

Entrepreneurial University: Assessing the Concept in Zimbabwean State Universities Harare, Zimbabwe

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Abstract: The world over universities are taking a new trajectory, evolving from their tripartite mission of teaching and learning, research and community service to be at the forefront of innovation and entrepreneurship. This evolution forces integration of social and economic development into the university curriculum and propels the transformation from a conventional university to an entrepreneurial one. The aim of study was to assess how far state universities have become entrepreneurial and innovative. The data was collected in 2022 with an entrepreneurial self-assessment survey that was based on the HEInnovate framework, an entrepreneurial university evaluation tool that provides a guiding framework of key pillars of individual and organisational capacities required of a university to be entrepreneurial. Out of the 13 state universities in the country, responses were obtained from 11 institutions. The analysis concentrated on the assessments of the eight dimensions of entrepreneurial and innovative capacities. The top three dimensions are digital transformation and capability (mean of 3.73), university business/external relationships for knowledge (mean of 3.64), and leadership and governance (mean of 3.55) while the bottom three are measuring the impact of their entrepreneurial efforts (mean of 3.36), organizational capacity, people and incentives (mean of 3.14) and entrepreneurial development in teaching and learning (mean of 2.97). The researchers strongly recommend Zimbabwean state universities to work very hard to rectify the negative dimensions before one can say they have become entrepreneurial and innovative.

Keywords: entrepreneurial university, innovation HEInnovate framework, Education 5.0, entrepreneurship education, self-assessment.

I. INTRODUCTION

1.1 Background

The world over universities are taking a new trajectory, evolving from their tripartite mission of teaching and learning, research and community service to be at the forefront of innovation and entrepreneurship. This has been necessitated by increases in populations which have made the public pressurize universities to provide access to higher education as well by pressure from governments asking universities to contribute to the social and economic development of their nations (Alghamdi, 2020; Liu, van der Sijde, 2021).

Zimbabwe's state universities have not been left out of this transformation. Previously, the higher education system in

Zimbabwe was rated as Higher and Tertiary Education 3.0 (HTE 3.0); teaching, research and community service. The newly adopted model HTE5.0 (also dubbed Education 5.0) focuses on five pillars which are research, teaching, community service, innovation and industrialization (Ministry of Higher and Tertiary Education, Science and Technology Development, 2018). The new model calls on the nation's higher and tertiary education sector to not only: (1) teach, (2) research and (3) serve the community but to also (4) innovate and (5) industrialise Zimbabwe. Under Education 5.0, Zimbabwe's state universities must move into outcomes-focused national development activities towards a competitive, modern and industrialized Zimbabwe (Min of Higher and Tertiary Education, <http://www.mhtestd.gov.zw/>). Zimbabwean universities have come to the realization that entrepreneurship is the engine for economic growth (Masunda, Chanakira and Makombe, 2022), and are being compelled to contribute to the country's social and economic development based on science and technology (Feola, Parente and Cucino, 2020). Higher Education Institutions (HEIs) are being called upon to focus on problem-solving for value-creation.

According to Muzira and Bondai (2020) the ED 5.0 curriculum shifts from preparing students for white collar and blue collar jobs, to provide the society with a graduate who must become not only a job-seeker but a job-creator (García-Aracil et al, 2013; Schulte, 2004); and not only to concentrate on publications but to be the sources of **innovations** in the economy and society. In essence, the university has to be recognized as a main player in terms of competitiveness, economic growth, and wealth creation (Feola, Parente and Cucino, 2021).

The integration of social and economic development propels the transformation from a conventional university to an entrepreneurial one. Zimbabwean universities have to transform and become entrepreneurial to address the new challenges of commercialization of their research results, and the spinning out of new enterprises based on the knowledge they would have created (industrialization) (Fernández-Nogueira, Arruti, Markuerkiaga and Sáenz, 2018).

The Entrepreneurial university concept is something that Europe and the USA have adopted for more than a decade ago. Their Massachusetts Institute of Technology and the Stanford

University (USA), Imperial College in London (UK) and IE Madrid (Spain) have proved that entrepreneurial universities can indeed push the economic development agendas for their nations (Alghamdi, 2020). As a developing nation Zimbabwe can take advantage of the already developed frameworks by these leading institutions in innovation and use these in transforming her universities. Since state universities in Zimbabwe are aspiring to be entrepreneurial the researchers thought they could take a leaf from the knowledge, models and practices at other established entrepreneurial universities. The researchers then resorted to use OECD/EC HEInnovate framework to assess the Zimbabwe state universities' entrepreneurship flare.

1.2 Research Objectives

This paper seeks to explore the entrepreneurial transformation process of state universities in Zimbabwe. Hence the objectives of the research are to:

- Assess the current situation with regards to entrepreneurship in Zimbabwean state universities;
- Determine the state universities' entrepreneurial strengths and weaknesses considering their local environment; and
- Identify potential areas of action towards their being entrepreneurial, thus addressing the strengths and weaknesses.

1.3 Significance of The Study

Taking the HEInnovate framework, this research can assist leaders of Zimbabwean state universities with peer-learning and best practices, on transforming to become entrepreneurial. It can also provide the country's policy makers with tested policy solutions and the government with information on the state of innovation and entrepreneurship in the country's state universities.

II. LITERATURE REVIEW

2.1 Entrepreneurial University

Sultan (2017); Pugh, Mudde, Widhiani and Fauzi, (2017), Lamine, Jack and Hamilton (2018) argue that there is no universal definition of an entrepreneurial university because there are too many variables to be considered such as diversity in cultures, divergent socio- economic contexts, and different levels of national development, contrasting resources among other things. However, a number of other authors came up with definitions of an entrepreneurial university.

According to Fernández-Nogueira, Arruti, Markuerkiaga and Saenza, (2018); Salun, Lutskyi, Lutskyi, Zvarych, Zaslavska, Tsukan (2020) an entrepreneurial university is a new type of

organizational structure of educational institutions which specializes in the production of new knowledge and its capitalization; and allows to train the competitive professionals with creative entrepreneurial thinking.

For others an entrepreneurial university is one which goes beyond the teaching and research missions and considers the socioeconomic development issues for its society (Salarnzadehl, Salarnzadeh and Daraei, 2011). Other authors further explain how an entrepreneurial university participates in economic development for example involvement in partnerships, networks and business activities with public and private firms and governments to find collaboration and interactions with the aim of linking education, research and activities with technological, social and economic development (Guerrero and Urbano, 2012; Bezanilla, García-Olalla, Paños-Castro, and Arruti, 2020). This definition considers the interaction between the university and its environment which tends to follow entrepreneurial patterns (García-Aracil, Castro-Martínez, Jiménez-Sáez, Arroyo-Vázquez, 2013).

