraged (I9) together with innovativeness and social consciousness (K11). These can be constantly promoted without an explicitly entrepreneurial approach (L12).

5.3.9 Support for entrepreneurial behaviour

There appears to be a lack of awareness and support for entrepreneurial behaviour as it stems from individuals and is difficult to enforce (H8). The university structure is not open to change as people have been here for a long time and this is how they have been doing it (I9) and some academic staff haven't changed their teaching habits for decades (H8). Academics are concerned when it comes to entrepreneurial universities, as students need that foundation and that fundamental background (A1). This country needs more practical people that can build our economy. There is pressure as most of our students don't have the training to be entrepreneurs (A1) however, the younger people are willing and wanting to engage in this entrepreneurial space to create jobs (G7). A co-model would be better, it doesn't have to be either or. It can be in different phases. In the essence of teaching, the staff member can start it and the student can take over from there. However, funds should support staff to

pursue entrepreneurial activities and should be allocated for entrepreneurship development by government partners (EDHE, 2020).

5.3.10 Validation of entrepreneurship learning outcomes

The capstone courses are becoming a major discussion and there are conversations about making students employable and determining what the job sector requires (A1) for 4IR as alluded to by Naude (2017). However, it is going to happen at the individual level only. There is a lot of short courses offered at the business school (I9) but academic outcomes seem to be the ones that are focused on (H8). The university validates critical thinking and innovation (E5).

5.3.11 Contributions made by stakeholders

Jameson and O'Donnell, (2015) illuminates that the entrepreneurial university provides a clear setting whereby the internal resources and capacities can be associated to the external environment. Collaboration is important for any university (C3), together with working with government organisations (M13) and all universities with stakeholders should complement each other to create powerful relationships (K11). The EDHE, (2020) works towards forming partnerships with foundations and partners. Bikse, Lusena-Ezera, Rivza and Volkova, (2016) highlighted, it is essential to boost efforts to guide youthful entrepreneurs with developing collaborations and links and fostering knowledge together with outside stakeholders.

5.3.12 Integration of results into entrepreneurship teaching and learning

RU is a strongly, knowledge-based economy, which finds itself in a very unstable environment and size as it doesn't have a large cash flow or buffer and is reactional (A1). Good leadership is required to secure funds to develop entrepreneurship. The Department of Trade and Industry and Department of Labour should look into this as they are best placed to facilitate this. This needs to be adopted with added incentives. RU needs to work on the improvement of articulating research results with regards to what and how it has been done (C3), however it is easier to do in some disciplines that others (H8).

5.4 CONCLUSIONS

The proposed conceptual model in Figure 4 can be revised to a final model for RU by strengthening and the development of internal capabilities. The implications of the proposed conceptual model voice the need for the development of the internal resources towards pockets of entrepreneurship and innovative activities. This is indicated and discussed further in the following chapter.

RU places great emphasis on research outputs and teaching students to be academics. It is still very much a traditional university. It may have the potential to transition over time into an entrepreneurial university by changing / adapting its focus, culture and curricula. The future holds unprecedented challenges and opportunities. It is however, foreseeable that robust discussions need to take place surrounding the transformation of higher education.

CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents conclusions of the study which investigated internal resources and capabilities of RU from a resource-based view perspective by using the academic's points of view.

To elaborate on this, the researcher first expounds on the research objectives and the proposition linked to each objective. This chapter provides concluding comments then, provides recommendations for the institution and various role players. Lastly, opportunities for further research is highlighted.

6.2 CONCLUSION

As per Figure 7 below which has been adjusted from Figure 4 to include development of the internal resources which leads to pockets of entrepreneurship and innovative activities. Thus, representing the current position of RU towards strengthening its internal capabilities.