In other words, an entrepreneurial university can mean three things: (i) the university itself, as an organization, becomes entrepreneurial; (ii) the members of the university – academic and non-academic staff, students –becoming entrepreneurs; (iii) the interaction of the university with the environment, the structural connection between university and region, follows entrepreneurial patterns (Arroyo, Castro, García and Jiménez, 2013).

2.2 Entrepreneurial University Framework

Higher education institutions (HEIs) are expected to play a critical role in stimulating entrepreneurship in their communities through offering entrepreneurship education, facilities and advice for graduates starting businesses, and incentives for academics for spin-off enterprises and innovation collaborations with off-campus businesses. Governments are expected to assist (HEIs) in their endeavours. The European Union and the OECD developed a framework that universities can use to assess themselves as they progress along the entrepreneurship journey. The framework is called the HEInnovate framework.

The HEInnovate framework has been used in the EU and many other parts of the world such as: South America- Peru (Rivera, 2021), Brazil (Marques, Braga, Ferreira, and Rodrigues, 2018): in Africa (Ethiopia),Mudde, van Dijk, Gerba, and Chekole, (2019), South Africa (Iwara and Kilonzo, 2022), in Saudi Arabia (Alghamdi, 2020) by HEIs and governments wishing to measure their innovative and entrepreneurial stance. The HEInnovate framework is operationalized in eight categories of statements that are considered to be characteristic for an entrepreneurial university: (See Fig 1)

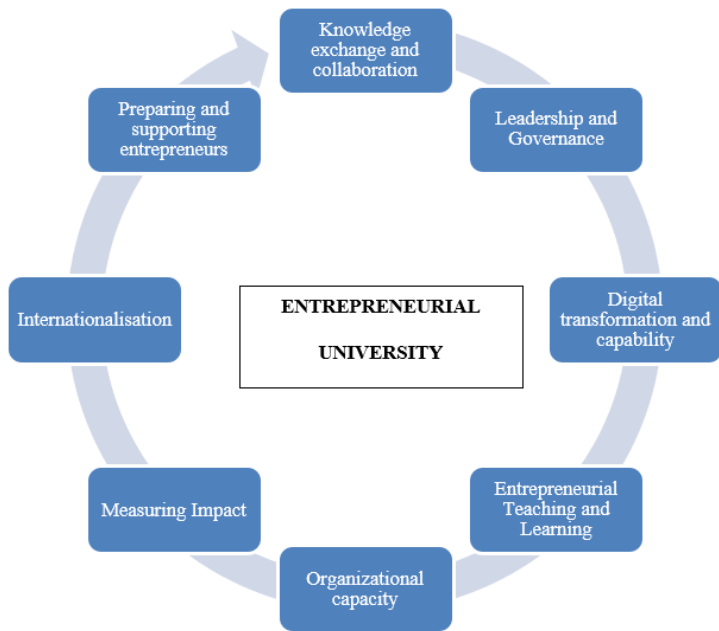


Figure 1 The eight characteristics of an entrepreneurial university (Researchers' own adaptation of the HEInnovate framework)

In this current research, the HEInnovate framework is used to review achievements and identify areas for improvement by Zimbabwe's state universities in their endeavor to become entrepreneurial. The paper assesses strategies and practices for entrepreneurship and innovation in currently used in Zimbabwe's state universities and the systemic support provided by government.

2.3 Characteristics Of an Entrepreneurial University According To The Heinnovate Framework

2.3.1 Leadership and Governance

The strategy of a university or higher education institution (HEI) should reflect its Entrepreneurial aspirations and agenda. The Leadership and governance category addresses issues such as the institutional mission, vision, and strategy and the role of top-management. There should be a managerial ethos in governance, leadership and planning (Bezanilla et al 2020). A positive and responsive leadership is critical to stimulate innovation in an organization. The leaders should create and share the innovation vision and culture (Fernandez- Nouireg et al 2018). However, McGregor, (2015) warns that paying lip service to the terms "innovation and entrepreneurship" does not make an institution entrepreneurial. Hence entrepreneurship has to exist in the executive board room flowing to the school, department and unit levels.

2.3.2 Knowledge exchange and collaboration

Knowledge exchange (KE) is a process which brings together academic staff, users of research and wider groups and communities to increase the impact of research. The process involves sharing of ideas, data, experience and expertise for the mutual benefit of all parties involved (Fernández-Nogueira et al, 2018). In other words, KE presupposes that research is more

than just publication of papers to satisfy individual curiosity, rather it should focus on industrial use, social and economic need satisfaction (García-Aracil et al , 2013; Fernández-Nogueira, 2018). In essence KE results in links in which the business sector profits socially and economically from university research, while the university benefits from the knowledge acquired by its closeness to the entrepreneurial environment (Etzkowitz, 2003; 2008; 2011; 2012; & 2013). It emphasises a two-way exchange of learning and helps the use of knowledge to benefit society and the economy at large. This implies a move away from the traditional narrow focus on 'knowledge transfer' to a network-based approach of knowledge exchange. Business, society and the university share knowledge and students get the opportunity to learn in an experiential way in the knowledge exchange process. Therefore, knowledge exchange is a key catalyst for innovation in universities, for the advancement of teaching and research as well as for local development.

However, KE may face some challenges. For example, stakeholders rarely approach universities, so universities have to identify their own opportunities for collaboration; communicate these and engage the stakeholders (OECD-LIBRARY, 2019). According to <https://www.cam.ac.uk/research/21/09/2021> there are three factors that underpin successful knowledge exchange. The first one is that it is not a zero- cost activity; it requires money, time and effort. Secondly there is need for contact; people need to meet (planned or accidentally) to exchange ideas and spot new opportunities. In other words, innovation and creativity can only be achieved when universities break down their tradition of disciplinary silos (McGregor, 2015). Third, there is need for practical, timely and active support at an institutional level encouraging a culture of open access and open innovation.

2.3.3 Organisational capacity; funding, people and Incentives

This involves money and people, which are needed for fulfilling the entrepreneurial mission and strategy. Becoming an entrepreneurial university largely depends on individuals, innovative ways of doing things, and a supportive organisational culture (OECD Library, 2019). Entrepreneurial universities should therefore continuously focus on developing their organizational capacity. The assessment on organisational capacity focuses on the level to which entrepreneurial staff is incentivized (Mudde, Widhiani and Fauzi, 2017). Organisation capacity development can only be achieved through incentives and rewards for entrepreneurship champions, staff, students and stakeholders (McGregor, 2015). In this case entrepreneurship goes beyond enterprise development to include all those qualities that are expected in an entrepreneur such as consistent behaviour, the ability to recover from failures, persistence, not taking no for an answer, passion, among other things, (McGregor, 2015). University staff need these entrepreneurial qualities if their institutions are going to be entrepreneurial; and such behaviours have to be rewarded and incentivized.

Also, it is not enough for a university to have an entrepreneurial strategy. The university has to be committed to carrying out innovative and entrepreneurial activities and it has to fund and invest in these areas accordingly and consistently (<https://www.oecd-ilibrary.org/sites/>). For the institution to fully engage in the entrepreneurial process, every department must accept and engage in the process. García-Aracil et al (2013) describe an entrepreneurial university as one that looks for additional sources of funds for research, teaching, technology transfer, and commercialization.

2.3.4 Entrepreneurial Teaching and learning

Entrepreneurship education is vital for it increases the entrepreneurial intentions of students (Yoon and Lee, 2013). Entrepreneurship education is essentially about helping students to develop an entrepreneurial mindset and related skills (Fernandez- Nouigera, et al 2018). An entrepreneurial mindset has been described as one that has problem-solving capacity, team-working experiences, creativity, and capacity to handle complexity (OECD, 2019). These are the characteristics which entrepreneurial universities are expected to develop in their students.

It is noted that entrepreneurial teaching and learning can be delivered informally to university students but this is difficult to evaluate and certify. In contrast, formal entrepreneurship education comes with credits and certificates, which can serve as an incentive for students because they give the students the possibility to capitalize on their knowledge when joining the labour market.

2.3.5 Preparing and supporting entrepreneurs

Universities can offer business incubator services (shared office services, business assistance, access to capital, business networks, etc.), but university incubators will offer some extras (university-related services,) such as faculty consultants, student employees, library services, and access to R&D facilities (Feola, Parente and Cucino, 2020).

Other ways in which universities can offer support to startups is through mentoring (by experienced entrepreneurs or university staff), assistance with patents and intellectual property, assistance with business plan or startup competitions, assistance with business plan preparations, referral to business support organisations, provide access to research results, assistance with internationalisation, assistance with infrastructure (incubators, core working space and laboratories); facilitate contact and networks with investors (banks, venture capital and business angels) (Feola, Parente and Cucino, 2020).

Other ways of supporting startups in universities is by enabling staff to own shares, work part-time, take sabbaticals and the possibility for students to extend the duration of their study programmes to support starting a new venture while working or studying. Equally important is to celebrate and recognise successes of student, graduate and staff that became entrepreneurs.

Entrepreneurial universities offer Training to assist students, graduates and staff in starting, running and growing a business. The training should impart relevant knowledge and skills about a wide range of topics, for example, financing, legal and regulatory issues. Other authors also add that emotional preparation is as important as the technical aspect (OECD/EU, 2019) s and advocate for the development of soft skills such as dealing with people and building relationships, managing innovation processes, coping with success, stress and risk, and how to restructure or exit. Universities can also offer financial education to potential entrepreneurs with the aim of providing potential entrepreneurs with the capacity to understand different financial schemes, and with the capacity to use effectively (OECD/EU, 2019).

2.3.6 Internationalisation

Internationalisation is fast becoming a key aspect of any university's entrepreneurship strategy, especially considering the trending issues of Globalisation and the Knowledge economy (Tazabek, 2016). Internationalisation is the planned process of integrating an international, intercultural or global dimension into the purpose, function, and delivery of higher education in a bid to improve the quality of education and research for students and staff to contribute to the society meaningfully (Tazabek, 2016). An entrepreneurial university has to link its faculty to international research networks so as to engage with the global knowledge production system (Kurakbayev and Sagintayeva, 2016). Internationalisation is about the global innovation chain. It includes international mobility of students and staff, attracting international and entrepreneurial staff, demonstrating internationalisation in teaching and participating in international networks and it could also be a revenue generating source.

The benefits of internationalisation by a university include reinforcing institutional competitiveness and contributing to innovation (Tazabek, 2016). Other advantages of International connections include introduction of alternative ways of thinking, questioning of traditional teaching and research methods, opening up of governance and management to international stakeholders, offering opportunities to knowledge exchange and collaborations with relevant partners (business, academia, public agencies) abroad (McGregor, 2015). It also opens up new avenues for research collaboration. Above all, internationalisation of curriculum produces students with knowledge, skills and attitudes to work in the global platform (OECD-ILIBRARY , 2019)).

However, internationalisation may not be very easy to implement as institutions will have to be more sensitive to cultural differences and the ways of teaching, learning and research.

2.3.7 Digital transformation and capability

Digital transformation can be measured in terms of an institution's ability to provide appropriate IT infrastructure (network connectivity, computing devices in labs or loan systems, equipped classrooms); application of digital

technology to teaching and learning processes (innovative curriculum design and delivery especially new models of delivery, new pedagogies, open educational resources, artificial intelligence and robotics, 3D platforms, repositories and virtual simulations) (OECD/European Union, 2019).

The need for digital transformation has been exacerbated by the global outbreak of the COVID 19 pandemic which has greatly reduced in-person interactions. Digital technologies provide collaboration and organisational platforms to integrate processes and people (workflow systems, educational networks, learning management systems integrated with academic administration systems and virtual communities. Digital transformation also opens up opportunities such as a greater pool of speakers and project evaluators from across the globe. It also allows for electronic meetings via various online platforms. In fact the thinking is that digital transformation underpins, catalyses and sustains the development of an innovative and entrepreneurial University (OECD/EU, 2019).

With regards to digital transformation, a university can focus on three issues; making better use of digital technology for teaching and learning, developing the relevant digital skills and competences, improving education systems through better data analysis and foresight (OECD/EU, 2019).

Projects include the digitisation of administration and central services; digitisation of research; and digitisation of education, offer online courses as well as delivering hybrid courses that combine personal presence and online methods.