Figure 7: Strengthening and Development of Internal Capabilities towards pockets of entrepreneurship and innovative activities (Final Model)
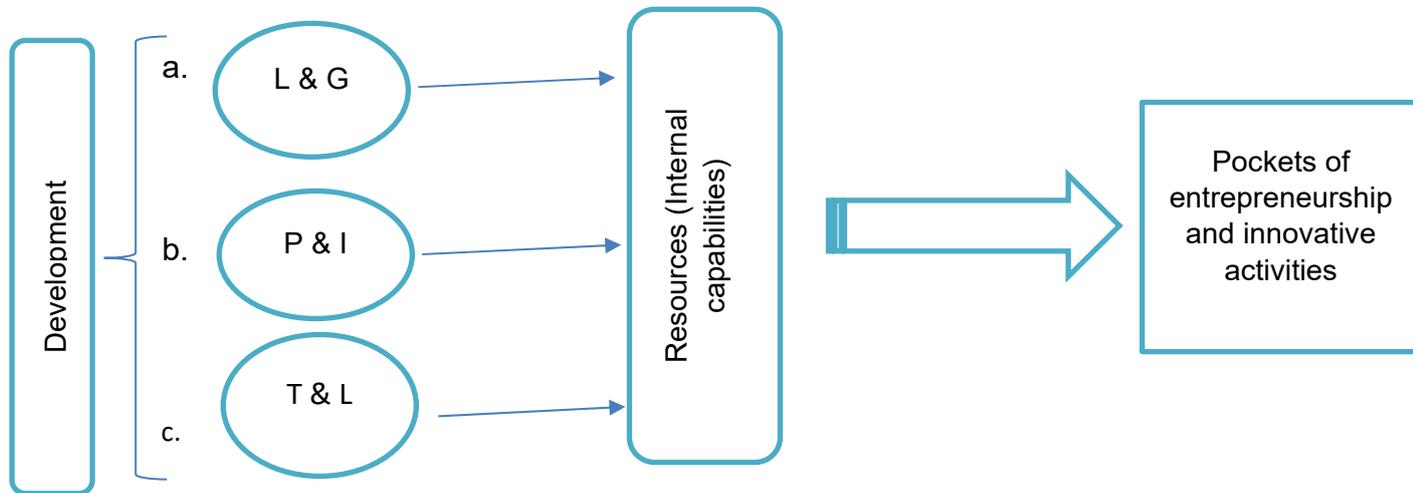
L & G= Leadership & Governance

P & I = People & Incentives

T & L =Teaching and Learning

The study aimed to map the transition from a traditional university to an entrepreneurial university. There is a large amount of activity taking place in South Africa in the entrepreneurial space. However, the research indicates that there is poor communication, support and direction. There is great room available for improvement at the university. A comprehensible and well-articulated framework / policy should be established at the university to help guide and support all staff and students. It is imperative to provide a transparent and supportive environment which aids in culminating and nurturing entrepreneurial behaviour and activities. There does not appear to be a policy that can be developed to fit into all universities as all universities have different levels of freedom with entrepreneurial activities. It can also be a challenge to ensure that the activities are moulded and cemented into the vision and mission.

The study envisioned providing constructive feedback to the key objectives stated below to achieve the goals of the research.

Proposition a = Leadership and Governance:

Entrepreneurial focussed strategic leaders (including those at governance and leadership levels) tend to enhance institutional entrepreneurial capabilities that strengthen an entrepreneurial institution. On exploring elements of leadership and governance that enhance transformation of Higher Education Institution from a traditional to an entrepreneurial, the following conclusions have been made:

- RU is challenged by transformation and cultural changes.
- It is clear that there are no entrepreneurial goals set out in the RUIDP and it appears that a top down approach would need to be implemented in order for the entrepreneurial spirit to grow and flourish.
- There is no strategic intent document and / or policy providing a clear framework to help manage entrepreneurial activities.

Proposition b = People and Incentives:

Having good leaders with the right mindset and skills (internal capabilities) to drive the entrepreneurial spirit throughout the organisation by motivating entrepreneurial activities with incentives, enhances entrepreneurship. On investigating internal resources that enhance Organisational Capacity with specific reference to people and incentives, the following can be highlighted:

- It is evident that there are no rewards and incentives offered for entrepreneurial behaviour and neither are there any entrepreneurial champions recruited to drive the entrepreneurial spirit. However, there are pockets of entrepreneurial activities done at individual, faculty or departmental level.
- There is no reward system to incentivise the entrepreneurial behaviour.
- RU is faced with financial burdens.
- There is no strategic intent that specifically considers recruiting talented entrepreneurial individuals.