2.3.8 Measuring the impact

This is about what the institution has put in place for measuring the results of its entrepreneurial strategy and activities. There are many different types of impact a university seek ranging from local to global. Such impacts affect internal stakeholders (students/ graduates, faculty and non- faculty staff members) as well as external stakeholders (local businesses, organisations and communities at large). Commonly used impact measurements include university spinoffs, IP, research publications, graduate entrepreneurship, local economic development and the impact of the broader entrepreneurial strategy (OECD/EU, 2019).

It is important to note that these factors (Characteristics of entrepreneurial universities) are interlinked, for example having a robust digital presence enhances a university's visibility and its outreach further enabling the university's abilities and options for building partnerships. In essence the characteristics of an entrepreneurial university can be summarized in three aspects where (i) the university itself, as an organization, becomes entrepreneurial; (ii) the members of the university – academic and non-academic staff, students – are turning themselves somehow into entrepreneurs; (iii) the interaction of the university with the environment, the structural coupling between university and region, follows entrepreneurial patterns (García-Aracil, et al, 2013).

Hence the framework has been selected as a useful tool to measure the progress of state universities towards being innovative and entrepreneurial.

III. METHODOLOGY

3.1 Research Philosophy

Saunders, Lewis and Thornhill (2019) state that research philosophy refers to a system of beliefs and assumptions about the development of knowledge. This study used positivism as its guiding philosophy. According to positivists knowledge is based on careful observation and measurement of objective reality that exists 'out there' in the world. Thus developing numeric measure of observation and studying the behavior of individuals becomes paramount for positivists (Saunders et al, 2019). As a result, the study used an online questionnaire that elicited only quantitative data.

3.2 Sampling

Data was collected through a survey that was administered using Google forms. The survey targeted deans, directors, professors and senior managers as key employees involved in managing state universities and therefore better placed to provide information on the degree to which institution has moved towards being innovative and entrepreneurial. That being the target population, a sample size of 130 was considered reasonable to yield useful results. A total of 110 respondents from 11 of the 13 state universities in the country were obtained, and we failed to get responses from 2 state universities. The survey used the OECD/EU HEInnovate (2018) framework for assessing the entrepreneurial competitiveness. The questions included rating scale questions, 5point Likert scale questions where respondents had to choose between 'Strongly Disagree to Strongly agree. The respondents were expected to provide responses that reflect their knowledge and experiences about how Entrepreneurial their universities are. The respondents were basically asked to assess their universities against statements, which according to the framework are factors likely to be characteristic of the Entrepreneurial University.

IV. DATA ANALYSIS AND INTERPRETATION

4.1 Objective 1: Assess the Current Situation with Regards To Entrepreneurship At Zimbabwe State Universities

4.1.1 Assessment of the eight dimensions of entrepreneurial and innovative capacities of universities

The eight dimensions of entrepreneurial and innovative capacities of universities were measured on Likert scale of 1 to 5 with totally disagree mean ranging from 1 to 1.8, disagree mean ranging from 1.9 to 2.6, neutral mean ranging from 2.7 to 3.4, agree mean ranging from 3.5 to 4.2 and totally agree mean ranging from 4.3 to 5.0.

Analysis for each dimension

4.1.2 Leadership and governance

Table 1: Leadership and governance

Item Code	Item Description	Mean score	Mean response	SD
B1	Innovation and Entrepreneurship is in Vision and Mission Statement	3.81	Agree	1.20
B2	Innovation and Entrepreneurship office exists	3.36	Neutral	1.37
B3	School of innovation and entrepreneurship exists	3.73	Agree	1.36
B4	Performance indicators associated with entrepreneurship	3.55	Agree	1.08
B5	Faculties and departments have autonomy to act	3.18	Neutral	1.20
B6	Entrepreneurship driving force in region	3.64	Agree	1.16
	Overall	3.55	Agree	1.23

The words innovation and entrepreneurship appear in my organisation’s vision and mission

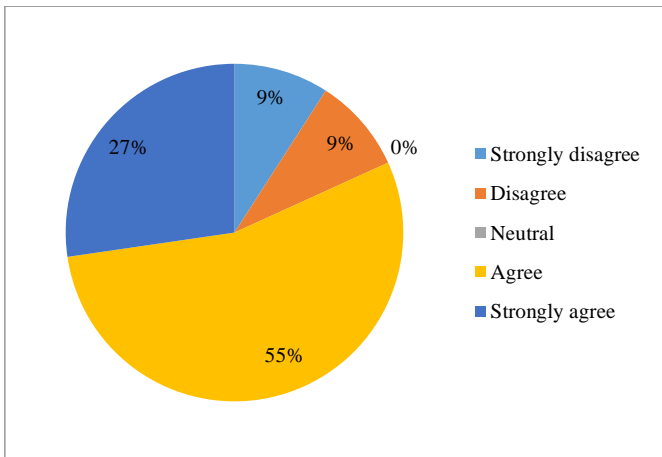


Fig 1: Vision and mission responses

From table 1 and fig 1 above, it is noted that innovation and entrepreneurship is included in the mission statement from managerial questionnaire responses. From managerial responses on leadership and governance, the majority agreed that innovation and entrepreneurship is in their mission statements, with a mean of 3.81. The second most agreed is that the school of innovation and entrepreneurship exists in the institutions with a mean of 3.73. The least popular (with a mean of 3.18) is that faculties and departments have autonomy to act and this might indicate that managers might not be sure that autonomy to act is available to departments and faculties but it is available to them. This least mean reduced the overall mean score to 3.55 on leadership and governance. The mean score of innovation and entrepreneurship offices existing in a university is small as one expects that all managers know whether an office exists or not. This might indicate that innovation and entrepreneurship is not fully implemented by managers in universities. B2; B4 and B5 contributed lower mean scores on leadership and governance yet they are key indicators that innovation and entrepreneurship exist in universities from a

practical perspective. This might indicate that there is a possibility that resources may not be availed to departments and faculties to implement innovations and entrepreneurial activities. Also 82% of the university leaders confirmed that the words appeared in their mission and vision.