Proposition c = Teaching and Learning:

Embedding entrepreneurship into all curricula to strengthen entrepreneurship development in education. On determining how Teaching and Learning strengthen entrepreneurship development, the following deductions can be made:

- The current RU methods of teaching and learning are slightly outdated and academics are set in their ways of the same teaching style from decades ago.
- Entrepreneurial activities are not incorporated in all curricula across all disciplines.
- Entrepreneurial students are subdued.

6.3 LIMITATIONS

The selection strategy had unintended consequences such as limiting the participation of two faculties who did not make it to the Top 30. Thirty people were sampled however, only 65% responded. A few more academics would have liked to contribute to this study if their schedules allowed, as they indicated they were very busy. This is attributed to a lack of availability of time of academics. It is also possible that COVID-19 could have played a part in this as online teaching and preparation ensued. The COVID-19 pandemic resulted in the level 5 lockdown which came at the same time the research was being conducted. Rhodes University shut down completely and everyone worked remotely. Lockdown was an unexpected, the researcher assumes that staff did not have the opportunity to take home laptops, printers and scanners to complete questionnaires at the time as the lockdown was unplanned for.

6.4 RECOMMENDATIONS

The following recommendations are made for RU to consider:

On strategy:
- Coherent and revised vision and mission incorporating entrepreneurial aspects and goals. This will help implement a dynamic and synergistic presence that

acknowledges, supports and strengthens the already existing pockets of entrepreneurial activities.

- Embark on awareness campaigns on an entrepreneurial university, as this would assist with enhancing not only knowledge on this subject but the value that this could bring for the institution.

- Consult all relevant stakeholders including external stakeholders such as the community to help drive the entrepreneurial agenda. The engagement of all stakeholders in driving this agenda has a direct impact that benefits all.

On organisational capacity, people and incentives:

- Opportunity to commercialise patents. This will create a third-stream income for the university and help boost revenue streams.

- Work on offering incentives to encourage entrepreneurial activities. Incentives do not only help motivate and inspire innovators, but also recognises the value of academics as co-creators at higher education institutions.

- Nurture, grow and look after the entrepreneurs. This is vital to enable a thriving entrepreneurial ecosystem that is caring and considerate to the future needs of students as potential employer's post-university. This prepares students for the world of work and employment.

- Connect students and academics with business partners in industry at an early stage so that once the student graduates a door has already been opened for job opportunities.

- Recruit entrepreneurial champions to drive the entrepreneurial spirit throughout the university across all fields and management. These champions will help keep the university inspired, motivated and full of ambition.

On teaching and learning:

- Provide ongoing support for entrepreneurial activities for entrepreneurial academics, students, units and facilities. It is important to create a conducive environment with the necessary resources in order for these individuals to flourish.

- Revisit the curricula to incorporate entrepreneurial activities and programmes across all disciplines. This should be in line with a revised mission and vision

to ensure all disciplines are pursuing the same goal. The researcher acknowledges that this can only be achieved only if and where strategy speaks to the entrepreneurial goals.

On leadership and governance:

- Develop a transparent and coherent entrepreneurial policy to help guide, boost and manage entrepreneurial activity. EDHE to support RU in the development of this policy. All relevant stakeholders should be involved and consulted in the drawing up of this document. A policy is very relevant in order to lead the university in the entrepreneurial direction and to take the university to a higher level / to the next step for a brighter future. A policy would also contribute to the university aligning itself with international benchmarks.
- Incorporate entrepreneurial goals in the IDP. This will ensure that the university and its community are working towards common entrepreneurial goals not only for its reputation but also for institutional thriving, entrepreneurial output, agendas and activities.

6.5 RECOMMENDATIONS FOR FURTHER RESEARCH

The study recommends that further research on a similar topic be undertaken whereby all seven lenses of the framework are utilised and a policy developed. The researcher submitted a mini-thesis however, there is room for the four remaining lenses to be investigated, which include: Pathways for Entrepreneurs; University – Business/external Relationships for Knowledge Exchange; The Entrepreneurial University as an International Institution and Measuring the Impact of the Entrepreneurial University.