4.1.3 Organisational capacity, people and incentives

Table 3: Organisational capacity, people and incentives

Item Code	Item Description	Mean score	Mean response	SD
C3	Budget support entrepreneurial objectives	3.18	Neutral	1.12
C4	Internal building synergies	3.18	Neutral	1.12
C6	Engages entrepreneurial guest lecturers and alumina	3.36	Neutral	1.07
C7	Invests in staff development to support entrepreneurial agenda	3.00	Neutral	1.05
C8	Entrepreneurial incentives and reward to staff	3.00	Neutral	1.05
C9	Gives status and recognition to stakeholders who contribute to entrepreneurial agenda	3.09	Neutral	1.25
	Overall	3.14	Neutral	1.11

On organisational capacity, people and incentives the mean scores are all in the neutral ranging from 3.00 to 3.36. This might indicate that the responses are between disagreement and agreement, indicating that there is symmetrical spread of responses. These responses led to the overall mean score of 3.14 which is neutral. This reveals that some universities are focusing on organisational capacity, people and incentives while others are not. This means that there is limited practical implementation of entrepreneurship in state universities. This agrees with the overview that managers are not fully implementing entrepreneurship in universities. Furthermore, 45% (50 out of 110 respondents) indicated that their universities’ entrepreneurial objectives are supported by state funding while another 45% indicated that entrepreneurial objectives were supported through reinvestment from entrepreneurial activities (self- funding) only 10 respondents (10%) indicated that funding for their entrepreneurial activities came from or through services in kind such as sharing space and facilities.

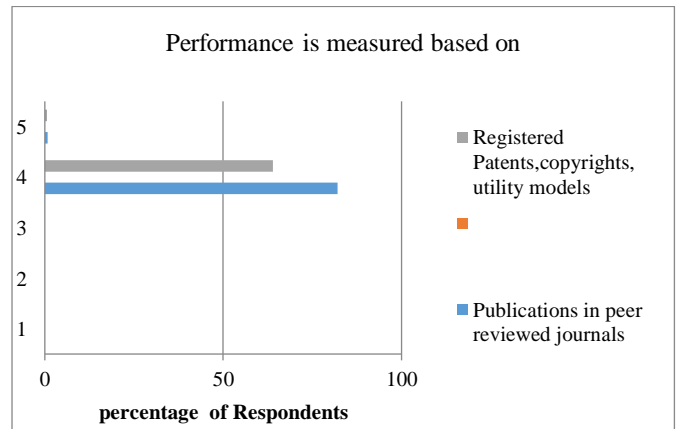


Fig 2: Performance measurement criteria in Zimbabwe’s state euniversities entrepreneurial activities

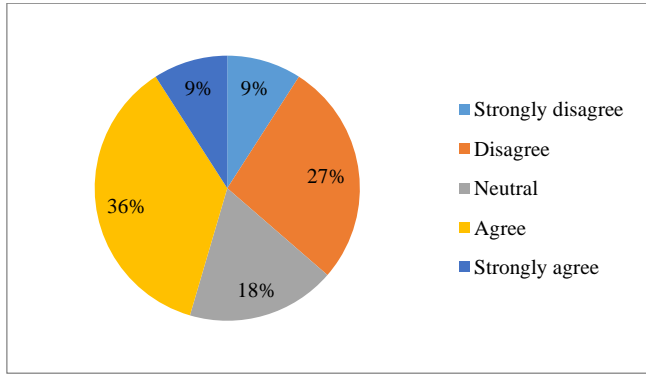


Fig 3: The university has a long term budget to support

The results (Fig 2) indicate that in Zimbabwe’s state universities members’ performance is generally measured based on publication in peer-reviewed journals (82%); and about two thirds (63%) indicated that performance in their university is measured on registered patents, copyrights, utility models.

In Fi 3 The majority of the state university leaders (54% = strongly disagree 9%, disagree 27%, 18% neutral) could not confirm the availability of a long-term budget to support entrepreneurial activities at their universities.

4.1.4 Entrepreneurship development in teaching and learning

Entrepreneurial development in teaching and learning gave us an overall mean score of 2.97. This indicates that entrepreneurship development in teaching and learning is limited in state universities or managers are not sure what is happening in departments and faculties. Looking at whether entrepreneurship structures stimulate and support the development of entrepreneurial mind-set and skills, some managers agree that a structure only (such as an entrepreneurship office or including entrepreneurship and innovation in mission statement) will help drive innovation and entrepreneurship in a university. Reality says more should be done to drive innovation and entrepreneurship. From D2 and D5 it would appear that university managers are not sure whether or not staff take an entrepreneurial approach to teaching and training the staff.

Table 4: Entrepreneurship development in teaching and learning

Item Code	Item Description	Mean score	Mean response	SD
D1	Entrepreneurial structures stimulates and supports the development of entrepreneurial mind-set and skills	3.27	Neutral	1.14
D2	Staff take an entrepreneurial approach to teaching	2.73	Neutral	1.14
D5	Research results are integrated into entrepreneurship education and training	2.91	Neutral	1.09
	Overall	2.97	Neutral	1.12

What percentage of students at your university is engaged in entrepreneurship education?

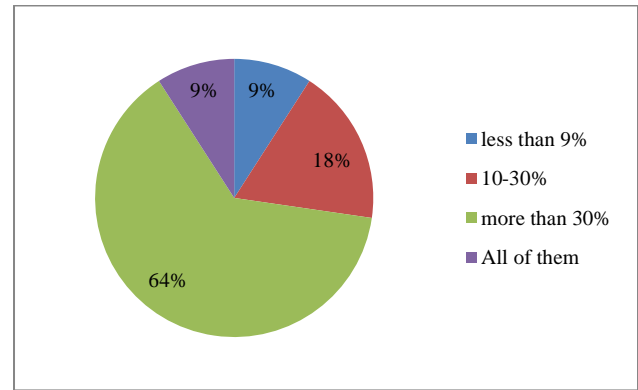


Fig 4: Students engaged in entrepreneurship education

Seventy-two percent (64% all students, plus 18% more than 30%) of the leaders from the 11 surveyed state universities indicated that more than 30% of students at their university were involved in Entrepreneurship education (see fig 4 above). This is a good percentage (30%) for involvement in entrepreneurship education.

4.1.5 Pathways for entrepreneurs/ preparing and supporting entrepreneurs

Table 5: Pathways for entrepreneurs

Item Code	Item Description	Mean score	Mean response	SD
E1	University raises awareness of value/importance of developing entrepreneurial abilities amongst staff and students	3.82	Agree	0.94
E2	University actively encourages individuals to become entrepreneurs	3.64	Agree	1.30
E3	University provide opportunities to experience entrepreneurship	3.27	Neutral	.97
E4	Mentoring by academic and industry personnel is available	3.36	Neutral	1.16
E5	University provides access to business incubation facilities	3.45	Neutral	1.16
	Overall	3.51	Agree	1.11

The overall mean is 3.51 meaning that managers agree that universities offer pathways for entrepreneurs/preparing and supporting entrepreneurs but the mean score could have been high as E1 and E2 have high scores of 3.6 and above. On managerial responses on providing opportunities to experience entrepreneurship, mentoring by academic and industrial personnel and availability of incubation facilities we recorded low mean score and all of them gave a neutral response. This could mean that universities are not practically implementing entrepreneurial activities or some universities are practically implementing entrepreneurial activities while others are not.

Please indicate the three most important measures used by your university to support new entrepreneurs

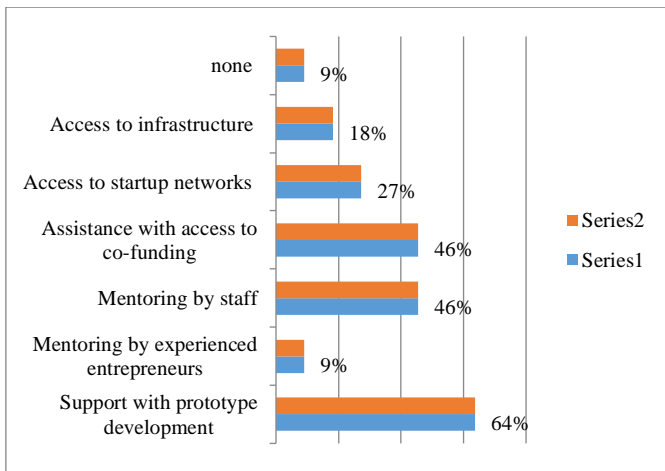


Fig 5: Universities strategies to support new entrepreneurs

There are some public initiatives to support entrepreneurship such as the development of Innovation hubs and incubators at most state universities supporting students, graduates and staff to move from idea generation to business creation (https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021/zw.pdf). Mentoring by experienced entrepreneurs (10%) and access to infrastructure (18%) ranked among the least popular strategies used by Zimbabwe state universities to support entrepreneurs. E7.91% of the surveyed university leaders confirmed that their HEI collaborates with local government bodies in supporting entrepreneurship.

4.1.6 University-business/external relationships for knowledge exchange

Table 6: Knowledge exchange relationships

Item Code	Item Description	Mean score	Mean response	SD
F1	University is committed to collaboration and knowledge exchange with industry society and the government	3.55	Agree	.99
F3	University provides opportunities for staff and students to take part in entrepreneurial activities with business/ the external environment	3.55	Agree	0.89
F5	The university links research education and industry (wider community) activities together to affect the whole knowledge ecosystem	3.73	Agree	.97
F6	Government agencies along with private sector committee significant resources in support of entrepreneurial and innovation agenda	3.73	Agree	.97
	Overall	3.64	Agree	.96

On the response that the universities have effective external relationships for knowledge exchange we had an overall mean score of 3.64. This shows that the majority of the managers agree that on paper (given in mission statements) they have external relationships for knowledge exchange. A few state universities in Zimbabwe have staff dedicated to graduate start up support (18% of the respondents) but a number do have staff

dedicated to knowledge exchange (46%) and to teaching entrepreneurship (82%). Again 82% of the respondents indicated that universities are committed to collaboration and knowledge exchange with industry, society and the government.

The university has strong links with the identified stakeholders

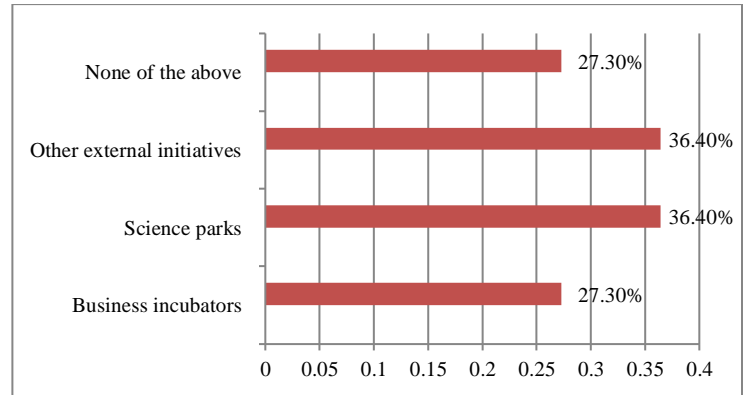


Fig 6: University links with stakeholders

The majority again (total of more than 80%) indicated that their university has strong links with incubators (27%), sciences parks (36%) and other external initiatives (36%) which is an indication of state universities’ commitment towards knowledge exchange and collaboration with external stakeholders (Fig 6). However, about 30% of the surveyed leaders indicated that their university had no strong links with any of the identified stakeholders.

In terms of knowledge exchange, activities very high in the priorities of the surveyed state universities are collaborative research, that is, mutually interesting and beneficial projects (91% of the respondents ranked this as 1 of their 3 most prominently practised); continuous learning and further education programmes (73%); communication of scientific knowledge to the wider public through events and the media (64%).

4.1.7 University as an internationalized institution

Table 7: Internationalisation strategies by universities

Item Code	Item Description	Mean score	Mean response	SD
G1	Internationalisation is a key part of universities entrepreneurial strategy	3.64	Agree	1.07
G2	The university seeks and attracts international and entrepreneurial staff	3.18	Neutral	1.20
G3	The university explicitly supports the international mobility of its staff and students	3.18	Neutral	1.27
G4	The university its departments and faculties actively participate in international networks	3.73	Agree	1.06
	Overall	3.43	Neutral	1.15

The overall mean score of 3.43 (neutral response) on universities as internationalized institutions indicates that managers are not sure or some universities are internationalized

while others are not. On the question of university seeks and attracts international and entrepreneurial staff as well as supporting international mobility of its staff and students the responses are neutral indicating that universities are not attracting international and entrepreneurial staff and are not supporting their staff or students on international activities. The majority (54%) of the leaders seemed to disagree that their university attracts international and entrepreneurial staff (37% neutral, 18% strongly disagree). However, universities support international mobility of their staff and students (54%), and departments and faculties actively participate in international networks (63%). On the overall the university leaders were neutral, (mean score of 3.43) not very enthusiastic about their institutions being internationalised.