6.6 A CONCLUDING SUMMARY OF THE RESEARCH

The research explored whether there were internal challenges at RU which prevented the institution from transitioning from a traditional university towards an entrepreneurial university. The internal capabilities of RU were focused on, from a resource-based view perspective by utilising the academics' point of views.

Chapter one unpacked the scope of this research and set the context for the study. An overview of RU was provided by discussing the problem statements that made it essential for this study to explore the internal capabilities that constrained the transition of the institution. This chapter highlighted the realities of a traditional university in contrast to the benefits of an entrepreneurial university.

Chapter two showed how the three strategic lenses that have been discussed, are three elements for strategic decisions at high level.

Chapter three illustrated the research methodology and explained why the research methods were selected.

In Chapter four, findings were organised and categorised. Suggestions of resource hinderances that prevented the institution's transition were highlighted, by the academic's perceptions.

A discussion in Chapter five on the findings deliberated what the theory suggested.

Lastly, this Chapter pointed out recommendations to address how the challenges regarding the internal capabilities could be resolved.

6.7 CONCLUDING REMARKS

There is a great deal of work to be done at RU. It is not clear as to whether there is an understanding around what an entrepreneurial university is and entails and perhaps this creates the resistance to change due to the lack of understanding of the concept. The study has contributed insights to the already current body of knowledge regarding the entrepreneurial university. The study enhanced the understanding of the management of the institution on the concept of an entrepreneurial university so that they can apply it in policy formulation that will see the implementation of entrepreneurial activities in the institution.

How to grow, foster and maintain an entrepreneurial university is perhaps the starting point for RU. RU could be the first and smallest urban university in a rural area to pioneer this vision.

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Annexure A: Permission letter to conduct research

RHODES UNIVERSITY

Where leaders learn

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25 November 2019

Ms Tharusha Naidoo
Rhodes Business School
RHODES UNIVERSITY

Dear Ms Naidoo

REQUEST TO CONDUCT RESEARCH WITH RHODES UNIVERSITY STAFF AND/OR STUDENTS

This letter is to confirm that your request to conduct research on "Mapping the transition from a traditional university into an entrepreneurial university." topic has been approved by the Ethics Committee. In my capacity as Acting HR Director, I do not have any objection should you wish to follow a coordinated approach by surveying and/or interviewing staff.

Yours sincerely

Mrs S Robertson
Acting HR Director

Annexure B: Ethics confirmation letter
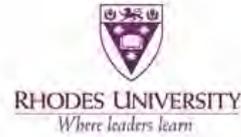
Human Ethics subcommittee
Rhodes University Ethical Standards Committee
PO Box 94, Grahamstown, 6140, South Africa
t: +27 (0) 46 603 8055
f: +27 (0) 46 603 8822
g: ethics-committee@ru.ac.za

www.ru.ac.za/research/research/ethics
NHREC Registration no. REC-241114-045

28 November 2019

Tharusha Naidoo

Review Reference: 2019-1078-2127

Email: g18n9011@campus.ru.ac.za

Dear Tharusha Naidoo

Re: Mapping the transition from a traditional university into an entrepreneurial university.

Principal Investigator: Dr. Tshidi Mohapeloa

Collaborators: Ms. Tharusha Naidoo

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Ethical Standards Committee (RUESC) – Human Ethics (HE) sub-committee.

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloging number allocated. Sincerely

Prof Joanna Dames

Chair: Human Ethics sub-committee, RUESC- HE

Annexure C: Interview request letter

RHODES UNIVERSITY
Where leaders learn
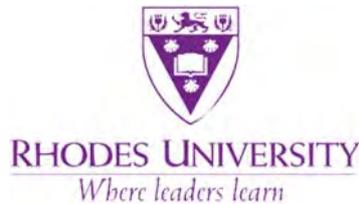
Manager: Contracts - Research Office
Tel: 046 603 7635 * T.Naidoo@ru.ac.za* Room 204, Main Admin Building, Drostdy Road, Grahamstown, 6139

Date: 29 January 2020

Dear …

RE: REQUEST FOR AN INTERVIEW PERTAINING TO RESEARCH THESIS ENTITLED: "MAPPING THE TRANSITION FROM A TRADITIONAL UNIVERSITY INTO AN ENTREPRENEURIAL UNIVERSITY."

I trust you are well and refer to the above matter.

The purpose and importance of the research project is:

- o To explore elements of leadership and governance that enhance transformation of HEI from a traditional to an entrepreneurial.
- o To investigate internal resources that enhance Organisational Capacity with specific reference to people and incentives.
- o To determine how Teaching and Learning strengthen entrepreneurship development.

I would like to arrange a date and time for an interview with your kind self.

Please can you confirm your availability for one of the following proposed suitable dates:

- _____ 2020 at _____am.
- _____ 2020 at _____am.
- _____ 2020 at _____pm.

Your input in the interview will be highly valuable to the institution and will assist the university with its transformation. I would further like to extend my appreciation for your kind consideration and participation herein.

Kindly contact me should you have any further queries.

Thank you once again for your time and efforts herein.

Warm regards,

T NAIDOO

_____

Tharusha Naidoo

Annexure D: Interview schedule and questionnaire
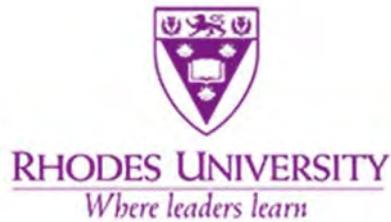
RESEARCHER: THARUSHA NAIDOO
DEPARTMENT: RHODES BUSINESS SCHOOL – MBA
TITLE: "MAPPING THE TRANSITION FROM A TRADITIONAL
                                  UNIVERSITY INTO   AN
                                  ENTREPRENEURIAL UNIVERSITY"

_____

1. **ENTREPRENEURSHIP**

    1.1 What do you understand by entrepreneurship?

    1.2 How would you interpret and define an entrepreneurial university?

    1.3 How would you interpret and define a traditional university?

    1.4   Would you agree that Rhodes University is an entrepreneurial university or working towards transitioning towards an entrepreneurial university?

2. **LEADERSHIP AND GOVERNANCE**

This section of the Guiding Framework explores those factors which relate to the leadership and governance of a university. In order to develop an entrepreneurial culture in an institution, strong leadership and good governance are crucial.

    2.1 Would you agree that entrepreneurship plays a major part of the university strategy?

    2.2 Is there commitment at a high level to implementing the entrepreneurial strategy?

    2.3 Does the university have a model for coordinating and integrating entrepreneurial activities at all levels across the university?

    2.4 Do the faculties and units have autonomy to act?

    2.5 Is the university a driving force for entrepreneurship development in the wider, regional, social and community environment?

3. **ORGANISATIONAL CAPACITY, PEOPLE AND INCENTIVES**

This section highlights some of the key areas a university may look at if it wishes to minimise the organisational constraints to fulfilling its entrepreneurial agenda. This includes the financial strategy, attracting and retaining the right people and incentivising entrepreneurial behaviour in individuals.

    3.1 Are the university's entrepreneurial objectives supported by a wide variety of funding sources / investment, including investment by external stakeholders?

    3.2 Does the university have a sustainable financial strategy in place to support entrepreneurial development?

3.3 Are there mechanisms in place for breaking down traditional boundaries and fostering new relationships by bringing internal stakeholders together (staff and students) and building synergies between them?

3.4 Would you agree that the university is open to recruiting and engaging with individuals who have entrepreneurial attitudes, behaviours and experience?

3.5 Does the university invest in staff development to support its entrepreneurial agenda?

3.6 Are there clear incentives and rewards for staff who actively support the university's entrepreneurial agenda?

3.7 Does the university give recognition to other stakeholders who contribute to the university's entrepreneurial agenda?

4. ENTREPRENEURSHIP DEVELOPMENT IN TEACHING AND LEARNING

This section of the framework highlights a number of areas in which entrepreneurial development can take place, reflecting the need for the organisational structure to support entrepreneurial development and to provide the right tools to deliver education and training opportunities both internally and via the external environment.

4.1 Is the university structure in such a way that it stimulates and supports the development of entrepreneurial mind-sets and skills?

4.2 Do staff take an entrepreneurial approach to teaching in all departments, promoting diversity and innovation in teaching and learning?