4.1.8 Digital transformation and capability

From the surveyed 11 universities Zimbabwe is well developed in terms of digital transformation and capability as indicated by the overall mean score (3.73) and a standard deviation of .99. A whopping seventy-three per cent (73%) of the surveyed university leaders indicated that their university has a dynamic digital presence supporting all its activities (Fig 7). 73% confirmed their HEI’s commitment to digital teaching, learning and assessment practices (fig 8).

Table 8: Digital transformation in state universities

Item Code	Item Description	Mean score	Mean response	SD
H3	University has a dynamic digital presence supporting in all activities	3.55	Agree	0.89
H4	The HEI is committed to digital teaching, learning and assessment practice	3.91	Agree	1.09
	Overall	3.73	Agree	.99

The university has a dynamic digital presence supporting all its activities

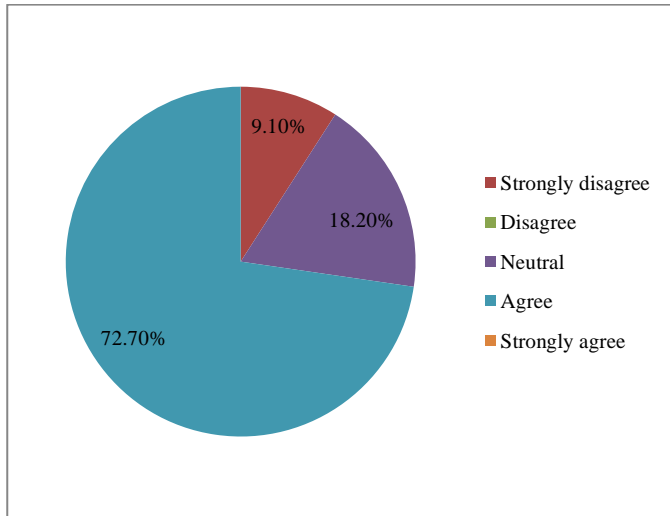


Fig 7: Digital transformation in state universities

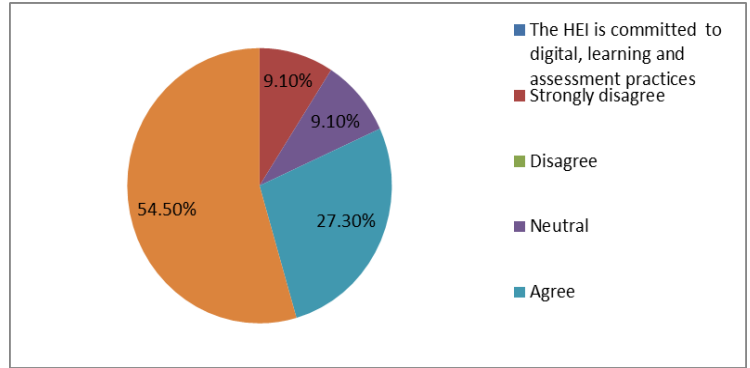


Fig 8: Commitment to digital teaching

4.1.9 Measuring the impact of the entrepreneurial university

Table 9: Measuring the impact of the entrepreneurial university

Item Code	Item Description	Mean score	Mean response	SD
I1	The university assesses the impact of its entrepreneurial strategy and is responsive to change	3.36	Neutral	.89
I2	The university assesses the level of engagement in entrepreneurial teaching across the institution	3.73	Agree	.97
I3	The university regularly assesses the impact of entrepreneurship teaching and learning	3.09	Neutral	1.17
I4	The university carries out regular monitoring and evaluation of the universities knowledge exchange activities	3.27	Neutral	1.14
I5	The university carries out regular monitoring and evaluation of the impact of start up support	3.36	Neutral	1.16
	Overall	3.36	Neutral	1.07

Impact assessment of innovation and entrepreneurship activities in Zimbabwe’s state universities is on the low side as indicated by the non-affirmative total of 45%, that is, 36% (neutral – 3.36) and 9% disagreeing (see Fig 9).

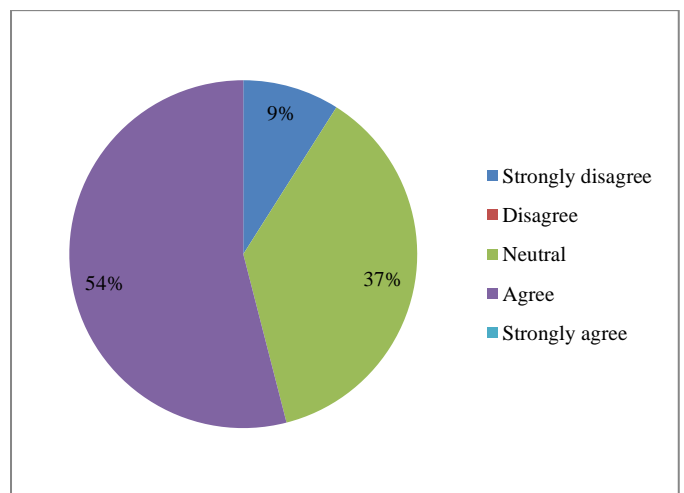


Fig 9: The university assesses the impact of its strategy and the strategy is responsive to change

4.2 Objective 2: To Determine The Country Universities' Strengths, Weaknesses Considering Their Local Environment

4.2.1 Strengths

4.2.1.1 Leadership and governance

Many public HEIs (81% of respondents from the 11 state universities) across the country include the words “innovation” and “entrepreneurship” in their mission statements as depicted by a mean score of 3.81 on the Likert scale responses. This aspect has the highest mean (mean score of 3.8) on the list aspects to do with leadership and governance (See Table 1).

4.2.1.2 Entrepreneurship development in teaching and learning

Entrepreneurial teaching and learning is not necessarily confined to accompanying students starting their own business but rather helping them develop an entrepreneurial mind-set and the related skills also necessary to work creatively as an employee. In Zimbabwe 72% of the university leaders from the 11 surveyed state universities confirmed that 30% or more of their students were involved in entrepreneurship education. This is a good thing as formal involvement in entrepreneurship education allows for evaluation and certification, which gives the students the opportunity to capitalise on their entrepreneurship education when joining the labour market.

4.2.1.3 University-business/external relationships for knowledge exchange

There are several university incubators in the country. These incubators should generate a positive legacy in terms of business creation and support and should become entrepreneurship hubs in their respective ecosystems. Good relations with their “ecosystem” will help Zimbabwe’s state universities integrate research, education and knowledge exchange activities.