4.3 Is entrepreneurial behaviour supported throughout the university experience; from creating awareness and stimulating ideas through to development and implementation?

4.4 Does the university validate entrepreneurship learning outcomes?

4.5 Would you agree that collaborating with external stakeholders is a key component of teaching and learning development in an Entrepreneurial University?

4.6 Are research results integrated into entrepreneurship education and training?

Annexure E: Participant consent form
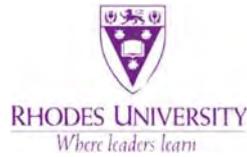
PARTICIPANT INFORMED CONSENT

INFORMED CONSENT DECLARATION
(Participant)

Project Title: MAPPING THE TRANSITION FROM A TRADITIONAL UNIVERSITY INTO AN
ENTREPRENEURIAL UNIVERSITY.

_____ from the _____. Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1.　　The purpose of the research project is to:

　　　　o　To explore elements of leadership and governance that enhance transformation of HEI from a traditional to an entrepreneurial.

　　　　o　To investigate internal resources that enhance Organisational Capacity with specific reference to people and incentives.

　　　　o　To determine how Teaching and Learning strengthen entrepreneurship development.

2.　　The Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.

3.　　By participating in this research project I will be contributing towards the MBA RESEARCH STUDY.

4.　　I will participate in the project by ANSWERING SPECIFIC QUESTIONS PERTAINING TO THE RESEARCH TO THE BEST OF MY KNOWLEDGE AS AN EMPLOYEE OF THIS HIGHER EDUCATION INSTITUTION.

5.　　My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.

6.　　I will not be compensated for participating in the research.

7.　　There may be risks associated with my participation in the project. I am aware that

　　　　a.　the following risks are associated with my participation: A POSSIBILITY OF A CONFLICT OF INTEREST MAY EXIST AS I AM AN EMPLOYEE OF THE INSTITUTION.

b. the following steps have been taken to prevent the risks: THERE IS A CONFIDENTIALITY CLAUSE STIPULATED TO PROTECT MY RIGHTS AND NO NAMES AND ROLES WILL BE DISCLOSED IN THE RESEARCH, EMPHASIS WILL BE PLACED ON THE CONTENT. THE DATA COLLECTED WILL BE TRIANGULATED WITH THE DOCUMENT REVIEW.

c. there is a 0% chance of the risk materializing.

8. The researcher intends publishing the research results in the form of MBA THESIS, POSSIBILITY OF AN ARTICLE AND CONFERENCE PAPER However, confidentiality and anonymity of records will be maintained and that my name and identity will not be revealed to anyone who has not been involved in the conduct of the research.

9. I will receive feedback in the form of A COLLOQUIUM / PRESENTATION / SHARING SESSION regarding the results obtained during the study.

10. Any further questions that I might have concerning the research or my participation will be answered by THARUSHA NAIDOO – 046 603 7635 / 083 256 0890.

11. By signing this informed consent declaration I am not waiving any legal claims, rights or remedies.

12. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

13. No pictures and video recordings will be taken in the interviews for this research.

14. The parties agree to hold each other's confidential information in the strictest of confidence and not to make use thereof other than for the performance of the obligations in terms of this research. Any information pertaining to the performance of services in terms of this research shall be regarded as confidential.

14.1 The prohibition from disclosing confidential information shall not apply where a
disclosure is made:-
14.1.1   under the compulsion of law;
14.1.2   in compliance with a legal duty to the public to disclose such information;
14.1.3   to further the necessary and legitimate interests of the party making such disclosure, provided prior to such disclosure the other party is so advised in writing;
14.1.4   or with the prior written consent of the other party in respect of whom such disclosure is made, which consent shall not be unreasonably withheld.
14.2   Parties agree to comply with the provisions of the Protection of Personal
Information Act No.4 of 2013 (POPIA) and all DATA laws.
14.3   This clause shall survive termination of this agreement for any reason for a period of five (5) years.

I, ………………………………………………………………………….. have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

…………………………………   …………………………   …………………………
Participants signature   **Witness**   **Date**

Annexure F: Funding available for SME's and universities

Table 7: Funding available for SME's and universities, to incentivise entrepreneurial activity

Government Incentive	Description	Funding for HEI's
SA Funding for SME's/SARIMA	This department is involved in encouraging entrepreneurial and innovative activities at universities.	√
Department of Trade and Industry Subsidiary agencies: SEDA Technology Programme Agro-Processing Support Scheme Support Program for Industrial Innovation Aquaculture Development and Enhancement Program	This department is involved in promoting economic development, commercial low, black empowerment, consumer protection and international trade. Responsible for quality support services for small businesses, business incubation, involved with financial and non-financial technology transfer. This scheme is a R1-billion cost-sharing grant fund with a main aim in mind which is to improve funds for new and current agro-processing projects. This program promotes development of technology in South Africa by giving financial assistance for innovative products and processes. A cost – sharing incentive programme for aquaculture activities.	√
Export Marketing and Investment Assistance Scheme	Develops export markets for South African products and services and to recruit new foreign direct investment into the country.	
The Sector Specific Assistance Scheme	A reimbursable cost-sharing grant that will pay for 80% of the costs incurred by (non-profit) export councils, joint action groups and industry associations to provide support to companies to grow the export market for South African goods.	
Research and Development Tax Incentive	Available to businesses of all sizes and in all sectors of the economy, for research focused on science and technology as applied to any industry sector.	√
Black Industrialist Scheme	This incentive programme aims to fast-track the participation of black industrialists in the South African economy.	

Green Fund	The R500-million fund was launched by the national finance institution, the Industrial Development Cooperation (IDC), in 2011, with the aim of improving South African SMEs energy efficiency and the country's green economic development.	√
Tourism Transformation Fund	The Tourism Transformation Fund helps black-owned enterprises to benefit from South Africa's growing tourism sector.	
Growth Fund	The Growth Fund is a grant fund specifically for growing South African small businesses who need a cash injection to scale up further and create jobs.	
Technology Innovation Agency	This grant funding is only available to individuals who are working with a higher education institution or science councils and are now looking to commercialise their research.	√
National Youth Development Agency	Provides grant finance in the form of micro-finance grants for survivalist youth entrepreneurship and co-operative grants for greater participation of youth in the co-operative sector.	√
Industrial Development Co-operation	A national development finance institution set up to promote economic growth and industrial development. They offer loan amounts of a minimum of R1-million with a maximum of R1-billion per project allowed.	√
Technology Venture Capital Fund.	Provides equity or debt funding to emerging technology-focused businesses to enable the conversion of technology-rich South African intellectual property into a market-ready product, and ultimately its commercialisation.	√
Automotive and Transport Equipment	Fund provides a minimum of R1-million (in the form of equity) to the manufacturer or the assembler of automotive and transport equipment to build global competitiveness.	
IDC's Strategic Business Unit	Clothing and textiles offers support to a variety of businesses across the sector, ranging from creators of home decor to leather goods producers, to manufacturers of natural or synthetic fabrics.	
Chemical Products and Pharmaceuticals Fund	Provides finance to stimulate the growth of the manufacturing sector (for chemical, plastics and pharmaceutical products).	
Machinery and Equipment	Aims to improve the competitiveness of downstream manufacturing of machinery and capital equipment where it can be shown that the products have the potential to expand to new markets, as well as create new jobs.	
Youth Pipeline Development Programme	IDC Special Scheme business support and grant funding programme that assists potential applicants to improve the readiness of their proposal, and	

	thereby increase their probability for IDC consideration.	√
Small Enterprise Finance Agency	A joint venture and a consolidation of various funds including the Apex finance fund, KHULA and a contribution fund coming directly from the Industrial Development Corporation (IDC). The maximum loan amount is R5-million.	
National Empowerment Fund	Aimed at accelerating the provision of funding to businesses owned by black women.	
iMbewu Fund	Supports black entrepreneurs wishing to start new businesses as well as supporting existing black-owned enterprises with expansion capital.	
umNotho Fund	Designed to improve access to BEE capital.	
Rural and Community Development Fund	Supports growth and development in rural economies by financing sustainable businesses.	
Strategic Projects Fund	Informed by government strategies and aims to support the government economic growth strategy.	

[Source: A Guide to Government Funding for SME's (2019)]