4.2.1.4 Digital transformation and capability

Digital transformation and capability is well developed in HEIs. This could be the positive ripple effect of the international COVID 19 regulations, which limited physical social interactions, and resulted in universities resorting to digital teaching and learning for survival that is developing online learning platforms.

4.2.2 Weaknesses

4.2.2.1 Organizational capacity, people and incentives

Leader’s neutral response to existence of incentives is a bad indicator, their lack of enthusiasm could mean a negative affirmation, that there are no incentives but these leaders know it is not right but unfortunately, they are the ones who are supposed to implement it and therefore cannot mark themselves down. Maybe they have nothing to show with respect to incentives towards the entrepreneurship agenda, the leaders were neutral with respect to investment in staff development and incentives and rewards to staff. When leaders are neutral on incentives to staff, it could mean they are not committed to incentives. They may also not be committed to staff

development. If the leaders were committed to both staff incentives and staff development, they should have been committed positively to those goals. The state has funded innovation hubs, more capital needs to be provided to state universities to achieve entrepreneurial objectives. The entrepreneurial concept requires support from the state and industry for it to be successful, there is need for more involvement from the state national funding agencies subnational entities such as regional development agencies, chambers of commerce and industrial associations should spur entrepreneurship in HEIs’ strategies. The 64% of responses who indicated unavailability of long-term budget to support entrepreneurial efforts seriously undermine the positive efforts and milestones that the universities have achieved to date. It could also indicate lack of commitment to capacitate university entrepreneurial activities.

4.2.2.2 Entrepreneurship development in teaching and learning

From the managers surveyed this is the least considered dimension of the entrepreneurial university agenda in Zimbabwe’s state universities with mean score of 2.97.

4.2.2.3 Pathways for entrepreneurs/ preparing and supporting entrepreneurs

Though assistance with finding co-funding has been mentioned the fact is the venture capital industry is still very small in Zimbabwe to an extent that venture capital investors and recipients are presented as missing data (https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021/z_w.pdf) and it can be safe to conclude that the country struggles to link excellent research with funding opportunities. Research and development expenditure is also presented as missing data (https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021/zw.pdf global innovation index 2021 pg8.) Investment for feasibility and market studies, product and prototype development such as proof of concept funding, for initial production or for offering the founders some living income before their first revenues are generated, is generally non-existent (ibid). Nevertheless Zimbabwe produces more innovation outputs despite the indicated levels of innovation investments.

4.2.2.4 University as an internationalized institution

The majority (53%) of the leaders seemed to disagree that their university attracts international and entrepreneurial staff (35% neutral, 18% strongly disagree). This could be explained by the current depressed state of the economy. University leaders were neutral and therefore, not very clear about their institutions being internationalised.

4.2.2.5 Measuring the impact of the entrepreneurial university

Impact assessment of innovation and entrepreneurship activities in Zimbabwe’s state universities is still underdeveloped.

4.3 Objective 3: To Identify Potential Areas Of Action Towards Their Being Entrepreneurial, Thus Addressing The Strengths And Weaknesses

4.3.1 Entrepreneurship development in teaching and learning

In some institutions, International research in entrepreneurship affects teaching and connects with the local environment, generating an “intellectual spill-over” in its ecosystem. The universities need to encourage staff and educators to review the latest research in entrepreneurship education.

4.3.2 Pathways for entrepreneurs/ preparing and supporting entrepreneurs

Universities already have infrastructure which they use for their day to day operations and would be one low hanging fruit that universities could utilise to support Zimbabwe entrepreneurs, there is no need for investment but rather just provision of access to already established facilities such as research facilities, laboratories, incubators, prototyping opportunities etc.

They should also offer a visible and accessible location for entrepreneurs to access an integrated package of coaching, mentoring and training. Incubators and start up accelerators can also be developed in co-operation with local governments, regional development agencies and chambers of commerce.

4.3.3 University-business/external relationships for knowledge exchange

According to the HEInnovate framework Innovative and entrepreneurial HEIs do not operate in isolation but are strongly connected to other stakeholders within their ecosystems. Knowledge exchange is an important catalyst for organisational innovation, the advancement of teaching and research and local development. HEInstitutions need to start experimenting with new formats of producing and sharing knowledge, integrated with their traditional roles of educating students and developing research. Since the university-business relationship concept is still new, many Zimbabwean HEIs are expected to establish policies and methodologies to co-operate with their ecosystems in a structured fashion. HEIs engage with the external environment through a many different activities ranging from informal activities, such as clubs and networking events, to formal initiatives such as internships, collaborative research, industrial PhDs and entrepreneurship projects (Duruflé Hellmann and Wilson, 2018). Industrial PhD's is one way; which Zimbabwe universities are yet to pursue.

4.3.4 University as an internationalized institution

The globalisation concept has increasingly pushed HEIs to compete and operate at the international level. Internationalisation in HEIs is necessary for the purpose of change and improvement through learning from peers from other countries.

4.3.5 Measuring the impact of the entrepreneurial university

Innovative and entrepreneurial HEIs combine institutional (internal) self-assessment, external evaluations and evidence-based approaches. The fact that currently available metrics typically focus on the number of spin-offs, the volume and quality of the intellectual property and of the commercialisation of research results do not help the situation.

There is need for metrics that take into account important factors such as teaching and learning outcomes, employability of graduates and labour market performance, (it may be necessary to do this at national policy level for all HEIs on an annual basis), the contribution to local economic development, graduate entrepreneurship and the impact of the broader entrepreneurial and innovation agenda such as social and cultural dimensions. There should be efforts to generate “narratives” of engagement and to create qualitative indicators assessing, for instance, entrepreneurship teaching.

As in most countries, HEIs are challenged by the complexity and variety of engagement activities, as well as by the lack of quantitative indicators for some of these activities (OECD/European Union (2019)). Accordingly, HEIs tend to focus on quantifiable dimensions such as the number of start-ups generated by incubators and the number of interactions with business.

4.4 Conclusion

The top three dimensions are digital transformation and capability (mean of 3.73), university-business/external relationships for knowledge exchange (mean of 3.64) and leadership and governance (mean of 3.55) while the bottom three are measuring the impact of their entrepreneurial efforts (mean of 3.36), organisational capacity, people and incentives (mean of 3.14) and entrepreneurship development in teaching and learning (mean of 2.97). Zimbabwean state universities have to work very hard to rectify the negative dimensions before one can say they have become entrepreneurial and innovative.

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